Jazz
Handbook

Handbook

Jazz™

Jazz
Handbook

Handbook

Jazz

Lotus®

Preface

The *Jazz Handbook* describes how to use Jazz to perform particular tasks and provides reference information about the program. The *Handbook* is designed for readers who have read the *Jazz Primer* or who are familiar with Jazz or other software programs. If you haven't used Jazz or similar software before, you should read the *Primer* first. The *Primer* provides basic tutorial instruction in all the Jazz applications.

The *Handbook* assumes that you are familiar with the standard Macintosh techniques and terminology presented in *Macintosh*, the owner's guide. Before you use the *Handbook*, you should be familiar with such basic Macintosh techniques as moving the pointer, clicking and dragging, and using menus and dialog boxes.

The *Handbook* contains seven chapters, four appendices, and a glossary of terms. Most chapters present two kinds of information. The first part contains step-by-step procedures for performing tasks with Jazz. The second part describes commands, organized by menu, and includes descriptions of advanced commands that the step-by-step procedures don't describe.

Chapter 1, Standard Tasks, describes tasks and commands that you can use in every Jazz application. Chapters 2 through 6 describe the five Jazz applications: Worksheet (Chapter 2), Graphics (Chapter 3), Word Processing (Chapter 4), Database (Chapter 5), and Communications (Chapter 6). Chapter 7, Functions, contains reference information about the Jazz functions you can use in the Worksheet and Database applications. The appendices provide information about integrating the Jazz applications, managing memory, using Jazz with an international system, and Macintosh character codes. The Glossary provides definitions of common Jazz terms.

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What is Jazz?

Introduction

Jazz™ is five programs in one — Worksheet, Graphics, Word Processing, Database, and Communications. Designed for the Macintosh™ 512K computer, Jazz takes advantage of all of the Macintosh's special characteristics, such as icons, pull-down menus, and dialog boxes. Once you know how to use a Macintosh, it's easy to learn how to use Jazz.

Worksheet

The Worksheet application is an electronic spreadsheet in which you enter and store data, including numbers and text. You can then perform many types of calculations using expressions you create or functions built in to the program. For example, you can calculate monthly expenses and estimate costs with a Jazz worksheet. When you change any of the numbers, Jazz automatically recalculates the worksheet for you.

Graphics

The Graphics application lets you create many different kinds of graphs that visually represent numbers you enter in a worksheet or database. If you change the data a graph is based on, Jazz automatically updates the graph. You can enhance a graph by using titles, labels, and legends that explain parts of the graph.

Word Processing

With Word Processing, you can write, edit, and format letters, memos, reports, and other documents. For example, you can delete unnecessary text, move words and sentences to a different part of a document, and change the margins and spacing of a document.

Database

The Database application lets you organize and manage information, such as employee files. Finding individual facts or groups of facts is easy in a database. It's easy, too, to sort the data in numeric or alphabetical order and produce a report on selected data.

You can work with your database directly, or use a Jazz form. A form is an easy way to enter, edit, or view data in a database, one record at a time. You can customize a form to your needs by adding detailed instructions about what to enter in each database field or by rearranging elements of a form so that it presents the data clearly. A form can show only some of the information in a database if you don't want users to see every field.

Communications

The Communications application lets you use your Macintosh as a terminal to communicate with other computers. You can call information services, public databases, and electronic bulletin boards to get information such as stock quotations. You can also send and receive documents to and from other computers. Connecting to a larger computer system lets you use programs that the larger system supports.

Data integration

Each of the five Jazz applications helps you work with information in a particular way. By integrating these five applications, however, Jazz lets you combine different types of data and use the same data in many different ways. For example, you can make financial projections about sales in a worksheet using information stored in a database. You can then create a graph that shows the projections and include the graph and database information in a word processing document. Jazz automatically updates the graph and the word processing document to reflect any changes you make in the database.

You can also integrate data you receive using Jazz Communications into other Jazz documents. For example, you can receive stock quotations from a time-sharing service into a worksheet, and draw a graph based on the data. You can then include the worksheet and graph in a report you create with Word Processing, and use Communications to send the report to another computer.

What You Need to Use Jazz

To use Jazz, you need a Macintosh computer with 512K of RAM and an external disk drive. An Apple Imagewriter printer and a numeric keypad are recommended. To use Jazz Communications, you need a modem, such as an Apple™ Modem 1200 or a Hayes® Smartmodem™ 1200.

How to Use this Book

The *Jazz Handbook* is designed for readers who are familiar with Jazz or similar software programs, or who have read the *Jazz Primer*. Once you have a basic understanding of Jazz, use the *Handbook* when you need specific information about tasks and commands.

The *Handbook* is organized so that you can read only the sections that contain the information you need. Each chapter is independent of the others: for example, you don't need to read the chapter on word processing to work with a database. In fact, you don't even need to read an entire chapter — just read the parts that describe the task you want to perform or the command you want to use.

Chapter 1 describes tasks and commands you use in every Jazz application. Chapters 2 through 6 describe the five Jazz applications. Each of these chapters contains an overview, how-to sections, and a reference section. Chapter 7 and the appendices also provide reference information. In addition, the Glossary defines most of the terms and concepts used in the Jazz books.

Overview

The overview describes the application and why you use it. It also discusses concepts and terms that apply to the whole application. Unless you are already familiar with the application or the tasks you want to perform, you should read the overview before you read other sections in the chapter.

How-to sections

If you need information about how to perform a specific task, use the how-to sections. The how-to sections contain step-by-step explanations of the most common tasks.

Each section begins with a brief description of the task and why you want to perform it. Numbered steps follow the introduction, with explanations where necessary. Each step is printed in bold. If you don't need the explanatory material, you can perform the task by following the bold steps and ignoring any text that isn't bold. If a step consists of choosing one of several options, the options are listed below the step.

Some sections contain additional information under the heading Keep in mind. This information may include alternate ways to perform the procedure or hints that help you perform the task more easily.

Reference section

The final section in each chapter is the reference section. Use it if you need a definition of an icon or an area of the screen, a description of a specific command, or a brief summary of procedures. The reference section also discusses some advanced commands that the how-to sections do not describe.

Each reference section begins with an illustration of the screen, with the parts of the screen and the icons labeled and defined. Some reference sections also contain tables that summarize common procedures or list reference material not included in the how-to sections.

Each reference section ends with a description of each command you can use in the application. The commands are organized in the order in which they appear on the menus in the application.
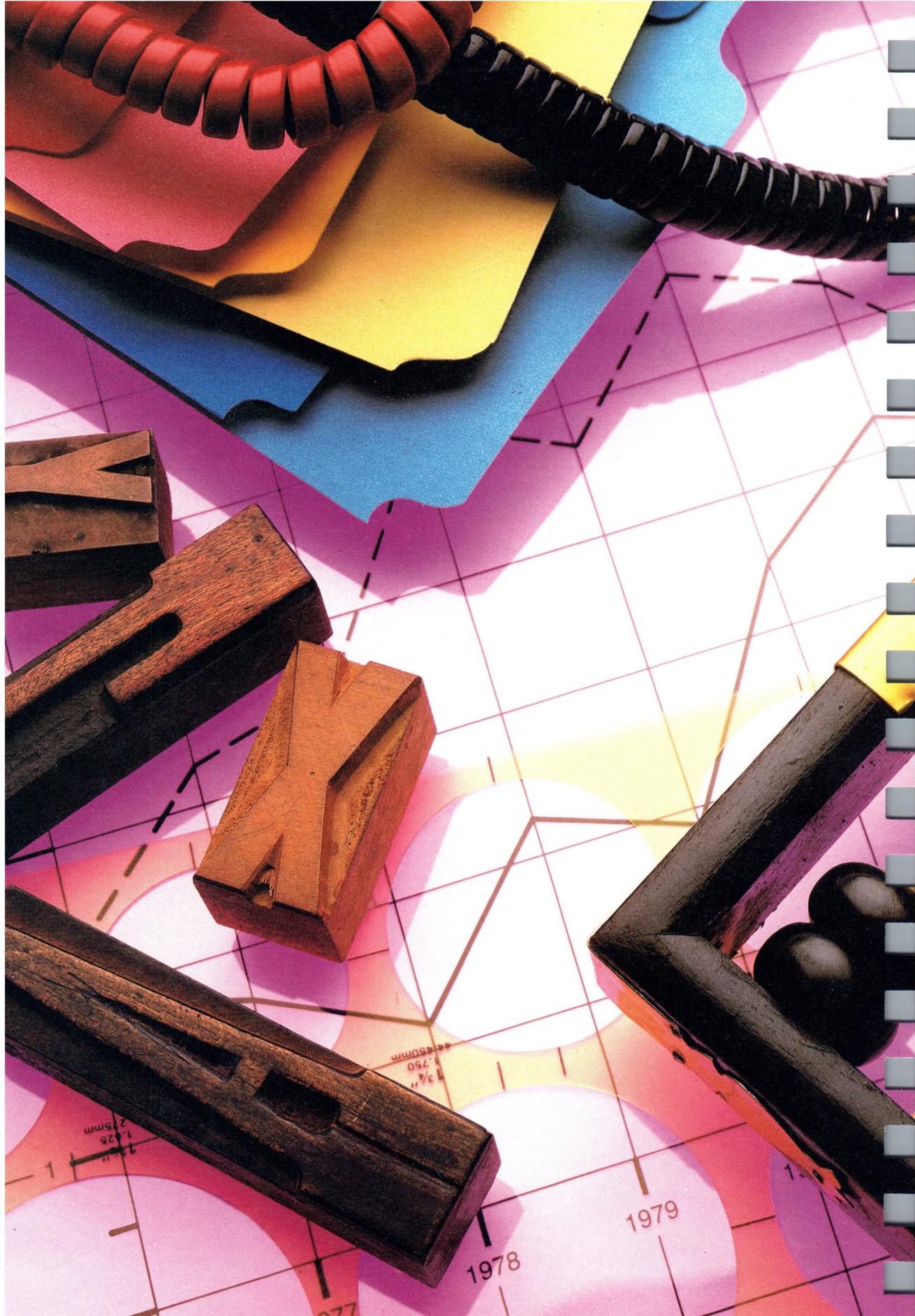
Chapter 1
Standard Tasks

Some commands are common to all the Jazz applications. For example, you can open, save, print, and close documents in all applications. You can also move from document to document. This chapter describes the commands that are standard for all Jazz applications.

How to Start and End a Jazz Session

No matter which application you're using or what task you're performing with Jazz, you have to follow some basic procedures each time you use the program. You must start a Jazz session, open the document you want to work on, save the document after you finish working on it, close the document, and end the Jazz session. If you're working in one document and want to work with another open document, you must make the other document active.

Starting a Session

To begin a session, turn on your Macintosh and start Jazz.

1. **Insert the Jazz Start-Up Disk in the internal drive and the Jazz Program Disk in the external drive.**

2. **Turn on your Macintosh.**
   The Macintosh takes a few seconds to start.

3. **Click the Jazz icon on the Macintosh desktop.**

4. **Choose Open from the File menu.**
   You can also double-click the Jazz icon instead of choosing Open.

   The Jazz copyright screen appears briefly and then the Jazz desktop and menu bar appear.

Keep in mind

Copying the Jazz Start-Up Disk. Make copies of the Jazz Start-Up Disk and use the copies as document storage disks. This lets you start Jazz with any disk on which you store documents. You can give these disks any name you want.

Using international versions of Jazz. If you are using an international version of Jazz, see Appendix C before getting started.

Opening a Document

After you start Jazz, you need to open a document to begin your work session. You can work on a new document or one that you've worked on and saved before. You can have several documents open at one time.

Creating a new document

1. **Choose New... from the File menu.**

2. Click the icon for the type of document you want to open.
Each of the Jazz applications uses a different type of document.

3. Click New.
A blank document and console appear. The menu bar also changes, depending on the application you are using.

To create a new document, you can also double-click the icon for the type of document you want to open.

**Opening an
existing document**

Opening an existing document lets you view or change a document you saved earlier.

1. Choose Open... from the File menu.

Disk name

List of documents


```
Open a Document
                        FY84                    Jazz Start-Up
              Jazz      Sales
                        Worksheet 1
              All Types                     Open        Eject

              Worksheet Graphics                         Drive

                                            Cancel

              Database  Form

              Word      Comm
              Processing
```

2. Click the icon for the type of document you want to open.
Jazz displays the names of all the documents for the application you clicked.

3. Scroll through the list of documents and click a name.
If the document you're looking for is on a different disk, click Eject and insert the correct disk. To see the names of documents on a disk in the other drive, click Drive.

4. Click Open.

Opening a dependent document. When you save a document that depends on data from another document, such as a graph that depends on a worksheet or database, it's a good idea to save both documents on the same disk. If the documents are not on the same disk and you try to open the dependent document, Jazz asks if it should look for the data in another document. If you click OK, you must specify the name of the other document. If you click No, the dependent document opens but is incomplete. For example, Jazz cannot plot inaccessible data on a graph. In addition, remember not to delete or change the name of the document that contains the data on which the other document depends.

Locating the document name. To open an existing document, type the first letter of the document name after you choose Open... from the File menu. Jazz highlights the first document whose name begins with that letter.

Making a Document Active

When you have more than one document open, only one is active. To work with a different document, you must make it the active document. The active document has horizontal lines and a close box in the title bar.

- **Choose the name of a document from the Window menu.** The Window menu contains the names of all open documents. The document you select becomes active.

You can also click anywhere in the document to make it active.

Saving a Document

When you are working with a document, you are really working with a temporary copy of it. To make a permanent record of the document, you must save it on a disk.

If you're working on a document for a long time, it's a good idea to save it often during the work session. That way, you have an up-to-date copy on a disk in case of a power failure or other accident.

When you save a document, you have several options, depending on whether it is a new document or one you saved before. For example, you can save a document under the name that appears in the title bar of the window, or under a different name. You can also save a document on a different disk.

Saving a document for the first time

1. **Choose Save As... from the File menu.**

2. **Type the document name in the space provided.**
   The name can include any character or symbol on the keyboard except a colon.

```
┌─────────────────────────────────────────────────┐
│  Save Document              Jazz Start...        │
│  ┌──────────────────────┐                        │
│  │ Stock Quotes         │      ┌─────────┐       │
│  └──────────────────────┘      │  Eject  │       │
│  ┌─────────┐  ┌──────────┐     ┌─────────┐       │
│  │  Save   │  │  Cancel  │     │  Drive  │       │
│  └─────────┘  └──────────┘     └─────────┘       │
└─────────────────────────────────────────────────┘
```

If you are using the Word Processing application, you can save the entire document or just the text in the document. If you click Entire Document, Jazz saves the document as you created it with all its formatting, text, and pictures. If you click Text Only, Jazz saves the text of the document, but does not save formatting, fonts, point sizes, styles, pictures, page breaks, headers, or footers. Choose the Text Only option, for example, if you want to use the document with another program.

3. **Click Save.**
   If the name you enter already belongs to another document, Jazz asks if you want to replace the other document with the new document. If you click Yes, the contents of the new document replace the contents of the other document. If you click No, you must type a new name. Jazz then saves the document under that name.

   The name you give the document appears in the title bar.

Saving a document again

If you have already saved a document, you can save it again using the same name.

• **Choose Save from the File menu.**
   Jazz replaces the previously saved version with the new version.

Saving a document under a different name

If you make changes in a document and want to save the original version of the document *and* the new version, you must save the new version under a different name.

1. **Choose Save As... from the File menu.**

2. **Type the new document name.**

3. **Click Save.**
   You can also use this procedure to make an exact copy of an existing document.

Saving a document on a different disk

You may want to save a document on a different disk. For example, if the Jazz Start-Up Disk is full, you need to insert another disk before you save a document.

1. **Choose Save As... from the File menu.**

2. **Click Eject to change disks.**

3. **Insert the new disk.**

4. **Type the document name.**
   To save the document under its current name, you don't have to type a name.

5. **Click Save.**

Keep in mind

Saving documents on copies of the Jazz Start-Up Disk. You should save documents on copies of the Jazz Start-Up Disk so that you can begin Jazz with any document storage disk.

Saving a document on a different disk in the other drive. To save a document on a different disk in the other drive, click Drive in the Save As... dialog box and then follow steps 2 through 5 above. If you do this, however, you may have to change disks several times to save the document.

Saving dependent documents. If you have a document that depends on data in another document, such as a graph (which depends on a worksheet or database) or a form (which depends on a database), it's a good idea to save both documents on the same disk. Otherwise, when you try to open the dependent document, Jazz indicates that the data on which it relies is not available and asks where it should look for the data.

Discarding Changes to a Document

The Revert to Saved command cancels any changes you made to a document since you last saved it. If you never saved the document, choosing this command cancels the current document and displays a blank document.

1. **Choose Revert to Saved from the File menu.**
   Jazz asks if you want to revert to the last saved version.

2. **Click OK.**
   This procedure is the same as closing a document without saving it and then opening it again.

Closing a Document

Closing a document removes it from the desktop. If you close a document that you have changed without saving it, Jazz asks if you want to save the document.

1. **Make the document active, if it is not already active.**

2. **Choose Close from the File menu.**
   You can also click the close box in the title bar.

Ending a Session

Ending a session lets you leave Jazz so that you can use other Macintosh programs or turn off your Macintosh. Before ending, be sure to save any documents you want to keep.

• **Choose Quit from the File menu.**
You return to the Macintosh desktop.

Keep in mind

Quitting without saving. If you choose Quit while a document you have changed is open, Jazz asks if you want to save it. If you click No, you will lose the changes you made. You can save the document by clicking Yes.

How to Use Windows

A window is your view of a Jazz document. Each window displays only one document, but several documents can be open at the same time. You can change a window's size, move the window on the desktop, and scroll through a document in a window.

Macintosh, the owner's guide, describes the basic Macintosh techniques for using windows. The following sections describe ways of handling windows that apply only to Jazz documents.

Scrolling a Document

Scrolling displays different parts of a document. You scroll by clicking the scroll arrows or dragging the scroll boxes in the scroll bars, just as you do in any Macintosh document. In Jazz, you can also click the page boxes in the scroll bars to scroll the document one window at a time.

Scroll box
Page box
Scroll arrow
Scroll bar
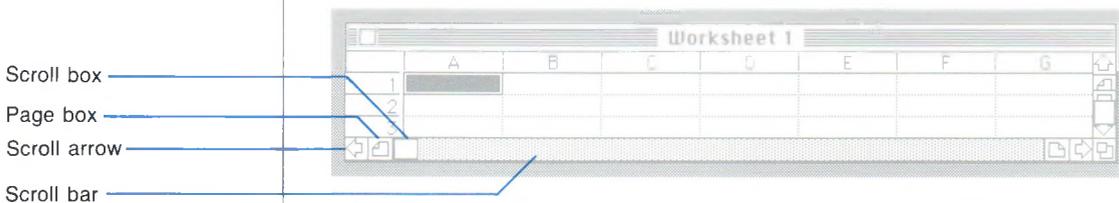
- **Click a page box.**
  Depending on which page box you click, the document scrolls to the right or left or up or down by one window.

  If you press the mouse button instead of clicking it, the document scrolls continuously in the direction of the page box you are using until you release the mouse button.

Changing the Size of a Window

If you have only one document open, enlarging the window lets you see more of the document. If you have several documents open, making each window smaller helps you see other documents that may lie underneath. You change the size of a window by dragging the size box. You can also use Zoom Up to make a window fill the entire screen.

1. **Choose Zoom Up from the Window menu.**
   The window fills the entire screen. Zoom Up changes to Zoom Down on the menu.

2. **Choose Zoom Down from the Window menu.**
   This returns the window to its original size.

How to Choose Fonts, Point Sizes, and Styles

Choosing a font, point size, and style affects the way characters appear in a document.

Changing the Font and Point Size

The font is the typeface in which characters are drawn, and the point size is the size of the characters. Each font looks best in certain point sizes. When you choose a font, the point sizes it looks best in are outlined in the menu. Although the outlined point sizes suit the current font best, each font can appear in any point size.

1. Pull down the Font menu.
The available fonts and point sizes vary according to what is present on your Start-Up Disk. If you have the Macintosh Font Mover utility, you can change fonts to suit your needs. See *Macintosh*, the owner's guide, for information on the Font Mover utility.
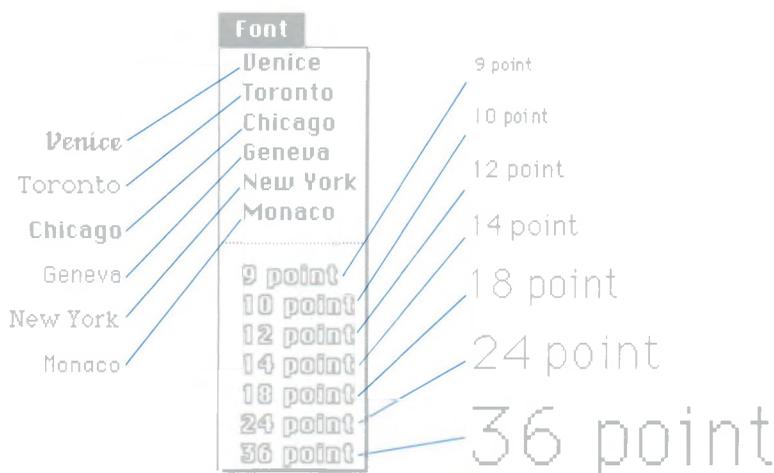
2. Choose a font or point size.
In a worksheet or database, the entire document changes to the new font or point size. In a graph or form, all the characters in the selected box change to the new font or point size. In a graph, if no box is selected, the axis labels and titles change.

In a word processing document, any new text you type appears in the new font or point size. To change characters you typed previously, you must first select the text and then choose the new font or point size.

Point sizes in Communications. Although you can't change the font or style in the Communications application, you can choose between two point sizes.

Changing the Style

You can change the style of text, or how characters appear in a document. For example, you can change plain text to bold or italic.

1. Pull down the Style menu.

```
Style
✓Plain Text
  Bold
  Italic
  Underline
  Outline
  Shadow
```

2. Choose a style.

In a worksheet or database, the entire document changes to the new style. In a graph or form, all the characters in the selected box change to the new style. In a graph, if no box is selected, the axis labels and titles change.

In a word processing document, any new text you type appears in the new style. To change characters you typed previously, you must first select the text and then choose the new style.

Jazz adds the new style to styles you chose previously. For example, if you choose Bold and then choose Italic, the text appears in bold italic. Choosing Plain Text, however, removes all other style options from the text.

How to Print a Document

You can produce a printed copy of any Jazz document or part of a document. Before you print a document, you must make it active. You then specify page and print settings so that the printed copy appears in the format you want.

Setting Up the Page Format

Before you print, you may want to specify the page format, or setup, of your printed copy. For example, you can specify the width of the page margins. Jazz saves these page settings when you save the document. You don't need to set them again unless you want to print the document in a different format. If you want to use the Jazz default page settings, you don't need to choose new settings.

1. **Choose Page Setup... from the File menu.**
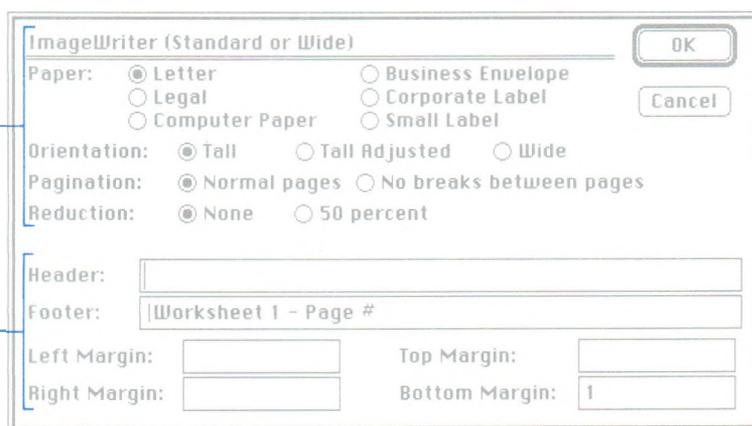
These options appear in all applications.

These options appear in a worksheet or database.

```
ImageWriter (Standard or Wide)                    [   OK   ]

Paper:      ● Letter          ○ Business Envelope
            ○ Legal           ○ Corporate Label    [ Cancel ]
            ○ Computer Paper  ○ Small Label

Orientation:  ● Tall     ○ Tall Adjusted   ○ Wide
Pagination:   ● Normal pages  ○ No breaks between pages
Reduction:    ● None     ○ 50 percent

Header:    [                                              ]
Footer:    [|Worksheet 1 – Page #                          ]
Left Margin:  [          ]      Top Margin:    [          ]
Right Margin: [          ]      Bottom Margin: [ 1        ]
```

The dialog box that appears depends on the printer type and the application you are using. Jazz is initially set up for the Apple Imagewriter printer. If you are using a different printer, see the manual that came with the printer for information on how to set up Jazz for use with another printer. The header, footer, and margin settings appear in the dialog box only when you print Jazz worksheet and database documents.

2. **Click a Paper Size.**
   Click Business Envelope, Corporate Label, or Small Label only if you are using the Print Merge... command in the Word Processing application.

   - Letter is 8 1/2 inches wide and 11 inches tall.

   - Legal is 8 1/2 inches wide and 14 inches tall.

   - Computer Paper is 14 inches wide and 11 inches tall.

   - Business Envelope is 9 1/2 inches wide and 4 1/8 inches tall (standard size 10).

   - Corporate Label is 5 inches wide and 3 inches tall.

   - Small Label is 3 1/2 inches wide and 1 inch tall.

3. **Click the Paper Orientation you want.**

- Tall prints text with the top line across the top of the page.

- Tall Adjusted prints text with graphs, charts, or other pictures. It correctly proportions the parts of the document that are not text.

- Wide prints text, graphs, charts, and other pictures sideways on the page.

4. **Click the Pagination you want.**
If you choose No Breaks Between Pages, Jazz ignores any page breaks you inserted in the document and does not print headers and footers (if any).

5. **Click the Reduction option you want.**
50 percent reduces the document you are printing to half its normal size.

6. **Click the Header or Footer box and type a Header or Footer if you want one.**
The Header and Footer boxes appear when you are working with a worksheet or database.

A header is information that Jazz prints on the top of each page. A footer is information that Jazz prints on the bottom of each page.

The vertical bar (|) that appears by default in the footer box causes Jazz to center the footer. Use the vertical bar to format the footer into one, two, or three parts. Text not preceded by a vertical bar is left-aligned. Text to the right of the first vertical bar or between two vertical bars is centered. Text after a second vertical bar is right-aligned. The vertical bar works the same way in a header as in a footer.

The # character in the footer box causes Jazz to print page numbers in the footer of the document. If you don't want Jazz to number the pages in the footer, delete the # character. If you want Jazz to number pages in the header, type the # character in the header box.

To insert the current date in a header or footer, type the @ character where you want the date to appear.

See Creating Headers and Footers in Chapter 4 for more information about using headers and footers in the Word Processing application. The Page Setup... dialog box in that application does not display header and footer settings.

7. **Click a Margin box and enter the margin widths in inches.**
Use decimals for fractions of an inch. For example, type 1.25 for 1 1/4 inches.

The margin boxes appear when you are working with a worksheet or database.

8. **Click OK.**

Printing a Document

Jazz prints documents using page settings you specify. These settings determine the print quality, the part of the document you want to print, and the kind of paper you're using.

1. Choose Print Document... from the File menu.

If you are printing a form, this command is Print Current, and it prints the current form.

```
ImageWriter (Standard or Wide)                          [ OK ]

Quality:      ○ High        ◉ Standard    ○ Draft
Page Range:   ◉ All         ○ From: [    ] To: [    ]    [ Cancel ]
Copies:       [1    ]
Paper Feed:   ◉ Continuous  ○ Cut Sheet
```

2. Click a Quality setting.

- Click High for the highest quality printing. This setting takes the longest time to print.

- Click Standard for quality similar to the printing on your screen. This setting is faster than High quality.

- Click Draft to print text only, in the font and point size that are standard for your printer. You can print in Plain Text, Bold, and Underline styles. This setting is the fastest of the three.

3. Click a Page Range setting.
If you click From, specify the first and last page numbers you want to print. For example, if you type 4 in the From box and 8 in the To box, Jazz will print pages 4 through 8 of the document.

4. Click Copies and type the number of copies you want to print.

5. Click the Paper Feed setting that describes the kind of paper you're using.

- Continuous is for perforated paper.

- Cut Sheet is for single sheets of paper.

6. Click OK.
Jazz begins printing the document and a dialog box appears. To stop printing before Jazz prints the entire document, click Cancel. To interrupt printing temporarily, click Pause. To resume printing, click Continue.

Keep in mind

Printing part of a document. To print part of a document, such as a few rows of a worksheet, select the area you want to print. Then choose Print Selection... instead of Print Document... from the File menu. Otherwise, follow the steps listed above.

Using storage space when printing. To print a document, Jazz first stores a temporary copy of the document on the disk. Be sure that you have storage space available on the disk for the temporary copy. If the disk doesn't have enough space, Jazz indicates that the disk is full.

Inserting page breaks. In the Worksheet and Word Processing applications, you insert page breaks using the Set Page Break or Insert Page Break commands. A page break tells Jazz to stop printing the current page and move to the beginning of a new page.

Printing with Communications. You cannot specify headers, footers, or margin sizes for information you print with the Communications application. When you print with Communications, Jazz prints only the information that is on the screen.

Printing problems. If Jazz doesn't begin printing after you click OK in the Print Document... or Print Selection... dialog box, check that your printer is correctly connected to your Macintosh, and that it is turned on. Refer to the manual that came with your printer for additional troubleshooting information.

How to Use Information in Different Document Types

Jazz lets you use the same information in more than one document. For example, you can move or copy information from one document and use it in another document. Jazz also lets you convert information from another program to a Jazz worksheet.

Some types of documents depend on information you enter in a document of a different type; for example, you create a graph from data you enter in a worksheet or database. When you create a graph, you can see where the data you are using comes from by looking at the Reference Board.

Moving or Copying between Documents

Once you enter information in a Jazz document, you can cut it or copy it and then paste it in another document. When you move or copy information from one document to another, the two documents don't have to be the same type. For example, you can move a range of sales figures from a worksheet to a word processing document, or copy salary information from a database to a worksheet.

If you move information, or cut it from the original document and paste it in the new one, it no longer appears in the original document. If you copy information, it appears in both documents, but the two copies are independent: changing the information in the new document doesn't change the information in the original document.

You may want information you use in more than one document to remain linked to the original document. In a Jazz word processing document, you can use a copy of another document, called a HotView™, that automatically reflects changes to the original document. You cannot change the information in a HotView directly in the word processing document as you can change information you move or copy. For more information on HotViews, see Chapter 4, How to Include Other Jazz Documents in a Word Processing Document.

1. **Open the document you want to move or copy the information to.**
   To open a document, choose Open... from the File menu.

2. **Open the document that contains the information you want to move or copy.**

3. **Select the information.**
   How you select information depends on the application you are using; see the section on selecting areas in each application chapter.

4. **Choose Cut or Copy from the Edit menu.**

   Cut removes the information from the document and places a copy on the Clipboard. Copy leaves the information in the document and places a copy on the Clipboard. Choose Cut if you want to move the information so that it appears in the other document only; choose Copy if you want the information to appear in both documents.

5. **Click the document you want to move or copy the information to.**

6. **Select the location where you want to place the information.**

   In each application, you select a location in the same way as when you move or copy information within the same document.

7. **Choose Paste from the Edit menu.**

   If you are placing the information in a database, choose Paste Values, Paste Record, or Paste Field.

   In each application, Jazz pastes the information in the same way as when you move or copy information within the same document.

Before

The information you want to move or copy

	A	B	C	D	E	F	G
1	Five Decades of Jazz Big Sellers						
2	Artist	Title	List	Sale	Sold	Total	Jazz Spot
3	=============	=============	=====	=====	====	========	========
4	Watanabe, Sado	Orange Express	$9.98	$7.99	907	$7,246.93	Watanabe
5	Watanabe, Sado	Mobotu	$11.98	$8.99	731	$6,571.69	Watanabe
6	Vollenweider, Andr...	Pace Verde	$9.98	$7.99	654	$5,225.46	Vollenwei...
7	Ellington, Duke	Ellington Indigoes	$8.98	$6.99	431	$3,012.69	Big Sounds
8	Davis, Miles	In a Silent Way	$8.98	$5.99	334	$2,000.66	Modernity
9	McPartland, Marian	Delicate Balance	$12.98	$9.99	302	$3,016.98	Women in...

After

Document 1

Dear Sarah,

Here are some of the titles I told you about.

You can edit the information or change its format in the new document.

Watanabe, Sado	Orange Express
Watanabe, Sado	Mobotu
Vollenweider, Andreas	Pace Verde
Ellington, Duke	Ellington Indigoes
Davis, Miles	In a Silent Way

Moving or copying to a worksheet or database. When you paste information you cut or copied in a worksheet, it replaces any entries in the area it fills. Select an area that does not contain entries you want to keep. If you paste an entire row or column into a worksheet, Jazz inserts the new row or column in the worksheet without replacing existing entries.

If you paste information in a database by choosing Paste Values from the Edit menu, the new information replaces the existing values. If you paste an entire record or field (by choosing Paste Record or Paste Field), Jazz adds a new record or field to the database automatically. The new record or field does not replace existing values.

Formatting characteristics. Jazz preserves format as much as possible when you move or copy information from one document to another. When you move or copy information to a document of a different type, however, Jazz cannot always preserve the format. For example, if you copy text entries from a worksheet to a word processing document, Jazz does not preserve the text alignment.

You can adjust the format of the moved or copied information in the new document, just as you would if you typed the information in the document directly.

Showing References

Opening the Reference Board lets you see information about data you select in one document and use in another document. For example, if you are graphing data from a worksheet, use the Reference Board to see the worksheet name and the range that contains the data you are graphing.

1. Choose Reference Board from the Window menu.
The Reference Board window appears at the bottom of the screen.

Document type

Document name
Data selection


```
                          Reference Board
Worksheet Worksheet 1:A1
```

2. Click the close box.
This closes the Reference Board.

Converting a File from Another Program

You can convert documents, or files, created in another program so that you can use them with Jazz. There are three types of files you can convert: Lotus Symphony™ files, Lotus 1-2-3™ files, and Microsoft® files in the SYLK format. The file you convert becomes a Jazz worksheet document. You cannot convert a 1-2-3 or Symphony graph or a Symphony form, but you can convert the worksheet file that contains the data the graph or database form is based on.

Before you can convert a file, you must store it on a Macintosh disk. If the file you want to convert is from another Macintosh program, such as Microsoft Multiplan®, save the file on a disk using the SYLK format. If the file is not on a Macintosh disk, you must receive it on a Macintosh disk using XModem protocol in Jazz Communications. See Chapter 6 for instructions on sending and receiving a document.

1. Choose Convert... from the Apple menu.

2. Click the file you want to convert.
Jazz lists the names of the documents you can convert. If you can't see all of the document names, use the scroll bars to scroll through the list. Click Drive to see the document names on your other drive. Click Eject if you need to change disks.
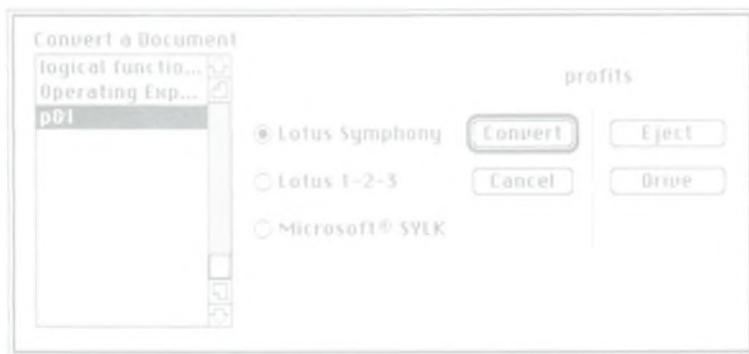
3. Click the document type.

- Click Lotus Symphony if the document was originally a Symphony file.

- Click Lotus 1-2-3 if the document was originally a 1-2-3 file.

- Click Microsoft SYLK if the document is in SYLK format.

4. Click Convert.
When Jazz finishes converting the file, the Save As... dialog box appears.

5. Type the document name in the space provided and click Save.
Do not use the name the document had before you converted it. Jazz saves the converted document under the name you type. To work with the document, you must choose Open... from the File menu.

Symphony worksheet...

```
F10: (C0) @SUM(F3..F8)                                      SHEET
     ——— A ———   — B ——   — C ——   — D ——   — E ——   — F ——
1    Total Operating Expenses for the Fiscal Year
2               1st quarter 2nd quarter 3rd quarter 4th quarter Totals
3    Maintenance     $35,870     $38,750     $65,760     $35,630    $176,010
4    Supplies        12,900      14,568      21,349      13,910     $62,727
5    Salaries        214,970     225,719     245,975     248,855    $935,519
6    Advertising     11,370      13,245      17,650      12,613     $54,878
7    Publications    8,012       9,650       12,310      9,033      $39,005
8    Insurance       9,500       9,500       15,000      15,000     $49,000
9
10   Totals          $292,622    $311,432    $378,044    $335,041   $1,317,139
11
12
13
14
15
16
17
18
19
20
                                                               ═MAIN═
05-Dec-84   03:34 PM
```

...converted to Jazz
worksheet

	A	B	C	D	E	F
1	Total Operating Expenses for the Fiscal Year					
2		1st quarter	2nd quarter	3rd quarter	4th quarter	Totals
3	Maintenance	$35,870	$38,750	$65,760	$35,630	$176,010
4	Supplies	12,900	14,568	21,349	13,910	$62,727
5	Salaries	214,970	225,719	245,975	248,855	$935,519
6	Advertising	11,370	13,245	17,650	12,613	$54,878
7	Publications	8,012	9,650	12,310	9,033	$39,005
8	Insurance	9,500	9,500	15,000	15,000	$49,000
9						
10	Totals	$292,622	$311,432	$378,044	$335,041	$1,317,139
11						
12						
13						
14						
15						

Keep in mind

Converting 1-2-3 and Symphony files. If the document you
convert was originally a 1-2-3 or Symphony file, Jazz preserves
many of the original file's settings. Settings that Jazz preserves
include: column widths, cell formats, range names, protection
settings, default format, recalculation preferences, calculation order,
and iteration count. Settings Jazz does *not* preserve include:
Symphony window settings, Symphony DOC window format lines,
1-2-3 window splits, and Graph and Query settings in both 1-2-3
and Symphony. If the 1-2-3 or Symphony worksheet contains
macros, they appear as cell entries in the Jazz worksheet, but they
do not function. Converting a file does not affect how formulas
function.

Converting SYLK files. When you convert a Multiplan SYLK file,
Jazz does not preserve Union ranges and the Show Formula or
Link features.

Database and word processing documents. After you convert
a file to a Jazz worksheet, you can cut or copy the data from the
worksheet and paste it into a database or word processing
document.

Standard Window Features

Close box   Title bar

≡ Jazz Window ≡

Sales this year exceeded expectations and we anticip
record profits.

Difference in Sales

Thousands of Dollars

18
16   First full
14   year of
12   operation
10
8
6
4

Scroll box

Page box   Scroll bar

Scroll arrow
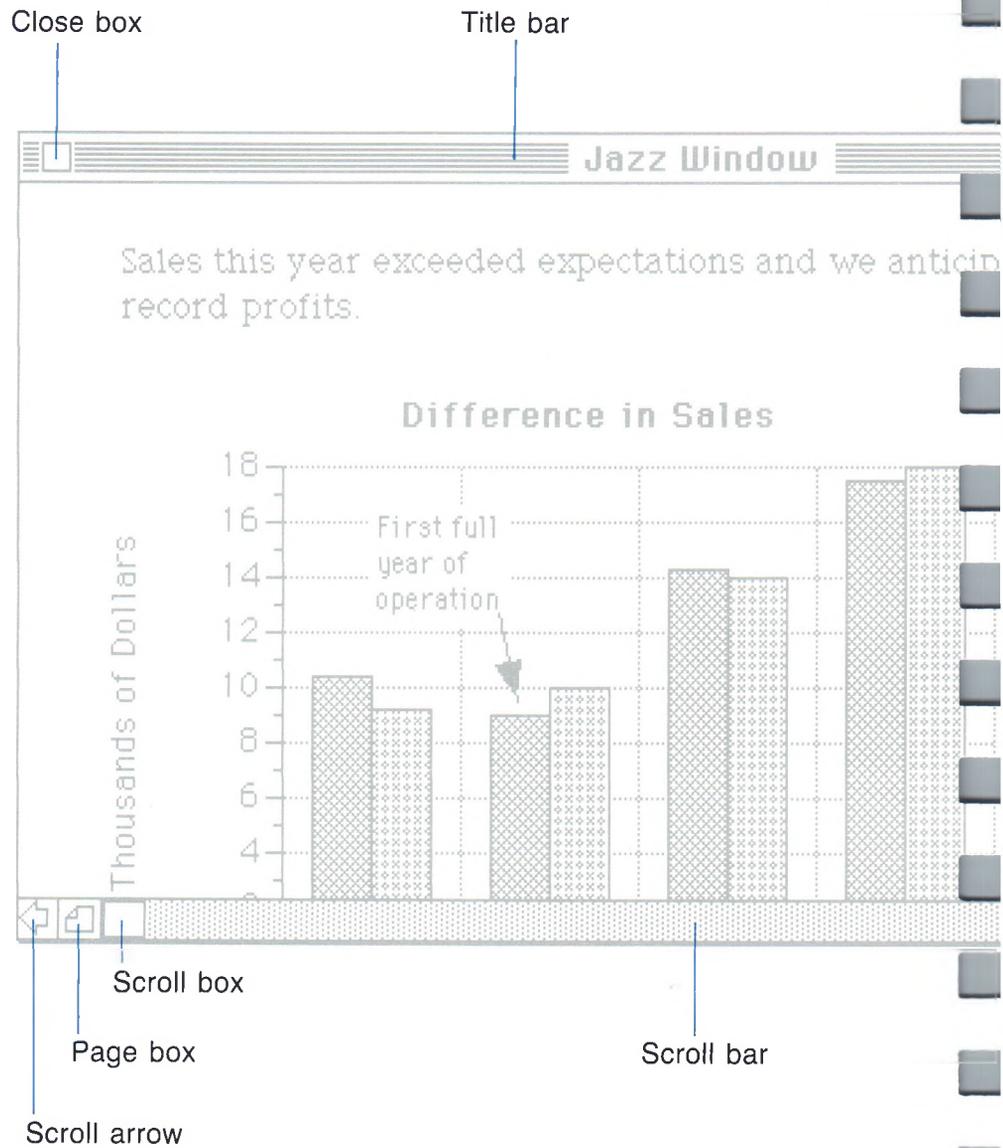
The Standard Commands Reference

Title bar includes the name of the active Jazz document or window, and lets you move the window by dragging the title bar.

Close box lets you close a window. Clicking the close box is the same as choosing Close from the File menu.

Scroll arrow lets you scroll through a document. Clicking a scroll arrow scrolls by line or character. Pressing a scroll arrow scrolls continuously by lines or characters.

Page box lets you scroll through a document by windows. Clicking the page box scrolls one window at a time. Pressing the page box scrolls continuously by windows.

Scroll box lets you move to a specific location in a document, relative to the length or width of the entire document.

Scroll bar changes the view of a document when you click it.

Size box lets you resize a window.

Last year

This year
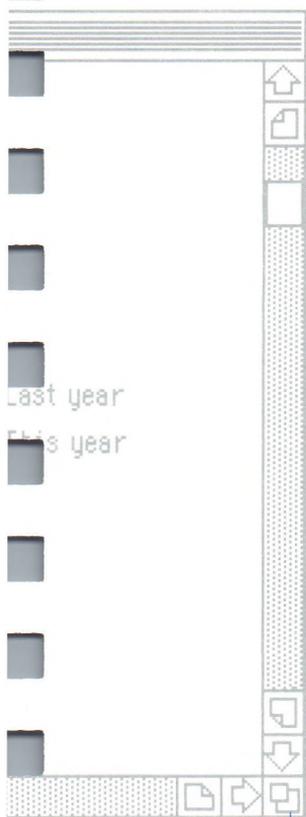
Size box

The Standard Commands

Jazz contains certain menus of standard commands that appear in all Jazz applications, and other menus that vary depending on the application. The menus specific to each application are described in the Reference section for each application.

This chapter describes the five standard menus that appear in all applications. These are the Apple, File, Window, Font, and Style menus. (The only exception is Communications, which has no Font or Style menu.)

In all menus, commands that require you to provide additional information appear in the menu with an ellipsis (...) after the command. Also, the Command key can be used in combination with another key as a shortcut to choosing a command from a menu. Commands that have Command key equivalents list them in the menu next to the command.

Apple menu

| About Jazz ... |
| Convert... |
| Disable Undo |
| Scrapbook |
| Alarm Clock |
| Note Pad |
| Calculator |
| Key Caps |
| Control Panel |
| Puzzle |

| File | Window | Font | Style |

About Jazz... shows the release number of Jazz and displays information about how much memory you're using. Memory available for data: Tells you how much memory is currently available for working in Jazz (not including the Jazz program). Memory currently in use: Tells you what percentage of available memory you are currently using. See Appendix B for hints on memory management.

Convert... translates Lotus Symphony, Lotus 1-2-3, or Microsoft SYLK format spreadsheets into Jazz worksheets. The document you want to convert must be on a currently inserted disk, so that its name appears in the dialog box. You can use Jazz Communications to receive the document, using the XModem protocol. See Chapter 6 for information on receiving documents.

- Lotus Symphony: Converts the selected Symphony spreadsheet to a Jazz worksheet.

- Lotus 1-2-3: Converts the selected 1-2-3 spreadsheet to a Jazz worksheet.

- Microsoft SYLK: Converts the selected Symbolic Link (SYLK) format document to a Jazz worksheet.

When you click Convert, Jazz converts the selected document. After conversion, Jazz displays a dialog box that lets you name and save the converted document.

Jazz preserves all cell contents, formulas, named ranges, sort, table, and distribution settings for converted Symphony, 1-2-3, and SYLK format spreadsheets. Jazz also preserves all recalculation and protection settings, default display formats, default formats for text and numbers, text prefixes, and column widths. Union ranges, Show Formulas, and Link features are not preserved in converted SYLK documents.

Disable Undo changes the Undo command on the Edit menu to Undo Disabled, so that you cannot use the Undo command. Disabling the Undo command means that Jazz works faster and uses less memory each time you perform an action. Keep in mind, however, that while Undo is disabled, you will not be able to use the Undo command to undo or redo any actions. This command alternates with **Enable Undo**, which activates the Undo command.

Desk Accessories lists the accessories available when using Jazz. Refer to *Macintosh*, the owner's guide.

File menu

File
New...
Open...
Save
Save As...
Close
Page Setup...
Print Selection...
Print Document...
Print Merge...
Revert to Saved
Quit

🍎	**File**	Window	Font Style

New... creates a new Jazz document, with a default title consisting of the name of the application that created it, followed by a number. You click one of the application icons in the dialog box and click New. (You can also just double-click an application icon to create a new document.)

Open... opens an existing Jazz document that has been saved on the disk. Clicking one of the application icons in the dialog box displays only documents created by that application. Clicking All Types displays a list of all Jazz documents on the disk. After selecting a document, you click Open. (You can also open the document by double-clicking the name.)

Save updates the active document and replaces the old copy on the disk with the updated one. After saving the document, you may continue working on it.

Save As... names and saves a document on the disk. This command also lets you save the same document under a different name and/or on another disk.

(In Word Processing, the Save As... command lets you save the document as you created it — with the format, text, and pictures — if you click Entire Document. If you click Text Only, Jazz saves just the text of your document, without the format, fonts, sizes, styles, pictures, page breaks, headers, or footers.)

Close closes the active document. If you made changes but did not save them, a dialog box appears. Clicking Yes saves your changes; clicking No closes the window without saving your changes. Clicking Cancel cancels the command.

(In Communications, the Close command removes the Communications window, and may terminate a communications link.)

Choosing Close from the menu is identical to clicking the close box in the window's title bar.

Page Setup... specifies print settings for the active document. Jazz saves these settings when you save this document. Actual printing is done with the Print Selection..., Print Document..., Print Current..., or Print Merge... commands.

The options in the dialog box will vary slightly depending on the printer you have. The options described below are for an ImageWriter printer.

- Letter: 8 1/2 inches wide, 11 inches tall.
- Legal: 8 1/2 inches wide, 14 inches tall.
- Computer Paper: 14 inches wide, 11 inches tall.
- Business Envelope: 9 1/2 inches wide, 4 1/8 inches tall (standard size 10 envelope).
- Corporate Label: 5 inches wide, 3 inches tall.
- Small Label: 3 1/2 inches wide, 15/16 inches tall.
- Tall: Text is printed parallel to the top of the page. Use Tall to print documents that consist only of text.
- Tall Adjusted: Graphs, charts, and other pictures are printed in correct proportion to the page size, so they do not appear distorted. Use Tall Adjusted to print documents that consist of text and pictures or just pictures.
- Wide: Text is printed parallel to the left edge of the page.
- Normal pages: Jazz prints according to the page length you chose for the paper option, above, and prints page breaks and headers and footers (if any).
- No breaks between pages: Jazz ignores the page length and prints a continuous page, without headers and footers.
- None: Jazz prints text and pictures normal size.
- 50 percent: Jazz prints text and pictures at half their normal size.
- Header: The text printed at the top of every page in a worksheet or database document. By default, no header is printed.
- Footer: The text printed at the bottom of every page in a worksheet or database document. By default, Jazz prints a footer consisting of the document's name and the current page number, centered between the margins. If you don't want to include a footer, you can select this entry and press Backspace to erase it.
- Left Margin: The number of inches for the left margin in a worksheet or database document.
- Right Margin: The number of inches for the right margin in a worksheet or database document.
- Top Margin: The number of inches for the top margin in a worksheet or database document.
- Bottom Margin: The number of inches for the bottom margin in a worksheet or database document. The default is one inch.

For margins, you can enter fractions of an inch in decimal form. For example, you can enter 1.25 for a 1 1/4 inch margin.

By default, Jazz prints a one inch bottom margin (for the footer) and 1/4 inch left, right, and top margins. If you enter a header, you must also specify a top margin of at least one inch so that Jazz has enough space to print it.

For the header and footer, you can include the current page number by typing the # character where you want the page number to appear. When Jazz prints a page, it substitutes the current page number for the # character. This number increases by one each time a page prints.

You can include the current date in the header and footer by typing the @ character where you want the date to appear. When Jazz prints a page, it substitutes the current date for the @ character.

You can use the vertical bar (|) to format a header and footer so that Jazz prints it in one, two, or three parts.

If you enter:	Jazz prints:
Widget Corp.	1 part, left-aligned
|Widget Corp.	1 part, centered
||Widget Corp.	1 part, right-aligned
Page #||Widget Corp.	2 parts
Page #|Widget Corp.|@	3 parts

(Headers, footers, and margins are not used in graphics, forms, or communications documents. In word processing documents, headers, footers, and margins are set using commands on the Format menu.)

Print Selection... prints a selected part of the document, using the settings defined with the Page Setup... command. The Print Selection... dialog box lets you specify how you want your selection to be printed. This dialog box is identical to the one for the Print Document... and Print Merge... commands. These settings are saved when you save the document. (This command does not appear in Word Processing, Communications, or when you are modifying a form in Database.)

- High: Highest quality printing. (Slowest printing speed.)

- Standard: Screen-quality printing. (Faster than High quality.)

- Draft: Text only, one font, one size. Plain Text, Bold, and Underline styles only. (Fastest speed.)

- All: For printing the entire selection.

- From: Page number for the first page to print.

- To: Page number for the last page to print.

- Copies: Number of copies to print.

- Continuous: Perforated paper.

- Cut Sheet: Single sheets of paper.

Clicking OK confirms all the settings and starts printing. Clicking Cancel cancels the command and returns you to the document.

While printing is in progress, Jazz displays a dialog box so you can control printing. Clicking Pause temporarily suspends printing until you click Continue. Clicking Cancel stops printing.

Print Document... prints the entire document using the settings defined with the Page Setup... command. The Print Document... dialog box lets you specify how you want your document to be printed. This dialog box is identical to the one for the Print Selection... command. These settings are saved when you save the document. (In Communications, this command produces a printed copy of the entire window.)

When you are using the form to enter, edit, or view data in the database, this command is instead **Print Current...**. Print Current... prints a copy of the active record (the record you are looking at.) The Print Current... dialog box is identical to the one for the Print Selection... command.

Print Merge... prints a word processing document that includes merged database fields or worksheet ranges or both. (This command appears only in Word Processing.) The dialog box that appears is identical to the one for the Print Document... command.

Clicking OK confirms all the settings and starts printing. Clicking Cancel cancels the command and returns you to the document.

While printing is in progress, Jazz displays a dialog box so you can control printing. Clicking Pause temporarily suspends printing until you click Continue. Clicking Cancel stops printing.

For each merged database field, Jazz first copies the value of the field, for each selected record in the database, to the word processing document. Then Jazz prints one copy of the document for each selected record.

For each merged worksheet range, Jazz reads across rows and down columns, printing one copy of the document for each cell value in the range.

If you have several merged fields or ranges in one document, the number of copies Jazz prints is equal to the number of values in the largest selection. When printing, Jazz repeats the value of the last cell in the smallest selection until it reaches the end of the largest selection.

You should generally use selections that are the same size (contain the same number of values), but your selections do not always have to be the same size. For example, you could merge the value in one selected worksheet cell with the values from 10 selected records in a database to have Jazz print the same worksheet value for each of the 10 database records.

Revert to Saved discards all unsaved changes to this document and opens the last saved version. (In Communications, this command discards unsaved settings and reverts to the last saved settings.) Jazz asks you to confirm that this is what you want to do before performing the command.

Quit ends the Jazz session and returns you to the Macintosh desktop.

Window menu

🍎 File	Window	Font Style

Window	
Zoom Up	⌘W
Clipboard	
Reference Board	
Worksheet 1	

Zoom Up expands the active window so it fills the entire screen. The menu bar and console remain visible. When the window fills the screen, this command becomes **Zoom Down**, which returns the window to its original size.

Clipboard opens the Clipboard, which contains whatever you most recently cut or copied. If the Clipboard is open, this command makes the Clipboard the active window. To hide the Clipboard, click its close box.

Reference Board opens the Reference Board, which displays the name of the last active worksheet, database, graphics, or word processing document. If the Reference Board is open, this command makes the Reference Board the active window. To hide the Reference Board, click its close box.

For a worksheet selection, the Reference Board also displays the address of the selected cell or range. For a database selection, the Reference Board displays the first field name of the selection.

Window List lists the names of all open Jazz documents. Choosing a name from the list makes that window the active window. (Alternatively, you can click the window to make it active.)

Font menu

	Font			
Venice				
Toronto				
Chicago				
✓Geneva				
New York				
Monaco				
9 point				
✓10 point				
12 point				
14 point				
18 point				
24 point				
36 point				

	File	Window	Font	Style

Lists the available fonts and point sizes. The font and point size you choose are checked in the menu. In Worksheet and Database, the chosen font affects the entire document and data yet to be typed. In Word Processing, the font affects currently selected text or text yet to be typed. In Graphics, the font affects text typed or text yet to be typed in notation boxes, axis labels, and titles. The chosen font affects text typed in notation boxes or fields when you are using the form to enter data in the database. The default font is 10 point, Geneva.

(This menu is not available in Communications. Instead, Jazz uses only one font, which you can choose to display in either 9 or 12 point, using the Terminal... command on the Settings menu.)

Style menu

Style	
✓Plain Text	⌘P
Bold	⌘B
Italic	⌘I
Underline	⌘U
Outline	⌘O
Shadow	⌘S

	File	Window	Font	Style
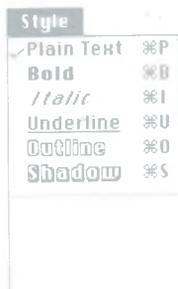
Lists all styles available for Jazz documents. The style you choose is checked in the menu. The default style is Plain Text, which cannot be mixed with other styles. You can combine the other styles, however, for a variety of effects.

In Worksheet and Database, the chosen style affects the entire document and data yet to be typed. In Word Processing, the chosen style affects currently selected text or text yet to be typed. In Graphics, the chosen style affects text typed or text yet to be typed in notation boxes, axis labels, and titles. The chosen style affects text in notation boxes or fields when you are using the form to enter data in the database. (This menu is not available in Communications.)

Other commands on the Style menu vary depending on the application you are using. These commands are described in the Reference section for each application.
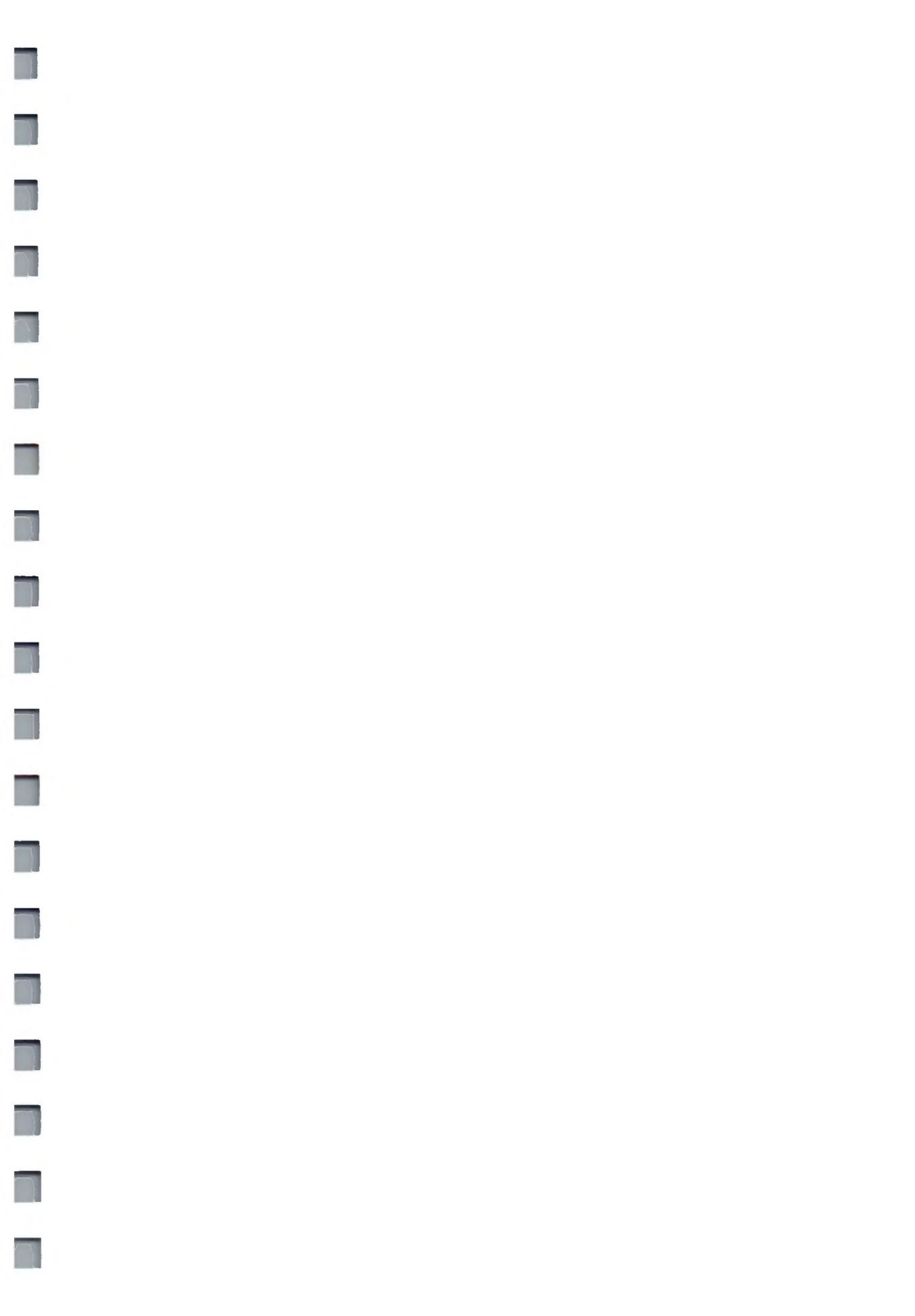
Date

1/3/80
1/3/80
1/4/80
1/5/80
1/5/80
1/5/80
1/6/80
1/6/80
1/6/80

9/80
/80
80

6257
66446
126959 98
1342
176650
98576218
2903431 1255 68
128471688

162
28401)
51905   48258162
51255   47629761 1767
4000   47681666 1761 01449
6200   556329 21 1761
66655   556369   1761
9250124 556
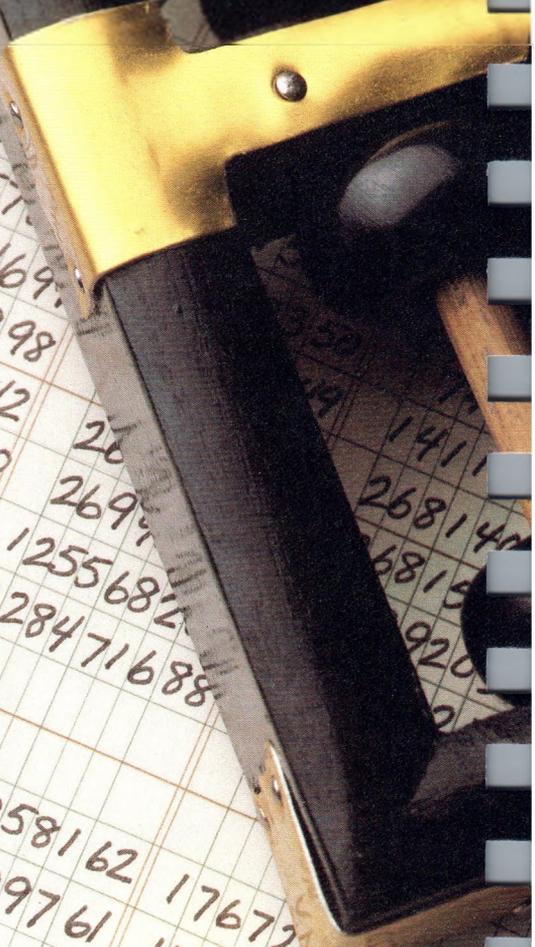
Chapter 2
Worksheet

Jazz's Worksheet is a powerful tool for storing, manipulating, and analyzing data. The Jazz worksheet is dynamic: you can use it to store data, to build relationships among data, and to calculate with data. If you change one entry in a worksheet, other entries that depend on it change also. This makes it easy to keep your worksheet up-to-date, and lets you play with variations of the same calculation. For example, Jazz makes it simple to calculate loan payments for various principal amounts.

A worksheet resembles a giant spreadsheet, and you use it in the same way — to enter data in tabular form and calculate with the data on it. The Jazz worksheet is large; it has 8192 rows and 256 columns. Rows are labeled 1 through 8192 in the left border of the worksheet, and columns are labeled A through IV in the top border. The intersections of columns and rows define cells; the column letter and row number make up a cell's address. For example, B67 is the cell address of the cell that is in column B, row 67.

Using ledger paper to tabulate data

Using a Jazz worksheet to tabulate the same data

Cell address

Cell

Cells hold worksheet entries. You can enter numbers, text, or formulas in a worksheet cell. Jazz also has built-in formulas, called functions, that you can enter in a cell.

Once you make an entry, Jazz lets you work with it in many ways. You can change cell entries or change how Jazz displays them. You can make several copies of an entry or move it to another part of the worksheet. You can use formulas or functions to calculate with other entries and to build relationships among them. Jazz also lets you protect entries from changes, and hide entries from view.

Even though the worksheet is large, Jazz works most efficiently if you use as little worksheet space as possible. It's a good idea to try to keep entries in the upper left area of the worksheet.

You can use worksheet data with other Jazz applications. For example, you can present worksheet data visually using the Graphics application. When you change the data in the worksheet, Jazz automatically changes the graph, too. You can also include worksheet data in a word processing document. If you use worksheet data in another Jazz document, you should store the two documents on the same disk.

How to Enter Data

Entering data in a worksheet cell is similar to writing it on a piece of paper: you record the data in the cell just as you record it on the paper. You can edit and remove a worksheet entry, as you can a paper entry. With an electronic worksheet, however, you can build relationships among cells, so that a change to one entry changes other entries automatically, instead of requiring you to change other entries manually.

The data you enter in a cell can be a number, text, or a formula. See How to Do Basic Calculations for information on entering formulas.

Entering Numbers

Once you enter a number in a worksheet cell, you can use it in calculations. For example, you can enter the sales figure for the third quarter in a cell, and later use that entry to calculate a yearly sales total.

1. **Click the cell in which you want to enter the number.**
   Jazz makes this cell the active cell by highlighting it.

2. **Type the number.**
   The number appears in the entry box as you type it.

   A number must begin with one of these characters:

   > 0 1 2 3 4 5 6 7 8 9 + — . $ %

   Do not include letters or more than one decimal point in a number. Include spaces only when you enter a number that contains a fraction, such as 25 1/4. You can include commas, but Jazz does not display them. If you make a mistake, press Backspace to delete the last character.

3. **Press Enter or Return, or click another cell.**
   The number appears in the cell. If you press Enter, this cell remains the active cell and the number appears in the contents box. If you press Return, the cell below this one becomes the active cell. If you click another cell, the cell you click becomes the active cell.

Before

The entry appears in the entry box.

Active cell address

The entry appears in the contents box and in the cell after you press Enter.

After

Jazz treats a number that doesn't follow the rules listed above as a text entry. Correct the mistake in the entry and press Enter again.

The appearance of numbers. A number can appear in a cell in many different ways, depending on the display format you set for the cell. To change a cell's display format, select the cell and choose Format from the Range menu. See Changing the Format of Numbers later in this chapter.

Long numbers. A number may have too many characters to fit in the cell. If the display format of the cell is General, Jazz displays the number in scientific notation.

If the format of the cell that contains the number is not General, Jazz displays ellipses (...) in the cell instead of the entry. This does not affect the way Jazz stores the number. When you make the column wide enough, the entire number appears.

Entering a sequence of numbers. You may want to number rows or columns, or enter sequential numbers for a table or graph. To enter a sequence of numbers in a range, select the range and choose Fill from the Range menu.

Entering Text

You can enter text in a worksheet cell to label numeric data. For example, you may want to use text entries as headings for the columns of a table.

1. **Click the cell where you want to enter text.**

2. **Type the text entry.**
   The text appears in the entry box as you type it.

   A text entry can begin with a letter or with any symbol on the keyboard except an equal sign (=). The rest of the entry can contain any characters, with one exception. You can use numbers in a text entry only when it also includes one or more letters, or begins with a text-formatting character.

   If you make a mistake, press Backspace to delete the previous character.

3. **Press Enter or Return, or click another cell.**
   The text entry appears in the cell. If you press Enter, this cell remains the active cell, and the entry appears in the contents box. If you press Return, the cell below this one becomes the active cell. If you click another cell, the cell you clicked becomes the active cell.

   A double quotation mark ('') appears in the contents box of a text entry, but not in the cell. This indicates that the entry is a text entry.

Long text entries. If you enter text that is too long for Jazz to display in one cell, the entry extends into the empty cells to the right. If the cells to the right are not empty, Jazz cuts off the entry and displays ellipses (...) at the end of the entry.

The entire entry appears in the contents box.

The truncated entry appears in the cell, followed by ellipses.
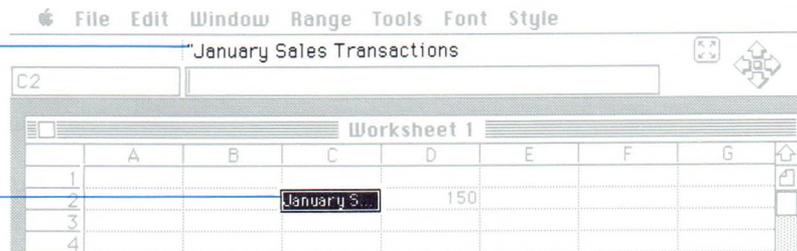
Jazz stores the whole entry even if it cannot display it completely in the worksheet. To make the complete entry appear in the worksheet, clear the cells to the right, or widen the column that contains the entry.

Text-formatting characters. Beginning an entry with a text-formatting character identifies the entry as text, no matter what characters the entry contains. It also makes the entry appear in the cell in a specific way. When you type an accent mark (`) as the first character, the entry is right-aligned in the cell. Typing an apostrophe (') makes the entry left-aligned, typing a caret (^) centers it in the cell, and typing a backslash (\) repeats it across the cell. If you do not use a text-formatting character, Jazz aligns the text entry according to the format of the range, if any, or according to the default text format for the worksheet.

A double quotation mark ('') appears in the contents box of a text entry, no matter what text formatting character you use. It does not appear in the cell.

Text that begins with a number. A text entry can begin with a number, such as 15 Elm St. or 1985 Sales. Jazz assumes that an entry is text if it contains a letter, with the exception of numbers in scientific format.

To type a text entry that contains only numbers, use a text formatting character as the first character of the entry. This is helpful in creating a column heading such as 1985.

Editing an Entry

Editing a cell entry can involve erasing characters or inserting new characters. You can edit an entry while you're typing it, or after you enter it.

Canceling an entry

• **Click the Cancel icon.**
The Cancel icon appears as soon as you start typing an entry.

After you click the Cancel icon, Jazz erases the entry from the entry box. You can type a new entry or select another cell.

Replacing an existing entry

1. **Click the cell that contains the entry.**

2. **Type a new entry.**
   The original entry remains in the contents box, and the new characters appear in the entry box.

3. **Press Enter.**
   The new entry appears in the contents box and in the worksheet cell. The original entry disappears.

   If you cancel the new entry before you press Enter, the original entry remains in the cell.

Changing an entry

1. **Double-click the cell that contains the entry.**
   The entry appears in the entry box, and the entry box is highlighted.

   You do not have to double-click the cell to edit an entry you are currently typing.

2. **Click a location between characters in the entry box.**
   To add a character, click where you want to insert it. To delete a character, click to the right of the character you want to delete.

   The pointer becomes an I-beam when you move it into the entry box. When you click a location, the entry box is no longer high-lighted. A vertical bar indicates the insertion point: the location where you add or delete characters.

3. **Add or delete one or more characters.**
   To add a character, type the character. To delete the character to the left of the insertion point, press Backspace.

   You can continue to edit the entry by clicking another location in the entry and adding or deleting characters.

Before

After

The entry appears highlighted in the entry box.

You can insert or delete characters at the insertion point.
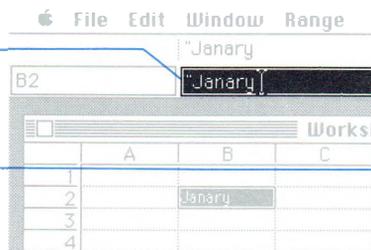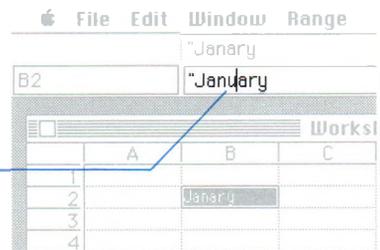
4. **Press Enter.**
   The revised entry appears in the contents box and in the work-sheet cell.

Keep in mind

Deleting several characters. After you double-click an entry, drag the pointer across two or more characters to highlight them. Press Backspace once to delete the highlighted characters.

You can also highlight several characters and then type a character. Jazz deletes the highlighted characters and inserts the new charac-ter at the insertion point.

Inserting a cell or range address. After you double-click an entry and click an insertion point, click a cell or select a range in the worksheet. The cell or range address or name appears in the entry.

Changing an entry when a range is selected. You can change an entry in one cell without affecting the current selection. Make the cell you want to change the active cell and choose Open Cell from the Edit menu. The entry appears in the entry box, and the entry box is highlighted.

How to Select Worksheet Areas

Before you can work with an area of the worksheet, you must *select* it. The selected area can be a single cell, a range, or an entire row or column.

Selecting a cell makes it the active cell. You can enter data or a formula in the active cell, or perform commands on it, such as changing its format or copying its contents.

Selecting a range, or rectangular group of cells, lets you work on more than one cell at a time. You can perform many Jazz commands on an entire range of cells. For example, you can change the appearance of cell contents in a range, or copy a range to another area of the worksheet.

Selecting a row or column lets you perform commands on the entire row or column, such as inserting or deleting.

Selecting a Cell

You must select a cell before you can enter data in it or perform a command on it. For example, you can cut the contents of a cell only after you select it.

1. Position the pointer in the cell you want to select.
You can use the standard Macintosh techniques to move around in a worksheet, such as clicking a scroll arrow or clicking and dragging a scroll box. You can also click a page box to move the worksheet one window at a time.

2. Click the cell.
The cell is highlighted, and its address appears in the selection box. After you select a cell, the insertion point in the entry box means that you can enter data in the cell. If the cell already contains an entry, the entry appears in the contents box.

Selection box ——————
Insertion point ——————
Cell pointer ——————
Active cell ——————
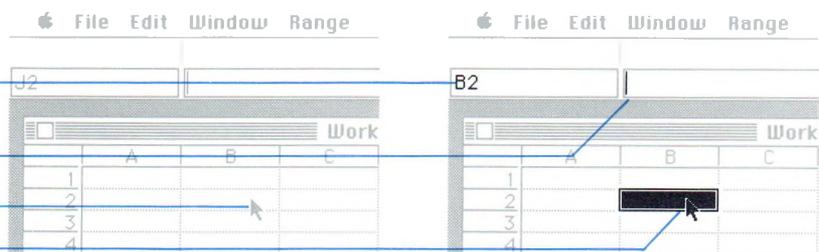
Keep in mind

Typing a cell address. You can also select a cell by typing its address in the selection box. Double-click the selection box to highlight it. Type the cell address and press Enter.

Alternate methods of moving. The End Navigator contains four arrows. When you click an End Navigator arrow, Jazz moves the active cell in the direction of the arrow you click. Jazz selects the next filled cell that borders a blank cell. The End Navigator is helpful for moving among adjacent blocks of data.

Selecting a Range

Selecting a range lets you perform commands on a group of cells, rather than on a single cell. A range is any rectangular block of cells, such as part of a row or column, a whole row or column, a rectangle that spans many rows and columns, or the whole worksheet.

These are ranges. ————

These are not ranges. ————
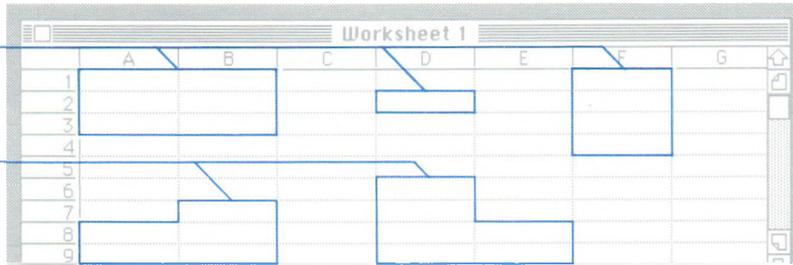
You select a range by dragging the pointer across the cells in the worksheet.

1. **Drag the pointer from one corner of the range you want to select to the diagonally opposite corner.**
   To extend the range to include a cell that is outside the window, drag the pointer across the scroll bar onto the desktop. Jazz automatically scrolls the worksheet and the range in the direction of the pointer. Move the pointer back into the worksheet to stop the scrolling.

2. **Release the mouse button.**
   The range is highlighted, and its address appears in the selection box. The active cell, in the upper left corner of the range, is outlined.

Typing a range address. A range address contains the addresses of the upper left and lower right corner cells of the range, separated by two periods (for example, B7..D9). Do not use spaces in a range address.

To select a range by typing the range address, double-click the selection box to highlight it. Type a range address and press Return.

Active cell entry

Active range address
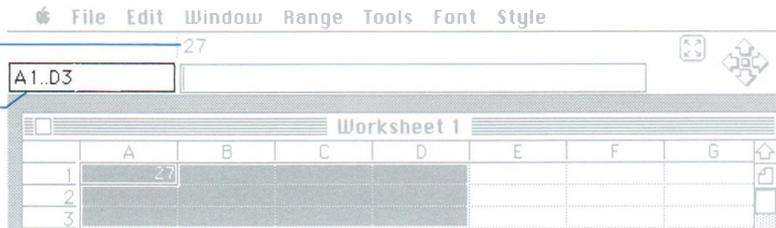
Changing the active cell in a range. Click the Corner Navigator to move the active cell counter-clockwise to the next corner cell.

Press Return or Shift Return to move the active cell one cell down or up, respectively. Press Tab or Shift Tab to move the active cell one cell to the right or left, respectively.

Expanding and shrinking the range. To expand a range you already selected, hold down the Shift key and click a cell outside the range. The range expands so that the cell you clicked becomes a corner cell. To shrink the range, hold down the Shift key and click a cell inside the range. The range shrinks so that the cell you clicked becomes a corner cell.

Using the End Navigator to select a range. Select a cell, then press Shift and click one of the arrows in the End Navigator. Jazz selects a range in the direction of the arrow you click. The range extends to the next filled cell that borders an empty cell.

You can also select a range and then press Shift and click the End Navigator. Jazz extends the range in the direction you click, so that it includes the next filled cell that borders a blank cell. This is helpful for selecting adjacent blocks of data.

Using range names. To make a range easier to work with, you can name it. After you name a range, you can use the range name instead of the range address in the selection box or in a formula. See Naming a Range later in this chapter.

Selecting a Row or Column

Selecting a row or column lets you perform a command on the entire row or column. For example, you select a column to delete it, or to move an entire column of a large table. To conserve memory, you should only select an entire row or column when you want to perform a command on *every* cell in the row or column.

1. Click the label of the row or column you want to select.

Click here to select Column A.
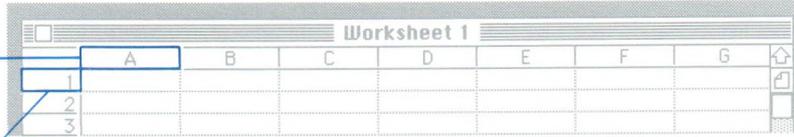
Click here to select Row 1.

2. To select a range of rows or columns, drag the pointer across the labels of the rows or columns.

How to Change Worksheet Entries

You can change worksheet entries in many ways. You can move them to another part of the worksheet, copy them, or erase them. You can also transpose entries, or insert or remove entire rows and columns.

When you erase, move, or copy, you work on ranges that can contain one cell or many cells. You can move or copy ranges from one worksheet area to another, or to another worksheet.

When you transpose entries, you move two or more cells from a row to a column, or from a column to a row. When you insert or delete rows or columns, you work on entire rows or columns of cells.

Jazz does not actually remove cells from the worksheet when you erase, move, or transpose entries. These procedures affect only the entries. When you delete entire rows or columns, however, Jazz removes the cells as well as the entries they contain. When you insert rows or columns, Jazz adds empty cells to the worksheet.

Erasing Entries

Erasing an entry removes the entry from the cell, but does not remove the cell itself.

1. **Select the cell or range you want to erase.**

2. **Choose Clear from the Edit menu.**
   Jazz removes the entries from the cell or the range.

Before

After

The range you want to erase

Keep in mind

Cutting and pasting. You can also erase an entry by selecting it and then choosing Cut from the Edit menu. This removes the entry from the worksheet and places it on the Clipboard. You can then paste it in another part of the worksheet or in another document.

Erasing entries referred to by formulas. When you clear an entry from a cell that a formula refers to, the formula becomes invalid. All formulas that depend on the invalid formula also become invalid. Similarly, when you clear the contents of a corner cell of a range that a formula refers to, the formula becomes invalid.

If you cut an entry and then paste it to the worksheet, a formula that refers to it is no longer invalid. Jazz recalculates the formula with the new cell address.

Protection status and display format. When you clear an entry, Jazz removes the protection status and display format from the cell. See How to Protect Data and How to Change the Worksheet's Appearance later in this chapter.

Moving or Copying Entries

Moving data, or cutting it from one part of the worksheet and pasting it in another area, is a useful way of reorganizing the worksheet. When you move an entry, it disappears from the original location and appears in a new location.

Copying data from one part of the worksheet and pasting it in another area lets you use the same data in different parts of the worksheet. When you copy an entry, it remains in the original location and appears in a new one.

1. **Select the cell or range you want to move or copy.**

2. **Choose Cut or Copy from the Edit menu.**
   Choose Cut to prepare to move a range. Choose Copy to prepare to copy a range. In both cases, Jazz places a copy of the selected cell or range on the Clipboard.

   If you choose Cut, the entries in the range disappear from the worksheet. If you choose Copy, the contents of the range do not change.

3. **Click the upper left corner cell of the range to which you want to move or copy the entries.**
   If you want to move or copy the entries to another worksheet, open the worksheet. Then click the upper left corner cell of the range where you want to paste the entries.

4. **Choose Paste from the Edit menu.**
   Jazz copies the range from the Clipboard to the new location.

Before

	A	B	C	D	E	F	G	
1	ITEM	ITEM NO.	ORDERED		NO LONGER AVAILABLE			
2	Binoculars	480	5					
3	Booklets	110	250					
4	Carryalls	376	100					
5	Film, Cart...	688	100					
6	Film, 36...	654	100					

The range you want to move

After

	A	B	C	D	E	F	G	
1	ITEM	ITEM NO.	ORDERED		NO LONGER AVAILABLE			
2								
3					Binoculars	480	5	
4					Booklets	110	250	
5	Film, Cart...	688	100		Carryalls	376	100	
6	Film, 36...	654	100					

The cell you select becomes the upper left corner of the moved range.

Multiple copies. To make multiple copies, select a range to paste the entries into that is large enough to contain one or more complete copies of the range you cut or copied. After you choose Paste from the Edit menu, Jazz fills the range you selected with as many complete copies of the moved or copied range as possible. This is useful, for example, to copy a formula into every cell in a selected range.

Before

The range you want to move

The range where you want to paste multiple copies

After

Jazz fills the range with as many copies as it can

You can make multiple copies of part of a row or part of a column using a different method. If you cut or copied part of a row, select part of a column to paste into. When you choose Paste from the Edit menu, the column segment becomes the left side of the range that contains multiple copies.

Similarly, if you cut or copied part of a column, select part of a row to paste into. When you choose Paste from the Edit menu, the row segment becomes the top row of the range that contains multiple copies.

Before

The range where you want to paste multiple copies

The column segment you want to copy

	A	B	C	D	E	F	G
24		Item					
25		Item No.					
26		Ordered					
27		Sold					
28		On Hand					

Inventory

After

Jazz fills the cells below each cell in the selected range with copies of the column segment.

	A	B	C	D	E	F	G
24		Item		Item	Item	Item	
25		Item No		Item No.	Item No.	Item No.	
26		Ordered		Ordered	Ordered	Ordered	
27		Sold		Sold	Sold	Sold	
28		On Hand		On Hand	On Hand	On Hand	

Inventory

Protection status and display format. When you cut an entry, Jazz removes the protection status and display format from the cell and moves it with the entry to the Clipboard. See How to Protect Data and How to Change the Worksheet's Appearance later in this chapter.

Moving and copying formulas. Jazz automatically adjusts formulas that you move so that they still refer to the same cells. Similarly, Jazz adjusts formulas in other cells that refer to a moved cell. Formulas that you copy do not always refer to the same cells. See Copying Formulas later in this chapter.

Cutting entries referred to by formulas. When you cut an entry from a cell that a formula refers to, the formula becomes invalid. All formulas that depend on the invalid formula also become invalid. Similarly, when you cut the contents of a corner cell of a range that a formula refers to, the formula becomes invalid.

If you cut an entry and then paste it to the worksheet, a formula that refers to it is no longer invalid. Jazz recalculates the formula with the new cell address.

Canceling a moved or copied range. Choose Undo Paste from the Edit menu to erase a moved or copied range from the worksheet. The entries remain on the Clipboard until you place new data on the Clipboard.

Transposing Entries

Transposing entries moves data from a row to a column, or from a column to a row. For example, you may want to transpose a column of entries in one table to a row in a new table.

1. **Select the range that you want to transpose.**
   You can select cells in a single row or column, or a range with several rows or columns.

2. **Choose Cut or Copy from the Edit menu.**
   Choosing Cut removes the entries from the original location and places them on the Clipboard. Choosing Copy leaves the entries in the original location, and places a copy of the entries on the Clipboard.

3. **Select the cell or range at the location where you want to place the transposed range.**
   Select one cell to transpose one copy of the range.

   To transpose multiple copies of a single column, select a range of cells in the same column. Similarly, to transpose multiple copies of a single row, select a range of cells in the same row.

4. **Choose Paste Special . . . from the Edit Menu.**

5. **Click Transpose.**

6. **Click OK.**
   Jazz transposes the entries from a row to a column, or from a column to a row.

Before

The row of entries you want to transpose.

After   **After**

The cell you selected becomes the upper left corner of the transposed entries.

If you selected two cells, the transposed range contains two columns of entries.

Inserting and Deleting Rows and Columns

Inserting or deleting entire rows and columns lets you rearrange the worksheet easily. For example, you may want to enter new columns of information in a table, or delete rows of invalid data.

Inserting Rows and Columns

1. Select one or more rows or columns.

To select a row or column, click the row or column label. When the command is completed, Jazz inserts the new row above the row you select. Similarly, Jazz inserts the new column to the left of the column you select.

To insert more than one row or column, select as many rows or columns as you want to insert.

2. Choose Insert Rows or Insert Columns from the Edit menu.

Before

	A	B	C	D	E	F	G	
1	ITEM	ITEM NO.	ORDERED	SOLD	ON HAND	PRICE	TOTAL	
2	Binoculars	480	5	2	3	$45.00	$90.00	
3	Booklets	110	250	87	163	$0.50	$43.50	
4	Carryalls	376	100	7	93	$8.00	$56.00	
5	Film, Cart...	688	100	47	53	$2.50	$117.50	

Select the number of rows you want to insert.

After

	A	B	C	D	E	F	G	
1	ITEM	ITEM NO.	ORDERED	SOLD	ON HAND	PRICE	TOTAL	
2	Binoculars	480	5	2	3	$45.00	$90.00	
3								
4								
5	Booklets	110	250	87	163	$0.50	$43.50	

Jazz inserts blank rows and moves existing rows down.

Deleting Rows and Columns

1. Select one or more rows or columns to delete.

2. Choose Cut from the Edit menu.

Jazz removes the selected rows or columns, along with any data they contain, from the worksheet, and closes up the space around them. The Clipboard now contains the deleted rows or columns, so you can choose Paste from the Edit menu to move them to another part of the worksheet, or to another worksheet.

Before

	A	B	C	D	E	F	G	
1	ITEM	ITEM NO.	ORDERED	SOLD	ON HAND	PRICE	TOTAL	
2	Binoculars	480	5	2	3	$45.00	$90.00	
3	Booklets	110	250	87	163	$0.50	$43.50	
4	Carryalls	376	100	7	93	$8.00	$56.00	
5	Film, Cart	688	100	47	53	$2.50	$117.50	

Select the columns you want to delete.

After

	A	B	C	D	E	F	G	
1	ITEM	SOLD	ON HAND	PRICE	TOTAL			
2	Binoculars	2	3	$45.00	$90.00			
3	Booklets	87	163	$0.50	$43.50			
4	Carryalls	7	93	$8.00	$56.00			
5	Film, Cart	47	53	$2.50	$117.50			

Jazz removes the columns.

Keep in mind

Effect on formulas. Inserting or deleting entire rows or columns may move formulas or the cells they refer to. The formulas continue to refer to the same cells as before.

When you insert rows or columns into a range that a formula refers to, Jazz adjusts the formula to include the new cells in the range.

When you delete a row or column that contains a cell that a formula refers to, the formula becomes invalid. All formulas that depend on the invalid formula also become invalid. Similarly, when you delete a column or row that contains a corner of a range that a formula refers to, the formula becomes invalid.

If you paste a row or column in another part of the worksheet, a formula that refers to a cell in it is no longer invalid. Jazz recalculates the formula with the new cell address.

How to Do Basic Calculations

Using formulas and Jazz functions, you can perform calculations automatically with the data you enter. A formula always begins with an equal sign (=). It can be a simple arithmetic operation with numbers, such as = 3+5. It can also be more sophisticated, using the values in cells instead of actual numbers; for example, = A1+(A2−G4)/H3. Referring to cells in a formula instead of using actual numbers makes use of the power of the worksheet: if you change the value in the cell, Jazz recalculates the formula and displays the new result automatically. Jazz formulas let you calculate with numbers (arithmetic formulas), combine pieces of text (text formulas), and perform logical operations, such as comparing values in two cells (logical formulas).

Jazz functions are built-in formulas that save you time. Using a function saves you from entering a formula yourself; you just provide the values the function works with. Functions can be combined with other functions or entries in a formula in order to perform more complex calculations. The Jazz functions include many formulas for common operations. For example, the AVG function finds the average of a series of numbers.

You can copy formulas and functions so that you need to build a set of relationships among cells only once. For example, if you have several columns of numbers that you want to total individually, you can enter a formula that totals the numbers in the first column, and then copy the formula to the other columns.

Entering Formulas

A formula calculates with numbers or text and results in a value. When you enter a formula, the value of the formula, rather than the formula itself, appears in the worksheet cell. When you change the value of a cell that a formula refers to, Jazz automatically recalculates the formula and displays the new result.

You enter:	The cell displays:
= 3+5	8
= A1+A2	8, if the value in A1 is 3 and the value in A2 is 5

A formula contains values. You can use actual values, such as 8, or cell or range addresses, such as G5..J20. Most formulas also contain at least one operator. Operators, such as + , tell Jazz what kind of calculation to perform.

1. **Select the cell in which you want to enter the formula.**

2. **Type =**
This marks the beginning of a formula.

3. Enter the first value.
You can type a cell address or an actual value. You can also click a cell to enter its cell address.

If you press Return after this step to complete the formula, the value of the formula is the same as the value of the cell whose address you entered.

4. Type an operator.
The basic arithmetic operators you can use in arithmetic formulas are addition (+), subtraction (–), multiplication (*), and division (/). Jazz also recognizes several other operators that perform more sophisticated calculations. See The Worksheet Reference.

5. Enter another value.
You can continue to enter operators and values, or you can complete the formula after this step.
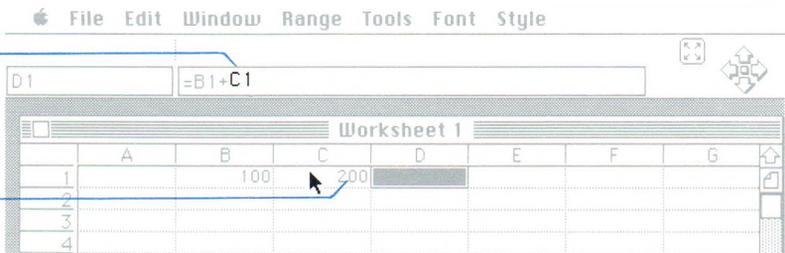
6. Press Enter.
The formula appears in the contents box, and the value of the formula appears in the cell.

Before

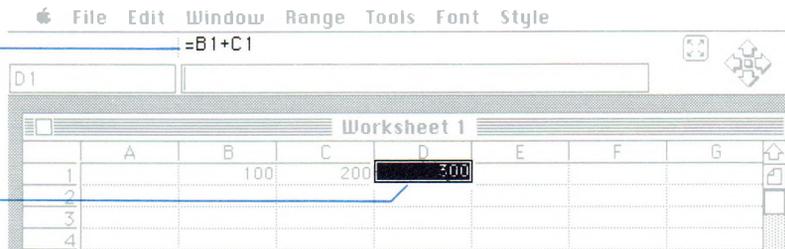The address of a cell you click appears in the formula.

The cell you click does not become the active cell.

After

The address of a cell you click appears in the formula.

The value of the formula appears in the cell.

If the formula contains a mistake, Jazz beeps, displays an alert message, and highlights the problem area. For example, you may have typed two operators in a row. Correct the mistake and press Enter again.

When you change an entry in a cell that a formula refers to, Jazz automatically recalculates the formula and displays the new result.

Precedence numbers. Jazz follows certain rules of order when it calculates formulas. For example, it reads the formula $= 4+5*2$ as "multiply five by two and add four" (14), *not* "add four and five and multiply the total by two" (18). All operators have precedence numbers, which determine the order in which Jazz performs each operation in a formula.

Jazz performs an operation with a higher precedence number before an operation with a lower precedence number. It performs operations with the same precedence number in left to right order. Jazz interprets the formula $= 4+5*2$ as "multiply five by two and add four," therefore, because multiplication has a higher precedence number than addition. The Worksheet Reference lists the precedence numbers of Jazz operations.

You can override precedence numbers by using parentheses in a formula. Jazz calculates expressions in parentheses first. Within each set of parentheses, precedence numbers apply. If you use parentheses within parentheses, Jazz calculates the innermost expression first.

Correcting errors. Some common errors that occur in a formula are:

- Starting with a letter. Do not begin a formula with a cell address such as M20. Jazz interprets this as a text entry. Always type $=$ at the beginning of a formula.

- Unbalanced parentheses. Check each pair of parentheses. If you put parentheses in the wrong places or if you don't have an equal number of left and right parentheses, the formula is invalid.

- Incorrect cell references. Check each cell the formula refers to, in case it contains the wrong kind of data (for example, text instead of a number).

- Circular references. A formula may refer to a cell that directly or indirectly refers back to the cell that contains the formula. This is called a circular reference. (For example, cell A1 has a circular reference if it depends on cell B1, which depends on cell C1, which depends on the original cell, A1.) When this happens, the values in these cells can change every time Jazz recalculates the worksheet. Usually, you don't want this to happen.

Click the Circular Reference icon, which appears when a formula creates a circular reference. Jazz moves the pointer to the first cell that caused the circular reference and makes that cell the active cell. Correct the circular reference, and press Enter.

Viewing a formula. To see a formula, select the cell that contains the formula. The formula's value appears in the cell, and the formula itself appears in the contents box.

You can change the format of a range so that formulas, rather than their values, appear in the range. Select the range and choose Format from the Range menu. Click Formula Text and then click OK. This does not change the way Jazz calculates the formulas. To see the values again, select the range, choose Format from the Range menu, and click a numeric format.

To change the whole worksheet so that formulas appear in the worksheet instead of values, choose Show Attributes from the Style menu. To see the values again, choose Show Values from the Style menu.

Changing the recalculation mode. The default recalculation mode is Automatic, which means that Jazz recalculates every formula in the worksheet each time you change a value. You may want to change the recalculation mode if you have a large worksheet with many formulas. Choose Recalc Settings... from the Range menu. Click Manual for the Recalculation Mode. Jazz now recalculates formulas only when you choose Recalculate from the Range menu.

When the Recalculation mode is Manual and you change an entry that a formula depends on, Jazz may display the formula's value incorrectly. Jazz displays the Recalculate icon when numbers have changed since the last recalculation. Click the Recalculate icon or choose Recalculate from the Range menu to recalculate all the worksheet formulas.

Converting a formula to a value. While a formula is in the entry box, click the Calculate icon to convert the formula to its value. The entry appears as a value in the worksheet, and Jazz stores it as a value rather than as a formula.

Calculating with Jazz Functions

Functions are built-in formulas that perform many standard types of calculations. Using a function can save you time, because Jazz performs many of the steps of a function automatically. You can refer to a range in a function, rather than listing individual cells. For example, to find the average of the values in five cells without a function, you type: =(A1+A2+A3+A4+A5)/5. Using a function, you type: =AVG(A1..A5).

Jazz has arithmetic functions that perform calculations such as adding, averaging, and rounding off. Text functions calculate with or result in text values. Logical functions result in TRUE or FALSE values. Other Jazz functions perform financial, scientific, calendar, or other specialized calculations.

1. **Select the cell in which you want to enter the function.**

2. **Choose Enter into Formula... from the Edit menu.**

3. **Click Functions, if necessary.**
All the Jazz functions are listed in alphabetical order. Jazz has a short name for every function. For example, AVG is the function name that stands for Average.

Chapter 7 describes all the Jazz functions.

4. **Click the function you want.**
   Use the scroll arrows to locate a function, if necessary.

5. **Click Enter.**
   Jazz inserts an equal sign (=) and the function in the entry box, along with a description of the arguments.

6. **Type the argument(s).**
   The format for most functions is:

   = function name(*argument 1,argument 2,...*)

   The arguments tell Jazz what values to use when it performs the function. Arguments can be specific values, as in the function = AVG(1,2,3); cell ad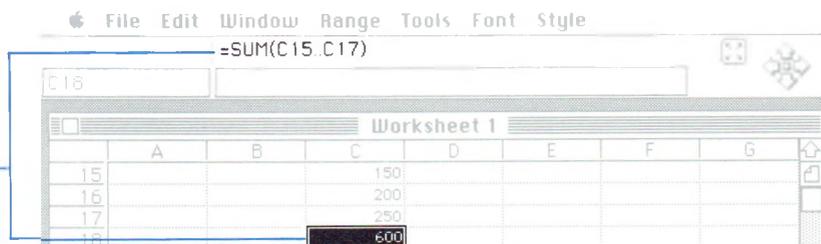dresses, as in = AVG(B1,B2,B3); range addresses, as in = AVG(B1..B3); or range names, as in = AVG(name). You can click a cell or drag across a range to enter its address, or you can type the cell or range address.

7. **Press Enter.**
   The function appears in the contents box, and its value appears in the cell.

The SUM function in C18 adds the contents of the cells in the range C15..C17.

Keep in mind

Other kinds of arguments. Functions can have arguments that are functions. For example, the formula = SUM(MAX(A1..B7),MAX(C1..D7)) finds the highest numeric value in each of two ranges and adds them together.

Correcting errors. Some common errors that occur in a function are:

- Wrong number of arguments. If you have too few or too many arguments, the formula is invalid.

- Arguments in the wrong order. If you enter arguments in the wrong order, the formula is either incorrect or invalid.

- Text without quotation marks. When you enter text directly in a function, surround it with double quotation marks. If you do not, Jazz displays an alert message.

- Unbalanced parentheses. Check each pair of parentheses. If you put parentheses in the wrong places or if you don't have an equal number of left and right parentheses, the function is invalid.

Entering a function in a formula. If you have already typed an equal sign (=) in a formula, Jazz does not insert an equal sign in the entry box when you choose Enter into Formula... and choose a function.

Entering Text Formulas

Text formulas calculate with text just as arithmetic formulas calculate with numbers. For example, text formulas can count the number of characters in a text entry, combine text from different cells into one cell, or change uppercase letters to lowercase. A text formula is also useful, for example, when you want to include only the first four letters of a customer's name as part of the customer code.

You can use an operator and/or functions in a text formula. The arguments in a text formula can be specific text, or they can refer to cells that contain text.

1. **Select the cell in which you want to enter the text formula.**

2. **Type = .**

3. **Enter the first value.**
   You can type a cell address or an actual value. You can also click a cell to enter its cell address. You can drag across a range or type its address to enter a range address. To enter text, enclose it in double quotation marks — for example, "Arwen Lloyd."

4. **Type an ampersand.**
   The only text operator is the ampersand (&). This operator combines two text entries into a single entry.

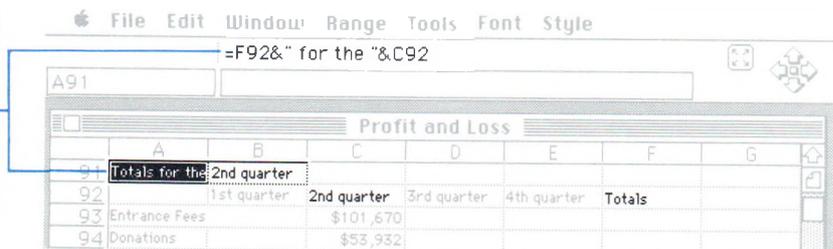| You type:	The cell displays:
= A1&A2	NameDate (when A1 = Name, A2 = Date)
= "Name"&"Date"	NameDate
= "Name"&" and "&"Date"	Name and Date
= "Name: "&A1	Name: Mary (when A1 = Mary)

5. **Enter another value.**
   You can continue to enter the text operator and values.

6. **Press Enter.**

The text formula in A91 calculates with text entries in F92 and C92.

Text functions. Jazz has text functions, which you enter the same way as other types of functions. Text functions either have text values as arguments or result in text values. For example, you can use a text function to change all the letters in a text entry from lowercase to uppercase. See Chapter 7.

Correcting errors. If an error value (ERR) appears in a cell, you may have:

- Used an arithmetic operator rather than ampersand (&) to combine text. For example, = "Day " + "Year", instead of = "Day " & "Year".

- Used the & operator to combine text with a number. For example, = "March" & A1, if A1 contains a number. You can combine a number with text to produce a text value using the FIXED function. For example, enter = "March" & FIXED(A1,0).

Entering Logical Formulas

Logical formulas are useful when you want to perform calculations that depend on whether certain values are true or false. This is usually a two-step process. First, the logical formula produces a value of TRUE or FALSE, and then another formula calculates based on that value. For example, you can write a formula that gives a customer one interest rate if the balance is over $5000 (TRUE), and a different interest rate if the balance is not over $5000 (FALSE).

A logical formula results in a value of either 1 or 0. If a logical formula is TRUE, Jazz displays the number 1. If it is FALSE, Jazz displays 0.

You type:	The cell displays:
= 3 > 2	1 (for TRUE)
= 3 = 2	0 (for FALSE)

1. **Select the cell in which you want to enter the formula.**

2. **Type =** .

3. **Enter the first value.**
   You can type a cell address or an actual value. You can also click a cell to enter its cell address. You can drag across a range or type its address to enter a range address.

4. **Type an operator.**
   The common logical operators are equal (=), not equal (< >), less than (<), and greater than (>).

You type: (where A1 = 5)	The cell displays:
= A1 = 5	1
= A1 < > 6	1
= 6 < A1	0
= 6 > A1	1

5. **Enter another value.**

You can continue to enter operators and values.

6. **Press Enter.**

Logical functions. Jazz has logical functions such as TRUE and FALSE that result in values of 1 or 0. You can also use the logical function IF, which results in values that you determine, such as YES or NO, depending on the result of a logical formula. Chapter 7 describes Jazz's logical functions.

The logical function in H2 determines whether to reorder an item based on the data in D2 and C2.


```
      File   Edit   Window   Range   Tools   Font   Style
                    =IF((D2>(C2*0.5)),"YES","NO")
H2
```

	C	D	E	F	G	H	I
	ORDERED	SOLD	ON HAND	PRICE	TOTAL	REORDER	
1	100	17	83	$2.50	$42.50	NO	
2	200	187	13	$5.50	$1,028.50	YES	
3	50	14	36	$9.00	$126.00	NO	

Copying Formulas

When you copy a formula that contains cell addresses, the addresses may be different in the new location, depending on whether you have made the addresses absolute, relative, or mixed. For example, copying a formula with relative addresses lets you use the same formula to add several different columns of numbers. Copying a formula with an absolute address lets you refer to a constant, such as an interest rate, no matter where you copy the formula to. Copying a formula with a mixed address lets you use a relative address and an absolute address in the same formula. Using a mixed address formula, for example, you can create a table of interest payments from a row of interest rates and a column of principals.

Relative and Absolute Addresses

Use a relative address to refer to the *position* of a cell in relation to the cell that contains the formula. A relative address is not a permanent reference to a particular cell.

You type in cell D1:	Jazz reads the formula as:
= A1+B1	the value three columns to the left, same row, plus the value two columns to the left, same row

Use an absolute address to refer to the same cell, no matter where you copy the formula to. An absolute address is a permanent reference to a particular cell.

You type in cell D1:	Jazz reads the formula as:
= A1+ B1	the value in A1 plus the value in B1

You can also combine relative and absolute addresses in a single formula. The difference between relative and absolute addresses becomes important when you copy a formula to another cell or cells.

Copying a formula with a relative address.

Copying a formula with absolute and relative addresses.

Use a mixed address to make a cell reference that is part relative and part absolute — either the column letter or the row number remains constant.

You type in cell D1:	Jazz reads the formula as:
= A$1+ $B1	the value three columns to the left, row 1, plus the value in column B, same row

Copying a Formula

1. **Make the formula's cell addresses absolute or mixed, if necessary.**
   Cell addresses are relative by default. To make a cell address absolute, type a dollar sign ($) before each column letter and row number in the address, or use the Absolute icon.

   The Absolute icon appears when you select a cell or range by clicking or dragging while entering or editing a formula. Click the Absolute icon once to make the address absolute. Click it two or three times to make the address mixed. Clicking a fourth time makes the address relative again. When you type another character, the Absolute icon disappears.

2. **Select the cell or range that contains the formula or formulas you want to copy.**

3. **Choose Copy from the Edit menu.**

4. **Select the cell in the upper left corner of the range where you want the copy to go.**

5. **Choose Paste from the Edit menu.**

Copying a formula into more than one cell. Copy the formula and paste it in a range instead of in a single cell. Jazz makes as many copies of the formula as it takes to fill the range.

= C4∗D1

Copying the formula in D4 to a range multiplies each principal amount (relative address) by the interest rate (absolute address).

	A	B	C	D	E	F	G
			Rate	10%			
1							
2							
3			Principal	Interest			
4			$5,000	$500			
5			$6,000	$600			
6			$7,000	$700			
7			$8,000	$800			
8			$9,000	$900			
9			$10,000	$1,000			

Interest Rates

Copying range names. Range names are relative by default. Type a dollar sign ($) in front of the range name to make it an absolute reference. When you copy such a formula to a new location, the range name refers to the original range. You can edit the $ in the range name in the same way you edit other characters.

You cannot make a range name a mixed reference in a formula.

How to Change the Worksheet's Appearance

Jazz can display data you enter in the worksheet in many different formats. Some formats only affect numbers; for example, Jazz can display a number you enter as currency or as a percent. Other formats affect only the positioning of text entries in cells.

The width of the column can also affect how Jazz displays an entry. If the column is too narrow for Jazz to display the entire entry, the entry is either cut off and appears with ellipses, or it appears in scientific format. You can widen the column to see the whole entry.

Jazz also lets you create titles by "freezing" rows or columns so that they appear in the window, no matter what part of the worksheet you're looking at.

Changing the Format of Numbers

The way a number or formula appears in a cell depends on the display format of the cell. For example, the number 37 can appear in a cell as currency ($37.00), as a percent (3700%), in scientific notation (3.7E1), or in other formats. A cell's display format does not affect the way Jazz stores the number in the cell.

1. **Select the cell or range in which you want to set the display format.**

2. **Choose Format... from the Range menu.**

3. **Click Format for the Selected Range or Default Numeric Format.**
   Click Format for the Selected Range to set the format for the active area. Click Default Numeric Format to set the default numeric format for the entire worksheet. Until you change it, the default numeric format for the worksheet is General — numbers have no zeros after the decimal point, and very large and very small numbers appear in scientific format.

4. **Click a format.**
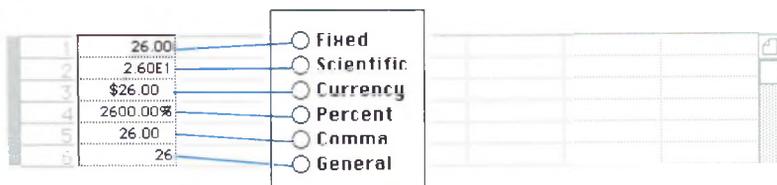
If you choose any numeric format except General, you can enter a number of decimal places at the bottom of the dialog box. Click the up or down arrow to choose a number from 0 to 15. The default number of decimal places is 2.

5. **Click OK.**

Changing a cell's format. You can change a cell's format by choosing a new format, or by pasting an entry with a different format into the cell.

Date and time formats. You can format a cell by typing an entry in an explicit date or time format. Jazz automatically formats the cell according to the format you entered with the entry. For example, if you type 22-Jul-85, the entry appears as 22-Jul-85 and Jazz gives the cell the Date format DD-MMM-YY.

There are four date formats and four time formats. The date formats are DD-MMM-YY, DD-MMM, MMM-YY, and MM/DD/YY. The time formats are HH:MM:SS AM/PM; HH:MM:SS, 24 Hour; HH:MM AM/PM; and HH:MM, 24 Hour.

You can assign a range a Date or Time format by choosing Format from the Range menu. To choose a Date, click Date and click one of the four formats that appear at the bottom of the dialog box. To choose a Time, click Time and click one of the four formats at the bottom of the dialog box.

Seeing a cell's format. To see the formats of all worksheet cells displayed in the worksheet, choose Show Attributes from the Style menu. Jazz displays the cell contents in the top half of each cell, and the cell attributes, including the format, in the bottom half of the cell. For example, the format Currency 2 appears as cur 2 in the cell. To display the values again, choose Show Values from the Style menu. See The Worksheet Reference for a list of abbreviations that appear in the cells.

Cutting and copying. When you cut a cell, Jazz removes the display format from the cell along with the cell contents. Similarly, when you copy a cell, Jazz copies the cell's display format and the cell contents. When you paste an entry you cut or copied, Jazz pastes the format and the entry in the new location.

Changing the Format of Text

The way text appears in a cell depends on the display format of the cell. Text can be left-aligned, right-aligned, centered, or repeating across the cell. The display format you select does not affect the way Jazz stores the cell entry.
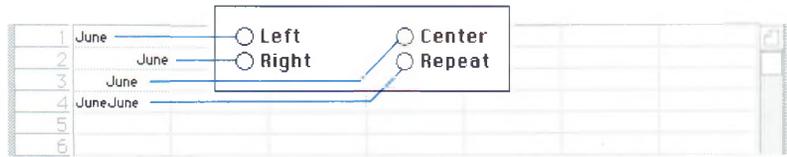
1. **Select the cell or range whose display format you want to set.**

2. **Choose Format... from the Range menu.**

3. **Click Format for the Selected Range or Default Text Format.** Click Format for the Selected Range to set the format for the selected range. Click Default Text Format to set the default text format for the entire worksheet. The default text format for the worksheet is left-aligned until you change it.

4. **Click Text.**

5. **Click the text format you want.**

6. Click OK.

Changing Column Widths

Changing the width of a column does not affect the values in the cells in that column. You may need to widen the column to display a long number or a long text entry. You may want to shrink the width of all the columns to fit more columns on the screen.

Changing the width of one column

1. Position the pointer on the right border line of the column you want to change.

The pointer becomes a double arrow when it is on a column border line.

2. Drag the border line to the right to widen the column. Drag the border line to the left to make the column narrower.

Changing the widths of all columns

1. Choose Column Widths... from the Style menu.

2. Type a new number.

3. Click OK.

Keep in mind

Changing the widths of several columns. To change the widths of a range of columns, select the columns, then change the width of one column in the range. Jazz changes all of the column widths in the range to match the one you changed.

Freezing Rows and Columns

Frozen rows always appear at the top of the worksheet, no matter where the active cell is. Frozen columns always appear on the left side of the worksheet. Frozen rows and columns are called titles. When you freeze titles, you can move the pointer around in a large table, for example, and still be able to see the headings at the top or at the left of the table.

1. Select the rows or columns you want to freeze.
The rows you want to freeze must include row 1 and the columns must include column A.

2. Choose Set Left Titles or Set Top Titles from the Range menu.
If you selected rows, Set Left Titles appears on the Range menu. If you selected columns, Set Top Titles appears on the Range menu.

Frozen row, or title

	A	B	C	D	E	F	G
1	ITEM	ITEM NO.	ORDERED	SOLD	ON HAND	PRICE	TOTAL
2	Binoculars	480	5	2	3	$45.00	$90.00
3	Booklets	110	250	87	163	$0.50	$43.50
4	Carryalls	376	100	7	93	$8.00	$56.00
5	Film, Cart...	688	100	47	53	$2.50	$117.50

The titles remain visible as you move down in the worksheet.

	A	B	C	D	E	F	G
	ITEM	ITEM NO.	ORDERED	SOLD	ON HAND	PRICE	TOTAL
6	Film, 36	654	100	17	83	$2.50	$42.50
7	Film, 120	662	100	34	66	$2.50	$85.00
8	Hats	341	200	156	44	$3.50	$546.00
9	Slides	680	70	21	49	$3.00	$63.00

You cannot select or change cells in a title until you unfreeze the title.

Keep in mind

Unfreezing a title. Choose Cancel Titles from the Range menu. Once you unfreeze a title, you can edit the entries and perform other Jazz operations in that area again.

Freezing both rows and columns. To freeze both rows and columns in the same worksheet, freeze one and then freeze the other. You can perform the steps in either order, but you must freeze rows and columns separately.

How to Protect Data

Jazz lets you protect entries, hide them, or both. Protecting data prevents changes to the entries. Hiding entries means that Jazz does not display them in the worksheet or console. You can still use the hidden entry in a formula that refers to the cell.

For the greatest security, you can both protect and hide your data. This is useful if you are creating a worksheet for others to use, and you want to ensure that essential formulas don't get changed by accident, or that confidential information doesn't appear on the worksheet.

The settings that let you protect cells and hide cells are the protection settings. You must enable the protection settings for the entire worksheet in order for specific range settings to work. If you disable the protection settings for the worksheet, specific settings do not work on ranges.

Preventing Data from Being Changed

Protecting a range lets you see, but not change, the contents of the cells. You may want to protect certain areas of a worksheet when you are preparing it for others to use.

1. **Select a range.**
   To protect the whole worksheet, choose Select All from the Edit menu.

2. **Choose Protection... from the Range menu.**

3. **Click Prevent Entry of New Values to check the box.**

4. **Click Enforce Protection Settings to check the box.**
   This activates all protection settings in the worksheet. If this box is checked, the selected range is protected in the worksheet. (This includes any cells you protected previously.) If it is not checked, the selected range is not protected in the worksheet.

5. **Click OK.**
   The selected range is now protected. The appearance of the cells does not change. Jazz displays the Protect icon in the upper left corner of the console to show that protection is currently being enforced.

Keep in mind

Temporarily turning off all protection settings. Choose Protection... from the Range menu and click Enforce Protection Settings to remove the check.

Canceling protection. To cancel protection on a range or on an entire worksheet, use the steps above. In step 3, however, click Prevent Entry of New Values to remove the check.

Checking values in cells. When you create a worksheet for others to use, you may want to ensure that the user enters the appropriate kind of data. To let Jazz check whether the values entered in a range are numbers, format the cells with a numeric format. Similarly, to check for text, dates, or times, choose a text, date, or time format. Then use the steps above. In step 3, however, click Check Entry Format to check the box. When you complete the command, Jazz accepts only data entered in the correct format. For example, if you chose a numeric format, Jazz only accepts numbers in this range.

Click Check Entry Format again to turn off this setting.

Displaying protection settings. To see the protection settings of all cells in the worksheet, choose Show Attributes from the Style menu. Jazz displays the cell contents in the top half of the cell, and the cell attributes, including protection settings, in the bottom half of the cell. To see the values again, choose Show Values from the Style menu. See The Worksheet Reference for a list of abbreviations that appear in the cells.

Hiding Worksheet Data

Hidden entries do not appear in the worksheet or the console. This does not change the way Jazz stores the hidden data.

1. **Select a range.**
2. **Choose Protection... from the Range menu.**
3. **Click Hide Values to check the box.**
4. **Click Enforce Protection Settings to check the box.**
   This activates all protection settings in the worksheet. If you check this box, the entries in the hidden cells are not visible in the worksheet or in the contents box. If you remove the check, the entries in the cells are visible in the worksheet and in the contents box.
5. **Click OK.**

Keep in Mind

Making hidden cells visible. Use the steps above. In step 3, however, click Hide Values (if necessary) to remove the check from the box.
Temporarily turning off all protection settings. Choose Protection... from the Range menu and click Enforce Protection Settings to remove the check.

How to Do Advanced Tasks

Jazz has several advanced features that make using the worksheet easier. These include naming ranges, using date and time serial numbers in calculating, and performing "what-if" calculations.

If you often refer to the same range in formulas, you can name the range and then use the range name in formulas instead of selecting the range or typing the range address.

Date and time serial numbers let you calculate with dates and times as easily as with other values. Jazz displays the date or time in the format you choose.

What-if tables let you use the same formula or formulas with a series of values. For example, you might use a what-if table to calculate mortgage payments at various interest rates and payment periods.

Naming a Range

Once you name a worksheet range, you can use the range name instead of typing the range address or selecting the range in a formula or command. A range name is easier to remember than a range address, because the name can describe the contents of the range.

Naming a range

1. **Select a range.**

2. **Choose Name... from the Range menu.**

3. **Type a range name.**
   Type a short name in the space provided. You can use only letters, numbers, and spaces in a range name; Jazz beeps if you try to enter any other character. Jazz beeps and displays an alert message if you type a range name that is already in use in this worksheet.

Name a Range	OK
Name: Principal	Cancel

Choose a range name that is easy to remember.

4. **Click OK.**
   There is no visible change to the range. The range name appears in the list of range names when you choose Review Names... from the Range menu. When you select the range, the range name appears in the selection box.

   Jazz uses the range name instead of the range address whenever possible. For example, if you type the range address of a named range in a formula, Jazz displays the formula with the range name instead of the range address.

1. **Begin typing the formula or function.**

2. **Type the range name.**
   You can also choose Enter into Formula... from the Edit menu.
   Click Range Names, then click the range name you want to use and
   click Enter.

3. **Complete the formula or function and press Enter.**

Keep in mind

Using a range name in the selection box. Once you name a
range, you can select the range using its name. Double-click the
selection box and type the range name. Press Enter. Jazz selects the
range whose name you typed.

Giving a range more than one name. A range can have more
than one name. When you give a range more than one name, how-
ever, Jazz displays only the name that comes first alphabetically.
For example, if you name the same range both Sales and June
Sales, typing **Sales** in the selection box selects the range, but Jazz
displays June Sales in the selection box.

Seeing or Changing Range Names

Jazz lets you look at all of the range names you have created. You
can edit any range name or change the address associated with it.
For example, you may want to do this to refresh your memory of
the named ranges in this worksheet, or to change the size of a
named range to accommodate new data.

1. **Choose Review Names... from the Range menu.**

2. **Scroll through the range names, if necessary.**

3. **Click the range name you want to change.**

4. **Edit the range name, the range address, or both.**
   Use the same editing techniques that you use to edit a cell entry.

   Click Undo if you want to return the selected range name and
   range address to their original values.

5. **Click Done.**
   If you entered a new name, Jazz automatically changes the range
   name to the new name in all formulas that contain the range name.
   Changing a range address, however, causes Jazz to calculate all for-
   mulas that contain the range name with the new range address.

Deleting a range name. To delete a range name, follow the steps above. After you click the range name you want to delete, click Discard. Jazz removes the name from the range and from the range name list. The contents of the range do not change.

Calculating With Dates and Times

Jazz can store dates and times as serial numbers so that you can use them in calculations. For example, using serial numbers lets you find the difference between the beginning and ending date of a particular project. You can enter a date in a cell in one of four date formats. You can enter a time in a cell in one of four time formats.

Jazz assigns a unique serial number to every date between January 1, 1904 and February 6, 2040.

You type:	Jazz stores:
01-Jan-04	1460
01-Jan-05	1826
7-Jul-84	30868
12/31/99	36523
1/1/100	36524

Jazz assigns a unique decimal fraction to each time of the day. The fractions range from .0000, representing midnight, to .9993, representing 11:59:59 pm.

You type:	Jazz stores:
8:00 AM	.3333
12:00 PM	.5000
4:00 PM	.6667
8:19 PM	.8465

Entering a date or time in a cell

1. **Select a cell in which you want to enter a date or time.**

2. **Enter a date or time.**
   You can enter a date in four formats.

You type:	The cell format becomes:
25-Nov-84	DD-MMM-YY
25-Nov	DD-MMM
Nov-84	MMM-YY
11/25/84	MM/DD/YY

You can enter a date over 2000 in two ways. To indicate the year, type a number over 2000, or type a number over 100. For example, to enter the date May 4, 2030, type either **5/4/2030** or **5/4/130**.

Worksheet

When you enter a date over the year 2000, it appears in the cell the same as a date under 2000. This does not affect the way Jazz stores the entry. For example, when you enter **5/4/130** in A1 and **5/4/30** in B1, both entries appear in the worksheet as **5/4/30**. Jazz stores the entry in A1 as 47605, however, and stores the entry in B1 as 11080.

You can enter a time in four formats.

You type:	The cell format becomes:
07:15:22 PM	HH:MM:SS AM/PM
07:15 PM	HH:MM AM/PM
19:15:35	HH:MM:SS, 24 Hour
19:15	HH:MM, 24-hour

Once you enter a date or time, you can use it to perform calculations.

The formula in F3 determines the billing amount, based on the times in D3 and C3, and the rate in E3.

Keep in mind

Formatting a cell with a Date or Time format. When you copy a formula that contains a date or time to another cell, format that cell with a Date or Time format. If you do not, a serial number (instead of a date or time) appears in the cell that contains the copied formula. To format the cell, select it, choose Format from the Range menu, and choose one of the Date or Time formats.

Using a time in a calculation. To convert a time you entered in one of the four time formats to a real number of hours you can use in calculations, multiply the time by 24. For example, the formula ((D3 − C3)*24) finds the number of hours a job takes, when D3 contains the end time and C3 contains the start time. You can use the result of this formula to calculate costs by multiplying it by the hourly rate.

Calculating with date serial numbers. When you calculate with date serial numbers, adding 1 to the date adds one day, and adding 7 adds a week. For example, if you enter the date 10-Jul-85 in cell C5 and you want to produce the serial number for one week after that date, enter the formula = C5+7.

Creating a What-If Table

Jazz lets you build a what-if table that records the way in which changes to certain cells affect related formulas. A 1-way what-if table shows the effects of changes to one cell on one or more formulas. A 2-way what-if table shows the effects of changes to two cells on a single formula.

Creating a 1-way what-if table

1. **Note a cell you want to be the input cell.**
   During the what-if operation, Jazz copies each what-if value into the input cell before it recalculates the formulas. Make a note of the input cell's address. Be sure the cell you choose is outside the worksheet area where you plan to create the table.

2. **Type a list of what-if values in a single column.**
   Type the values you want to substitute in the formulas. The entries can be in any order in the column. This list is the entry list.

3. **Type one or more formulas that depend on the input cell in the row above the entry list.**
   Leave the cell directly above the list of what-if values empty. Enter the formulas to the right of that empty cell. It doesn't matter whether you enter absolute or relative addresses in this formula.

4. **Select the range that includes the entry list and the formulas.**

5. **Choose Set Table Ranges... from the Tools menu.**

6. **Click 1-Way Table.**

7. **Click Use Selected for Table Range.**

8. **Click the box next to Input Cell 1 and type the address of the input cell.**

9. **Click Compute.**
   One by one, Jazz copies the what-if values into the input cell, then recalculates the entire worksheet. It records the values of the formulas in successive rows below the formulas.

Before

Input cell

Enter a row of formulas and a column of what-if values.

	A	B	C	D	E	F	G
1	Monthly interest + principal, building loan				0.145		
2			Amount				
3			$4,770.83	$5,247.92	$5,725.00	$6,202.08	$7,156.25
4	Interest	10.00%					
5		11.00%					
6		12.00%					
7		13.00%					
8		13.50%					
9		14.00%					
10		14.50%					

After

Jazz fills the table with the values of all the what-if formulas.

	A	B	C	D	E	F	G
1	Monthly interest + principal, building loan				0.145		
2			Amount				
3			$4,770.83	$5,247.92	$5,725.00	$6,202.08	$7,156.25
4	Interest	10.00%	$4,583.33	$5,041.67	$5,500.00	$5,958.33	$6,875.00
5		11.00%	$4,625.00	$5,087.50	$5,550.00	$6,012.50	$6,937.50
6		12.00%	$4,666.67	$5,133.33	$5,600.00	$6,066.67	$7,000.00
7		13.00%	$4,708.33	$5,179.17	$5,650.00	$6,120.83	$7,062.50
8		13.50%	$4,729.17	$5,202.08	$5,675.00	$6,147.92	$7,093.75
9		14.00%	$4,750.00	$5,225.00	$5,700.00	$6,175.00	$7,125.00
10		14.50%	$4,770.83	$5,247.92	$5,725.00	$6,202.08	$7,156.25

Creating a 2-way what-if table

The steps for creating a 2-way what-if table are similar to those for a 1-way table, but you select two input cells and two what-if entry lists for a 2-way table, and you enter only one formula.

1. **Note the cells that you want to be input cell 1 and input cell 2.**
   Make a note of the cell addresses.

2. **Enter the list of what-if values for input cell 1 in a column, and the entry list for input cell 2 in a row.**
   Arrange the two lists as illustrated in the figure below. In both lists, you can enter the values in any order.

3. **Enter a formula that depends on both input cells at the intersection of the two lists.**
   It doesn't matter whether you enter absolute or relative cell addresses in this formula.

4. **Select the range that includes the two entry lists and the formula.**

5. **Choose Set Table Ranges... from the Tools menu.**

6. **Click 2-Way Table.**

7. **Click Use Selected for Table Range.**

8. **Click the box next to Input Cell 1 and type the address of the first input cell.**

   You can also click OK, select a cell in the worksheet, repeat steps 5 and 6 above, and click Use Selected for Input Cell 1.

9. **Click the box next to Input Cell 2 and type the address of the second input cell.**

10. **Click Compute.**

    Jazz copies one what-if value from each entry list into the two input cells, then recalculates the entire worksheet. It records the resulting value of the formula in the body of the table. Jazz repeats this for all the values in the entry lists.

Before

Jazz uses values from the top of the table in input cell 2.

Jazz uses values from the left side of the table in input cell 1.

Jazz calculates the what-if formula to calculate possible car payments.

After

Jazz fills the table with the values of each recalculation of the what-if formula.

Keep in mind

Common problems. If all the resulting values in one column of a 1-way table are the same, the formula at the top of the column does not depend on the input cell you specified. Change the formula so that it depends on the input cell.

In a 2-way table, identical values in a column mean that the formula does not depend on Input Cell 1. Identical values in a row mean that the formula does not depend on Input Cell 2. In either case, change the formula so that it depends on the appropriate input cell.

Alternate method of computing a what-if table. Follow all the steps above for either table, but instead of following the last step, click OK. Then choose Compute Table from the Tools menu. This allows you to change a what-if value or a formula before computing the table.

You can choose Compute Table to recompute the table each time you change the formula or a value in the entry lists.
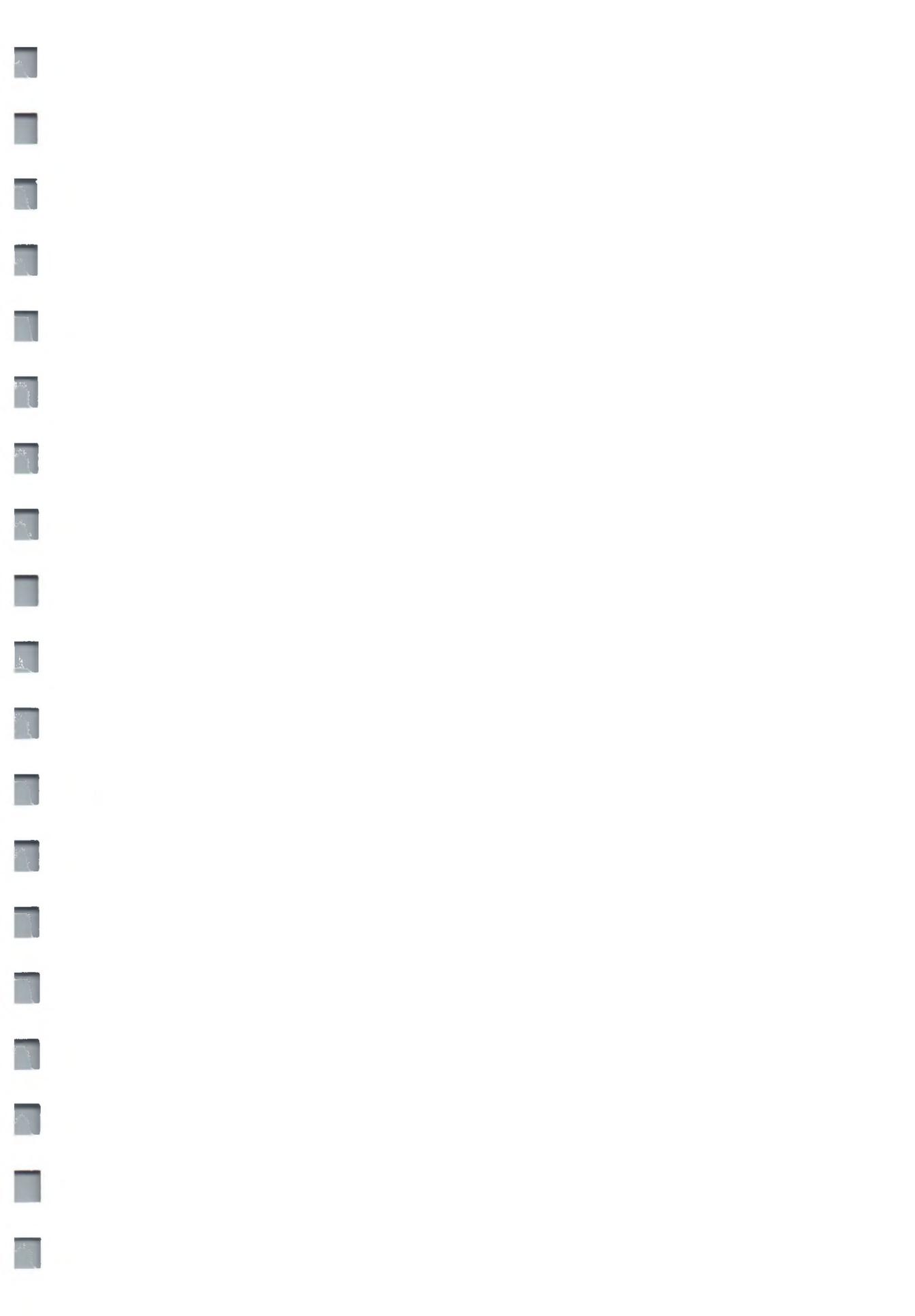
The Worksheet Screen

Recalculate icon

Circular Reference icon

Protect icon

Selection box

Contents box

Entry box

Column label

Menu bar

Console

Cell

Range

Row label

	A	B	C	D
			Expenses	
1	Expenses	Gas Cost	Miles Yr	
2		$1.30	12000	
3	Price	$6,000.00	$9,000.00	
4	Down Payment	$1,150.00	$22,500.00	
5	Loan Value	$4,500.00	$6,750.00	
6	Monthly Payment	$153.80	$230.70	
7	1 st Yr Cost	$3,345.59	$5,018.39	
8	2-3 Yr Cost	$3,691.18	$5,536.78	
9	Fixed Costs	$800.00	$1,195.00	
10	MPG	30	40	
11	Running Costs	$520.00	$390.00	
12	3 Yr Total	$8,356.77	$15,175.16	
13	Salvage Value	$4,500.00	$7,000.00	

File Edit Window Range Tools Font Styl

3345.59

A4..C8   =B14

Active cell

Border line

The Worksheet Reference

Menu bar displays the titles of all Worksheet menus.

Console displays information about the active cell and/or the selected range. The console also contains icons for performing various activities in the worksheet.

End Navigator lets you quickly select cells in the worksheet, and expand or shrink the size of a selected range. Clicking an end arrow while in a blank cell selects the next filled cell in that direction. Clicking an end arrow while in a filled cell selects the last consecutive filled cell in that direction. Clicking an end arrow while at the end of a range selects the next filled cell in that column or row. If there are no more filled cells, Jazz selects the last cell in that column or row. To quickly expand or shrink a selected range, hold down the Shift key and click an end arrow.

Corner Navigator lets you quickly activate alternate corner cells of a selected range or the worksheet's active area. Clicking this icon activates, in a counterclockwise direction, the cell in each corner of the selected range. Or, hold down the Command key and click this icon to select, in a counterclockwise direction, the last filled, formatted, or protected cell in each corner of the worksheet. These cells delimit the worksheet's active area.

Calculate icon calculates the value of a formula in the entry box and replaces the formula with its value. This icon only appears when a formula is in the entry box.

Absolute icon lets you change the cell reference to absolute, mixed, or relative when entering a formula in the entry box. This icon only appears when you click a cell or range in the worksheet, not when you type its address.

Clicking the Absolute icon cycles through the absolute, mixed, or relative cell reference. If the selection consists of one or more columns or rows, the icon alternates only between an absolute and a relative reference.

Cancel icon erases the contents of the entry box. This icon appears only when you are entering or editing information in the entry box.

Entry box shows the characters you are typing or editing. When entering a formula, you can enter cell or range addresses by typing them, or by clicking them in the worksheet.

Contents box shows the contents of the active cell. If the cell contains a formula, the formula appears instead of its value. If the cell contains text, Jazz inserts a double quotation mark ('') as the first character.

Selection box shows the address (or name) of the selected cell or range. If you've named the range, you see the range name. To select a cell or range, you can double-click the selection box, enter the cell or range address (or range name), and press Enter.

Calculate icon

Corner Navigator

End Navigator

Cancel icon

Absolute icon
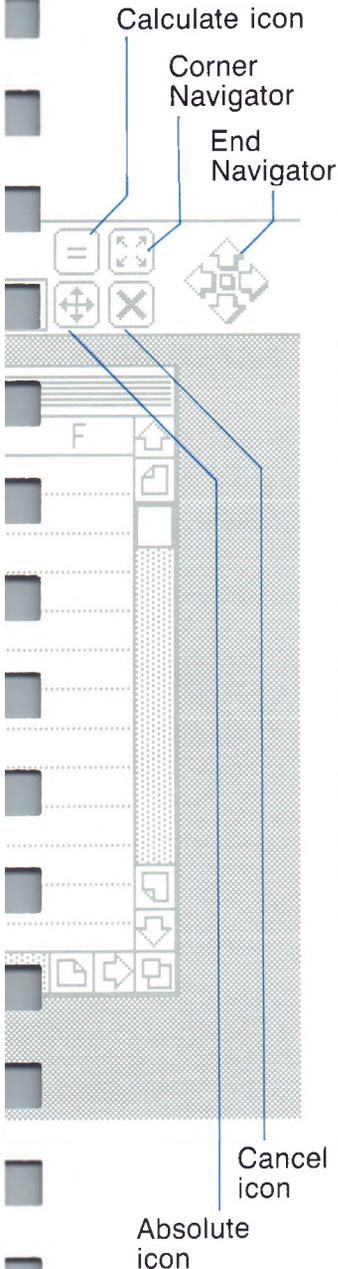
Worksheet

Protect icon appears only if protection settings are being enforced in the worksheet. You specify protection settings and enforce them using the Protection... command on the Range menu.

Circular Reference icon appears if a formula results in a circular reference. Clicking this icon selects a cell containing a formula that is part of the circular reference.

Recalculate icon appears if you made a change in the worksheet that affects the value of any formula and recalculation mode is set to Manual. Clicking this icon recalculates the worksheet. This icon works the same as the Recalculate command on the Range menu.

Cell is the unit of the worksheet in which data appears. Each cell has a unique address, which identifies the cell's location by column and row. For example, A2 identifies the cell in column A, row 2.

Range is any rectangular block of selected cells. Jazz identifies the range by an address that consists of the upper left and lower right cell addresses in the range, separated by one or more periods. (Jazz always displays two periods when identifying a range.) For example, A4.C8 or A4..C8 both identify the range whose upper left corner is cell A4 and whose lower right corner is cell C8.

Active cell is highlighted by a white border to indicate that it is affected by your next cell entry action.

Row label refers to a row number (1-8192) in the left border of the worksheet.

Column label refers to a column letter (A-IV) in the top border of the worksheet.

Border line separates columns and allows you to expand or shrink columns. Dragging the border line to the right makes the column wider; dragging it to the left makes the column narrower.

Selecting Worksheet Cells

If you want to:	Do this:
Select a cell	Click the cell. Or, double-click the selection box, enter the cell address or name, and press Enter.
Select/activate the cell below the active cell	Press Return.
Select/activate the cell above the active cell	Hold down Shift and press Return.
Select/activate the cell to the right of the active cell	Press Tab.
Select/activate the cell to the left of the active cell	Hold down Shift and press Tab.
Select a range	Drag across cells to highlight the range, or double-click the selection box and enter the range address (or range name, if you assigned one), and press Enter.
Activate any cell in the selected range	Hold down the Command key and click a cell inside the range to make it the active cell.
Select one or more columns	Click a column label or drag across neighboring column labels.
Select one or more rows	Click a row label or drag across neighboring row labels.
Expand a range	Shift-click a cell outside the range.
Shrink a range	Shift-click a cell inside the range.

Worksheet

Entering Worksheet Data

If you enter:	Rules for entering:
Numbers	You can begin with one of the following characters: 0 1 2 3 4 5 6 7 8 9 + — . $ % You can enter fractions by using a slash (/); for example, 1 1/2 or 7/8.
Text	You can begin with any letter or symbol except the equal sign (=). You can begin with a number if you also include letters or symbols in the entry. You can change the text alignment by typing one of the following as the first character: ' (left-aligned) \ (right-aligned) ∧ (centered) \ (repeated) '' (default text format) (If one of these characters precedes a number, Jazz interprets the number as text.)
Dates or Times	You can assign a date or time display format to a cell by entering a date or time in any of the following formats: You enter: Jazz formats cell as: 22-FEB-85 Date 22-FEB FEB-85 2/22/85 9:25:10 AM Time 1 12:04 PM 14:22 23:34:15
Formulas	You must begin with an equal sign (=). You must use double quotes around text within a formula. You can enter cell addresses in formulas by clicking the cells or typing their addresses (or range names).

Editing Worksheet Data

If you want to:	Do this:
Edit data in a cell	Double-click the cell to put its contents in the entry box (or activate the cell and choose Open Cell from the Edit menu). Edit the contents, then press Enter.
Replace data in a cell	Click the cell, enter the new data, and press Enter.
Remove data from a cell (without putting the data on the Clipboard)	Click the cell, then choose Clear from the Edit menu.
Remove data from a cell (and put the data on the Clipboard)	Click the cell, then choose Cut from the Edit menu.
Cancel last typed entry	Choose Undo from the Edit menu.

Worksheet

Using Operators

Operators are the symbols that Jazz uses to indicate a relationship between values in a formula. You can use any of the following operators in formulas:

Operators	Operation	Example	Precedence
^	Exponentiation	= LOG(10^5.76)	7
−	Negative	= − C4*A3	6
+	Positive	= A3 + 5.2	6
*	Multiplication	= B17*56	5
/	Division	= SALES/100	5
+	Addition	= C12 + 45	4
−	Subtraction	= D20−C15	4
=	Equal	= BALANCE = 2000/C8	3
< >	Not equal	= LIMIT< >TOTAL−50	3
<	Less than	= A4<PROFITS	3
>	Greater than	= C47>RESULT	3
< =	Less than or equal	= RESULTS< = 1000	3
> =	Greater than or equal	= TOTALS> = A16	3
#NOT#	Logical NOT	= #NOT#(RESULTS = 250)	2
#AND#	Logical AND	= BAL > 100#AND#LATE > 7	1
#OR#	Logical OR	= A1 = C3#OR#A1&C3 = "X"	1
&	Character combination	= "QTY"&" and "&"NO"	1

The precedence number determines the order in which Jazz performs operations within a formula. Jazz performs the operations with the largest precedence number first. If a formula contains operations with the same precedence number (for example, * and /), Jazz calculates the formula from left to right.

You can use parentheses to override order of precedence. If you use parentheses within parentheses, Jazz calculates the formula in the innermost parentheses first.

The Worksheet Menu Bar

The Apple, File, Window, Font, and Style menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

 File **Edit** Window Range Tools Font Style

Undo reverses your last action, such as entering or clearing data.

If Jazz can't undo your last action, this command appears dimmed as Can't Undo. If you disabled Undo, this command is **Undo Disabled**.

Edit menu

Edit	
Undo	⌘Z
Cut	⌘X
Copy	⌘C
Paste	⌘U
Clear	
Select All	⌘A
Paste Special...	
Insert	⌘I
Open Cell	⌘O
Enter into Formula...	
Parse Settings...	
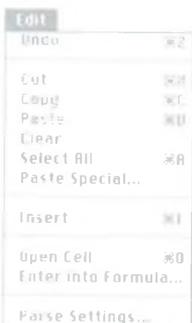
Cut removes the contents of the selected cell or range from the worksheet and places it on the Clipboard, replacing the Clipboard's contents. Jazz removes the display format and protection settings of cells in the selected range; those cells revert to the default format and protection settings. Cutting one or more entire rows removes those rows from the worksheet and moves all lower rows up. Cutting one or more entire columns deletes those columns and moves all columns over to the left.

Relative cell addresses in formulas that are cut and then pasted to another location in the worksheet continue to refer to the same cells.

If protection is being enforced in the worksheet, Jazz prevents you from cutting a cell or range that you have assigned the Prevent Entry of New Values protection setting. To cut the cell or range, you must first cancel this protection setting.

Copy places a copy of the current selection on the Clipboard. The display format and protection setting of cells in the selected range are also copied. This command works the same as the Cut command, except that Jazz does not remove the selected range from the worksheet or alter the worksheet in any way.

Relative cell addresses in formulas that are copied to another location in the worksheet are adjusted so that they continue to refer to cells in the same relative position.

Paste places the contents of the Clipboard into the worksheet, beginning with the first cell in the selected range. If you select a single cell, the entire Clipboard contents are pasted once. If the selected range is smaller than the Clipboard contents, Jazz displays an alert message. If the selected range is larger than the Clipboard contents, Jazz pastes as many complete copies of the Clipboard contents as it can into the selected range.

If the Clipboard contains text from another Macintosh program or a Jazz word processing document, Jazz pastes data into the worksheet according to the options you chose with the Parse Settings... command on this menu.

Clear erases the contents of the selected cell or range from the worksheet. Jazz removes the display format and protection settings of cells in the selected range; those cells revert to the default format and protection settings. Jazz does not place the contents of the cell or range on the Clipboard.

This command differs from the Cut command, which places the contents of the selected range on the Clipboard.

If protection is being enforced in the worksheet, Jazz prevents you from clearing a cell or range that you have assigned the Prevent Entry of New Values protection setting. To clear the cell or range, you must first cancel this protection setting.

Select All selects the active area of the worksheet. The active area is the smallest rectangle in the worksheet that includes cell A1 and all cells with entries, display formats, or protection settings.

Paste Special... performs special paste operations using data on the Clipboard. The dialog box specifies the type of paste operation. When you click OK, the results of the paste operation appear in the selected range in the worksheet.

Add Values, Subtract Values, Overlay Values, Paste Values, and Transpose Values convert formulas to their values before adding, subtracting, overlaying, pasting, or transposing the contents of the Clipboard into the selected range.

Add Values and Subtract Values work only for cells that contain numbers or numeric formulas on the Clipboard. All the other paste options work with either numbers, text, or text formulas.

- Add Values adds the values of formulas on the Clipboard to the selected range, cell by cell. If the selected range contains cells with non-numeric values, those cells are not affected.

- Subtract Values subtracts the values of formulas on the Clipboard from the selected range, cell by cell. If the selected range contains cells with non-numeric values, those cells are not affected.

- Overlay places the contents of the Clipboard into the selected range. Filled cells in the selected range are not written over by blank cells from the Clipboard; they remain unchanged. Empty cells in the selected range are replaced by whatever the Clipboard contains for that cell. If a cell on the Clipboard contains a formula, Jazz copies the formula (and its current value) to the selected range.

- Overlay Values works the same way as Overlay, except that Jazz copies only the values of cells on the Clipboard — not the formulas — to the selected range.

- Paste works the same way as the Paste command on the Edit menu, placing the contents of the Clipboard into the worksheet, beginning with the first cell in the selected range. Formulas are also pasted. This is the default.

- Paste Values works the same way as Paste, except that Jazz only pastes the values of cells on the Clipboard — not the formulas — into the selected range.

- Transpose rotates the contents of the Clipboard and pastes the contents into the selected range, reordering columns as rows and rows as columns. Relative addresses are adjusted to refer to the correct cells.

- Transpose Values works the same way as Transpose, except that Jazz only pastes the values of cells on the Clipboard — not the formulas — into the selected range.

If you select a single cell and choose Paste, Jazz pastes the entire Clipboard contents once, beginning at that cell. If the selected range is smaller than the Clipboard contents, Jazz displays an alert message. If the selected range is larger than the Clipboard contents, Jazz pastes as many complete copies of the Clipboard contents as it can into the selected range.

If you select Transpose and the range is too small to paste at least one complete, transposed copy of the Clipboard contents, Jazz displays an alert message. If the range is larger than the transposed contents of the Clipboard, as many complete copies are pasted as possible.

If you transpose a range to a location whose cells already have entries, Jazz writes over their contents with the transposed range. Formulas that referred to the previous contents now refer to the transposed cell entries.

Insert may be **Insert Rows** or **Insert Columns**, depending on the current selection. If you have not selected at least one entire row or column, this command is dimmed.

Insert Rows moves all rows, including the selected rows, down and inserts a number of rows equal to the number of selected rows. The inserted rows become selected.

Insert Columns moves all columns, including the selected columns, to the right and inserts a number of columns equal to the number of selected columns. The inserted columns become selected.

All addresses in formulas are adjusted so that they continue to refer to cells in the same relative position.

Open Cell puts the contents of the active cell in the entry box for editing. This command works the same way as double-clicking the cell, except that a range selection is preserved.

Enter into Formula... shows a list of all Jazz functions, range names, and operators that you can use to construct (or edit) a formula without having to remember them or type them from the keyboard.

This command is dimmed unless the entry box is empty or contains a formula.

- Functions: Displays an alphabetical list of all Jazz functions.
- Range Names: Displays an alphabetical list of all the range names you defined for this worksheet.
- Operators: Displays the list of symbols used in formulas.

Click an item from the list and click Enter to put your selection in the entry box.

Parse Settings... determines how text on the Clipboard is pasted into the worksheet, so that the text appears in the appropriate rows and columns. Jazz uses parse settings if you paste text from another Macintosh program or from a Jazz word processing document into a Jazz worksheet.
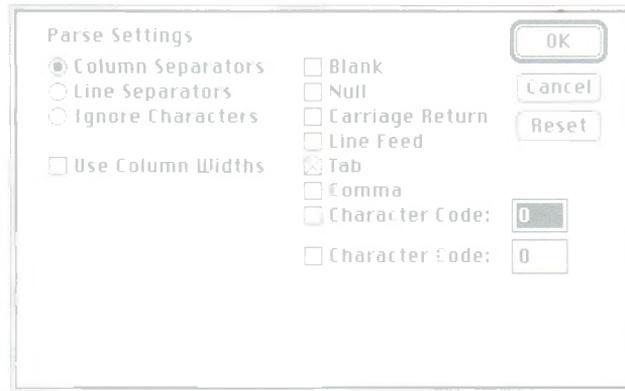
```
┌─────────────────────────────────────────────────┐
│  Parse Settings                    ┌─── OK ───┐  │
│  ⦿ Column Separators    ☐ Blank    └──────────┘  │
│  ○ Line Separators      ☐ Null     ┌── Cancel ─┐ │
│  ○ Ignore Characters    ☐ Carriage Return       │
│                         ☐ Line Feed  ┌─ Reset ─┐ │
│  ☐ Use Column Widths    ☒ Tab                    │
│                         ☐ Comma                  │
│                         ☐ Character Code: [0    ]│
│                         ☐ Character Code: [0    ]│
└─────────────────────────────────────────────────┘
```

The dialog box lets you choose the characters that Jazz recognizes as column and line separators. The separators tell Jazz when to stop pasting information into a column or line and move to the next column or line. Each time Jazz recognizes a separating character, it stops filling the current column or line and moves to the next one in the range.

You can enter additional separators by clicking Character Code and entering a character code in the space provided. The character code must be a number, chosen from the table of Macintosh Character Codes in Appendix D.

• Column Separators: Specifies one or more characters that Jazz recognizes as column separators. The default column separator is the Tab character.

• Line Separators: Specifies one or more characters that Jazz recognizes as row separators. The default line separator is the Carriage Return character.

• Ignore Characters: Specifies the characters that Jazz ignores when pasting data. When Jazz encounters one of these characters, it skips the character and moves to the next one.

• Use Column Widths: (Appears when the Column Separators option is chosen.) Specifies the width, in characters, for data pasted into each column. Jazz pastes text into the worksheet according to the column widths as they appear on the Clipboard.

Clicking Reset clears the contents of the dialog box and reinstates the defaults.

If Jazz finds a character that you've defined as both a column separator and a line separator, Jazz treats it as a column separator.

Range menu
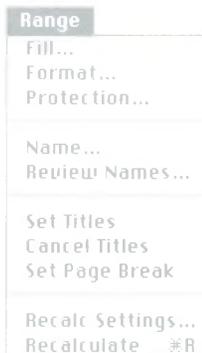
Fill... allows you to enter a sequence of values automatically into a range of cells.

- Start Value: The number (positive or negative) that appears in the first cell.

- Step Value: The interval between each successive value. You can enter a negative number if you want the sequence to go down rather than up.

- Stop Value: The maximum or minimum value in the sequence.

- By Columns: Jazz fills the range by moving down each column in the range.

- By Rows: Jazz fills the range by moving across each row in the range.

You can enter a formula for start, step, or stop value instead of a number. Jazz calculates the formula and uses its value.

Filling continues until either the stop value is reached or the entire range is filled.

Format... changes the display format for numbers and text in the selected cell or cell range.

The dialog box shows the format of the active cell, and lets you choose a format for the selected range or choose a default format for numbers and text in the entire worksheet. (The Show Attributes command from the Style menu lets you see the formats for all cells in the worksheet.)

If you select a numeric format other than General, Jazz gives you the option of specifying the number of decimal places, up to 15. Clicking the up or down arrow in the dialog box cycles you through the number of decimal places. (Jazz stores numbers that have up to 15 decimal places.)

- Format for the Selected Range: Sets the display format for cells in the selected range.

- Default Numeric Format: Sets the default format for numbers in the worksheet.

- Default Text Format: Sets the default format for text in the worksheet.

Worksheet

Display Format	Description	Examples
Fixed	Displays numbers with a fixed number of decimal places.	25.00 −278.2 23.0245
Scientific	Uses the letter E to express numbers in powers of 10.	1.346E3 8.09E − 12 −7.3E8
Currency	Displays $ followed by a number. Negative values appear in parentheses; commas separate thousands.	$6.98 ($36.00) $0.23 $89,473
Percent	Displays percentages.	24.7% −0.06%
Comma	Displays numbers with commas to separate thousands. Negative numbers appear in parentheses.	89,898.00 (1,000.00)
General	Displays numbers as right-aligned. Very large or very small numbers are expressed in scientific format. General is the default for numbers.	10.3 6.03592E8
Bar Graph	Displays a pattern for positive numbers and a different pattern for negative numbers.	
Date	Displays dates, in one of the following formats:	
	1 DD-MMM-YY: Day-Month-Year	23-FEB-85
	2 DD-MMM: Day-Month	23-FEB
	3 MMM-YY: Month-Year	FEB-85
	4 MM/DD/YY: Month/Day/Year	2/23/85

Display Format	Description	Examples
Time	Displays time, in AM/PM or 24 hour format:	
	1 HH:MM:SS AM/PM Hour:Minute:Second	10:03:39 PM
	2 HH:MM AM/PM Hour:Minute	5:17 PM
	3 HH:MM:SS, 24 Hour Hour:Minute:Second (24 hour)	23:03:45
	4 HH:MM, 24 Hour Hour:Minute (24 hour)	14:45
Text	Specifies alignment for text or for numbers that you want formatted as text. By default, text is left-aligned and numbers are right-aligned.	
	Left: left-aligned Right: right-aligned Center: centered Repeat: repeated	TAX TAX TAX TAXTAXTAX
Formula Text	Displays formulas in the worksheet instead of their values.	= PRIN∗RATE
Default	Uses the default formats chosen for numbers and text for all cells in the selected range.	

Protection... lets you choose protection settings for a selected range and enable or disable protection. The dialog box reflects the protection settings for the active cell. If all cells in the selected range do not have the same settings as the active cell, the dialog box displays a message notifying you of this. (The Show Attributes command from the Style menu lets you see the protection settings for all cells in the worksheet.)

- Check Entry Format: If checked, Jazz prevents you from entering data in a cell in the selected range if the data does not match the display format of the cell. Formats that Jazz verifies are date, time, numeric, and text formats. If not checked, Jazz does not verify the format of any data you enter in the selected range. This is the default.

- Hide Values: If checked, Jazz hides the contents of the selected cells from view. If not checked, Jazz displays the contents of the selected cells in the worksheet. This is the default.

- Prevent Entry of New Values: If checked, Jazz prevents you from changing the contents of the selected range, including cutting, clearing, pasting, or filling of any protected cells. If not checked, Jazz allows the contents of cells in the selected range to change. This is the default.

- Enforce Protection Settings: If checked, Jazz enforces protection using the protection settings you chose above for the selected range. Jazz also enforces protection for any ranges you previously selected for protection. The Protect icon appears in the console, indicating that you have turned protection on in the worksheet. If not checked, Jazz does not enforce protection in the worksheet. This is the default.

Name... assigns a name to a selected cell or cell range. The name is added to the list of range names displayed with the Review Names... command.

Once you assign a range name, Jazz uses it instead of the range address, wherever possible. You can assign more than one name to the same range, but in the worksheet, Jazz displays only the name that comes first alphabetically.

Review Names... lets you view, change, or discard a range name and its associated range. A list of range names associated with the worksheet appears.

Clicking a range name in the list lets you rename it or change its associated range. If you change the range name or its associated range address, Jazz adjusts all references to that range name. If you enter an invalid range, Jazz beeps and selects the invalid range.

Clicking OK enters your changes into the list. Clicking Undo reverses all changes you make to a name or its associated range before you click OK. Clicking Discard removes the selected name from the list and disassociates it from the selected range. (The contents of cells in the range are not affected.)

Clicking Done enters your changes into the list and returns you to the worksheet.

If you rename an existing range name, Jazz updates all formulas in the worksheet that referred to that range name with the new name. If you discard a range name from the list, Jazz replaces the range name with the range address in all formulas that referred to that range name.

Set Titles "freezes" selected rows so that they always appear at the top of the worksheet, or freezes selected columns so that they always appear on the left side of the worksheet. Frozen rows and columns are called titles. Titles remain visible even if you scroll to another part of the worksheet. Jazz displays a solid line to separate frozen rows or columns from the rest of the worksheet.

This command is dimmed unless one or more left columns or top rows are selected. It either appears as **Set Left Titles** or **Set Top Titles**, depending on the current selection. You can set both left and top titles in the worksheet.

Cancel Titles "unfreezes" rows and columns that you previously set as titles using Set Titles.

Set Page Break inserts a dashed line above a selected row or to the left of a selected column, to tell Jazz where to start printing a new page. This command is dimmed unless you selected a column or row. You can set both row and column page breaks.

To erase a page break, select the row below the page break, or the column to the right of the page break. When you select a row or column that contains a page break, this command becomes **Clear Page Break**, which removes the page break from the worksheet.

Recalc Settings... controls the way Jazz recalculates formulas or functions in the worksheet. Jazz saves these settings when you save the worksheet.

Recalculation Settings		OK
Recalculation Mode:	⦿ Automatic ◯ Manual	Cancel
Recalculation Order:	⦿ Natural Order ◯ By Columns ◯ By Rows	
Iteration Count:	1	
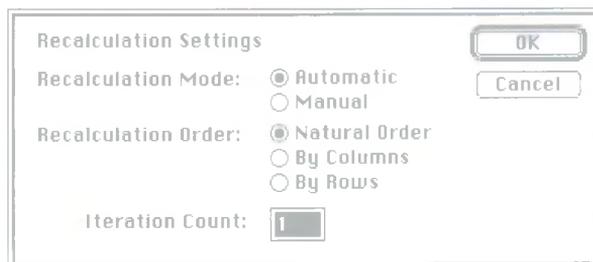
- Automatic: Jazz recalculates the worksheet whenever a change is made that may affect the value of any formulas on the worksheet. This is the default.

- Manual: Jazz displays the Recalculate icon in the console if you make a change that affects the value of any formula. Jazz recalculates the worksheet only when you choose the Recalculate command or click the Recalculate icon.

- Natural Order: Before recalculating a particular formula, Jazz first recalculates all formulas or functions on which it depends. This is the default.

- By Columns: Jazz starts recalculating with column A. It then recalculates columns B, C, and so on, always working top to bottom.

- By Rows: Jazz starts recalculating with row 1. It then recalculates rows 2, 3, and so on, always working left to right.

- Iteration Count: The number of times that Jazz recalculates the worksheet's formulas during a recalculation pass. Enter a number between 1 and 255. The default is 1. Jazz ignores this option unless the Circular Reference icon appears in the console or the recalculation order is By Columns or By Rows.

Recalculate calculates formulas in the entire worksheet. Jazz recalculates formulas according to the choices you made with Recalc Settings... from this menu. This command produces the same results as clicking the Recalculate icon when it appears in the console.

Tools menu

Set Sort Ranges... specifies how Jazz sorts the contents of a selected range (the data range) in the worksheet. Jazz sorts according to the sort ranges you specify in the dialog box. Each sort range must consist of one column within the data range.

You can use as few as one or as many as three sort ranges. For each range, choose Ascending (A, B, C...Z; 1, 2, 3,...) or Descending (...3, 2, 1; Z, Y, X...A) order. This is the order that the values of the cells in the range will have after sorting.

You can keep adding ranges to the dialog box by selecting a range, choosing this command, and then clicking Use Selected to enter the selection in the dialog box. You can also type the range addresses in the dialog box. Clicking Reset clears the contents of the dialog box.

- Data Range: The range address or name of the range to sort.

- First Sort Range: The address of the entire column or any single cell in the column to be used as the primary range.

- Second Sort Range: The first tie-breaker column (optional). This is the address of the entire column or any single cell in the second sort range. If two or more cells in the column specified by the first sort range have the same value, the values in the second sort range determine their order.

- Third Sort Range: The second tie-breaker column (optional). This is the address of the entire column or any single cell in the third sort range. After sorting with the first and second sort ranges, if two or more cells still have the same value, the values in the third sort range determine their order.

Clicking Sort returns you to the worksheet and sorts the range. Clicking this button is the same as clicking OK and then choosing the Sort command from this menu.

	Salesperson	Date	Part No.	Part	Unit Price
	Adams	04-Feb-85	4537	bolts	$2.95
	Adams	23-Jan-85	4537	bolts	$2.95
	Adams	10-Oct-84	4537	bolts	$2.95
	Adams	12-Sep-84	2693	grommets	$3.99
	Adams	16-Aug-84	2693	grommets	$3.99

First sort range

Third sort range
Data range (after sorting)
Second sort range

Sort sorts the data range you specified with the Set Sort Ranges... command. Jazz sorts using the standard Macintosh sorting sequence.

Set Table Ranges... creates a what-if table that records the changes to one or more formulas when you place different values in one or two input cells. It is called a what-if table because it shows all the results of certain formulas when particular cells change in value.

Before using this command, you must prepare a table range that includes one or more formulas that are sensitive to changes in a particular cell or pair of cells (the input cells). When Jazz performs the what-if calculations, it enters the results into the table range.

You can keep adding ranges to the dialog box by selecting a range, choosing this command, and then clicking Use Selected to enter the selection in the dialog box. You can also type the range addresses in the dialog box.

- 1-Way Table: Shows the effects of the changes to one cell on one or more formulas.

- 2-Way Table: Shows the effects of the changes to two cells on one formula.

- Table Range: Specifies, in a 1-way table, the range that contains the column of what-if entries as its first column and the set of formulas as its first row. In a 2-way table, this is the range that contains both the column and row of what-if entries you created.

- Input Cell 1: The cell Jazz fills with values from the column of what-if entries you prepared in the table range.

- Input Cell 2: (For 2-way tables only.) The cell Jazz fills with values from the row of what-if entries you prepared in the table range.

Clicking Compute returns you to the worksheet and computes the what-if table. Clicking this button is the same as clicking OK and then choosing the Compute Table command from this menu.

Compute Table calculates a 1-way or 2-way table, based on what you specified with the Set Table Ranges... command. The results appear in the selected table range in the worksheet. You can then summarize the results in another part of the worksheet and graph them to see how your data responds to the what-if analysis.

Set Distribution Ranges... specifies ranges that Jazz uses to calculate a frequency distribution. A frequency distribution shows how many values in a specified range fall in specified numeric intervals.

Distribution Ranges		OK
Bin Range:	Use Selected	Cancel
		Compute
Value Range:	Use Selected	

You can keep adding ranges to the dialog box by selecting a range, choosing this command, and then clicking Use Selected to enter the selection in the dialog box. You can also type the range addresses in the dialog box.

- Bin Range: Specifies a range, consisting of a column of increasing numbers, or formulas of increasing value, which Jazz uses to compute the frequency distribution.

- Value Range: Specifies the range of values Jazz uses to compute the frequency distribution.

You must leave an empty column to the right of the bin range that is one cell longer than the bin range. This is the range where Jazz lists the results.

Clicking Compute returns you to the worksheet and performs the frequency distribution. Clicking this button is the same as clicking OK and then choosing the Compute Distribution command from this menu.

EMPLOYEE SALARIES (in thousands)					
46.9	35.1	35.9	41.1	10	
17.5	48	43.2	110.4	25	3
43.7	35	9.5	39.3	40	6
41	87.4	22.5	69.1	55	7
11.3	36.2	30.2	48	70	1
					2

Bin range

Value range

Jazz calculates frequency distribution here.

Compute Distribution performs a frequency distribution and lists the results in the results column to the right of the bin range.

The first cell in the results column contains the number of values in the value range that are less than or equal to the first value in the bin range.

Each successive cell in the results column contains the count of values greater than the previous bin value, up to and including the bin value to the left.

In the extra cell of the results column, Jazz places the number of values (if any) that exceed the last bin range value.

Empty cells and cells containing text in the value range have the value zero.

Style menu

File   Edit   Window   Range   Tools   Font   **Style**

Style
- ✓Plain Text
- **Bold**
- *Italic*
- Underline
- Outline
- Shadow

- Hide Grid
- Hide Borders
- Column Widths...

- ✓Show Values
- Show Attributes

You can choose any available style for the entire worksheet. The style you choose is checked in the menu. The default style is Plain Text, which cannot be mixed with other styles. You can combine the other styles, however, for a variety of effects.

Hide Grid removes the column and row grid lines from the worksheet. When the grid is hidden, this command becomes **Show Grid**, which redisplays the worksheet grid.

Hide Borders removes the column and row labels from the worksheet. When the labels are hidden, this command becomes **Show Borders**, which redisplays the worksheet labels.

Column Widths... specifies the default column width, in characters, for all columns in the worksheet. The dialog box displays the last number you entered for the width. Jazz bases the number you enter on the maximum number of lowercase "m" characters, in the current font and style, that can fit in the cell. The initial default is 7.

- Restore Default Width to Selected Columns: If checked, Jazz restores the default column width specified in this dialog box to the selected columns. This option is dimmed unless one or more columns are selected in the worksheet.

Show Values displays the contents of all cells in the worksheet.

Show Attributes displays the format and protection settings of all cells in the worksheet. You can continue to perform all worksheet operations while this command is checked.

The top half of each cell displays the formula or unformatted contents of that cell (if any). In the bottom half of the cell, Jazz uses a format abbreviation to show the display format and protection settings for the cell (if any).

Format Abbreviation	Display Format
fix	Fixed
sci	Scientific
cur	Currency
per	Percent
com	Comma
gen	General
bar	Bar Graph
dat	Date
tim	Time
txt le	Text, left-aligned
txt ri	Text, right-aligned
txt ce	Text, centered
txt re	Text, repeated
for	Formula Text

For numeric formats, the number of decimal places (0-15) is displayed. For Time and Date formats, this number corresponds instead to one of the four subformats:

Number	Time Subformat	Date Subformat
1	HH:MM:SS AM/PM	DD-MMM-YY
2	HH:MM AM/PM	DD-MMM
3	HH:MM:SS, 24 hour	MMM-YY
4	HH:MM, 24 hour	MM/DD/YY

To the right of the format, Jazz displays any combination of up to three protection settings that you chose using the Protection... command on the Range menu. The first letter of the protection setting appears only if that setting was checked in the Protection... dialog box.

Letter	Protection Setting
c	Check Entry Format
h	Hide Values
p	Prevent Entry of New Values
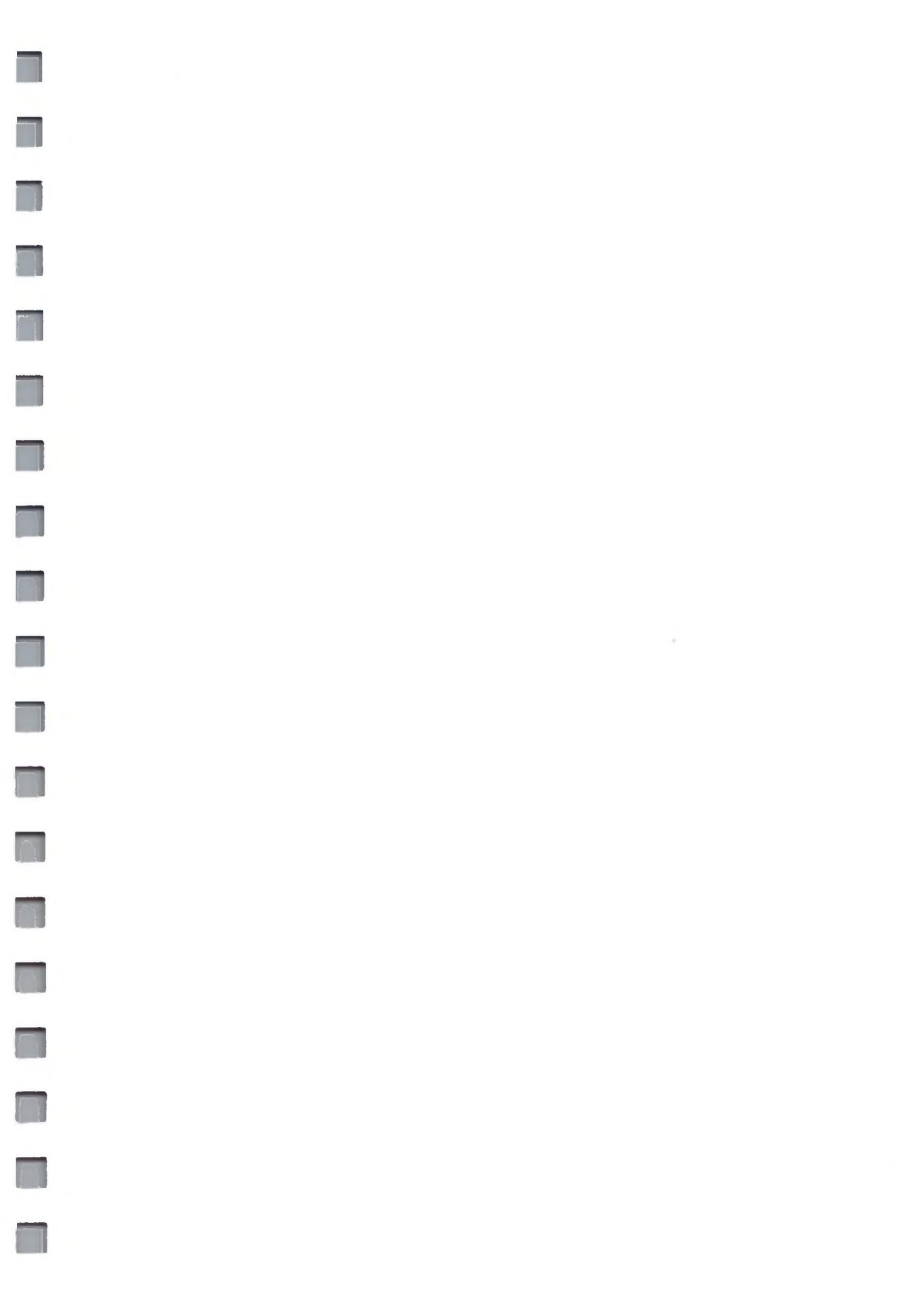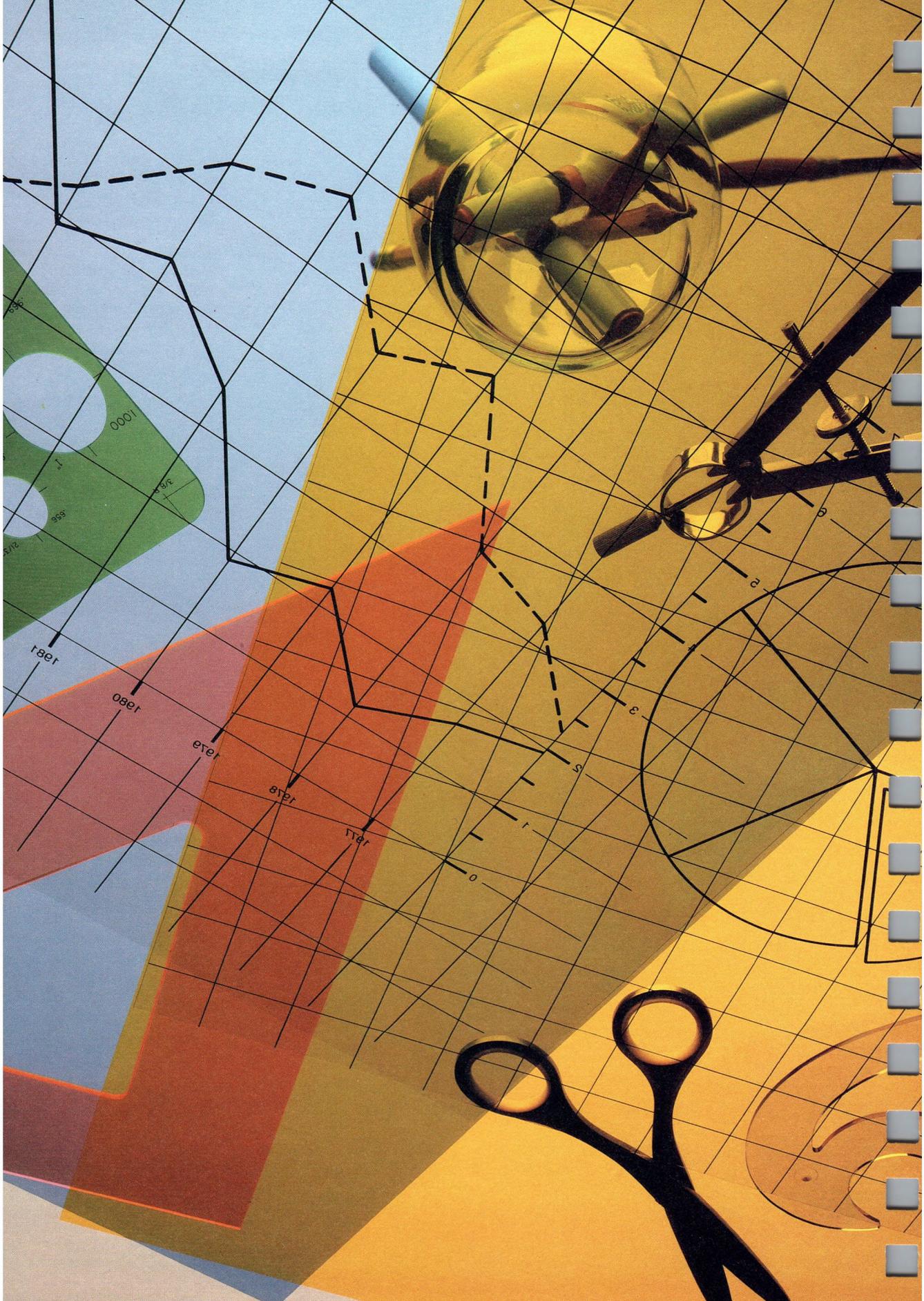
Chapter 3
Graphics

Graphs you create with Jazz represent worksheet or database data visually. Illustrating a report or memo with a graph can increase the impact of what you're saying, or clarify the meaning of the data. Jazz can even combine different graph types to emphasize particular data or present different data in the same graph.

Jazz can create many types of graphs, including pie charts and line, bar, area, stock market, percent, and scatter graphs. You can also enhance a graph in many ways — for example, by adding labels, titles, or explanatory text. Once you create a graph, you can edit it, save it, change its size, or print it.

To create a graph, you select the data you want to graph in a worksheet or database, open a graphics document, and choose the type of graph you want to create. You then build your graph by selecting additional ranges from the worksheet or database and adding them to the graph.
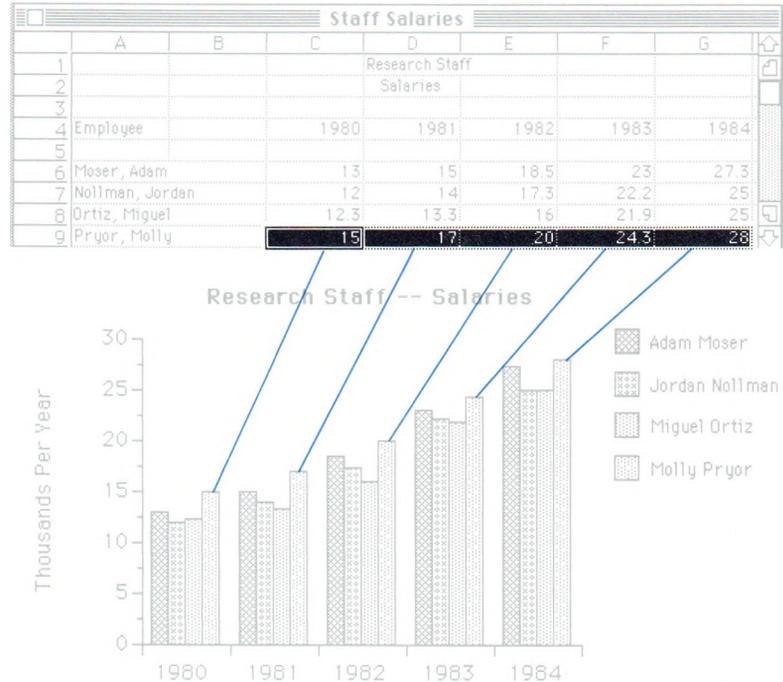
Once you use data from a worksheet or database in a graph, Jazz always associates the graph with that worksheet or database. This means that Jazz automatically changes the graph to reflect changes in the data. Because a graph is linked to the worksheet or database, you should store the graph and the associated document on the same disk.

You can also incorporate graphs in a word processing document. Jazz changes the graph *and* the word processing document when you change the data the graph is based on in the worksheet or database.

Using Graphics requires a thorough knowledge of the Worksheet or Database application. You may want to become familiar with these applications before you begin working on Graphics.

How to Draw a Graph

Before you create a graph, you need to decide what kind of graph will represent your data most effectively. Pie charts, for example, are best for showing the relationship among parts of a whole, whereas line graphs usually show changes over time. Choosing the right kind of graph for the data is important.

When you draw a graph, the procedure is the same no matter what kind of graph you decide to use. First, you select the data you want to graph in the worksheet or database, and then you choose the graph type. If you are using worksheet entries in a graph, you can select any range. If you are using database values, however, all the values must be in the same field. Because Jazz can draw, or plot, some types of graphs in different ways, you must also specify the way you want Jazz to plot the graph. For example, a bar graph can be a simple bar graph, an overlapped bar graph, or a stacked bar graph.

Jazz draws each range you select as a plot on the graph. A plot is the visual representation of the data. For example, a plot can be a line on a line graph, a set of bars on a bar graph, or an entire pie chart. On most types of graphs, you can plot any number of ranges.

Plots consist of data points. Data points mark the places (or points) on a plot that represent the values you are graphing. On a line graph, for example, Jazz uses symbols to represent the data points and connects the symbols with a line. On a bar graph, the lines across the tops of bars mark the data points. On a pie chart, each wedge of the pie is a data point.

Plot ——————

Data Point ——————
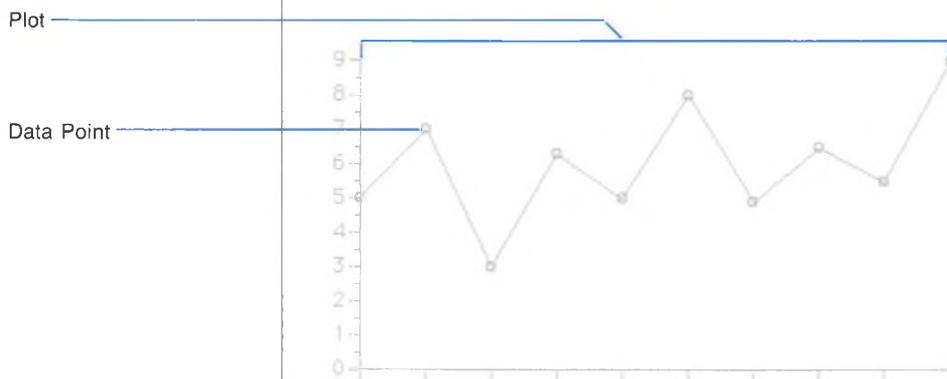
The data you select is usually numeric. When the range you select includes a cell that is empty or contains text, Jazz draws the graph with a space for that value. For example, if you draw a bar graph using data in a worksheet range that contains a blank cell or a text entry, Jazz leaves a space instead of plotting a bar for that value.

When you draw a graph, you may have to switch between work-sheets or databases and the graph. For example, when a graph is active, you may need to select a new range to plot. To move between a graph and another type of document, click the document you want to switch to. You can also choose the name of a document from the Window menu to make it the active document.

This section teaches you the basic procedure for creating graphs by showing you how to create the most commonly used graphs. It describes how to plot ranges. The following section describes how to enhance a graph with information such as titles, labels, and legends.

Drawing a Pie Chart

Pie charts compare parts to the whole. In a pie chart, each value in a range is a wedge of the pie. The size of each wedge corresponds to the percentage of the total each value represents. For example, if a value in the range is 25% of the sum of the range values, Jazz draws it as a pie wedge that is one quarter of the entire pie.

1. **Open the worksheet or database that contains the data you want to graph.**
   Open an existing document by choosing Open... from the File menu. To create a new worksheet or database, choose New... from the File menu. If the worksheet or database is already open, click it to make it active.

2. **Select the range that contains the data.**
   You can use any worksheet range. In a database range, however, all the values must be in the same field.

3. **Open a graph.**
   If the graph is already open, click it to make it active. To create a graph, choose New... from the File menu.

4. **Choose Pie from the Type menu.**
   Jazz draws a pie without wedges.

5. **Choose Pie from the Plot menu.**
   Jazz draws the wedges in the pie. Each wedge represents one value in the selected range. All the wedges together comprise the pie plot.

Drawing more than one range. A pie chart can represent only one range. If you select more than one range, Jazz draws each range as a separate pie and adjusts the sizes of the pies so they all fit in the Graphics window. You can draw as many pies as you like.

Exploding pie wedges. You can emphasize the values particular wedges represent by exploding one or more wedges from the pie. An exploded wedge is a wedge that Jazz pulls out from the rest of the pie. See Selecting a Plot in this chapter before you try to explode a wedge.

To specify which wedges to explode, you must create a new range, called an explosion range, in the worksheet or database. You can put the explosion range anywhere on the worksheet or database. The explosion range can be part of a row or column in a worksheet or part of a field in a database. It does not have to be near the range you are graphing.

Beginning at the top of the pie (the twelve o'clock position) and moving clockwise, Jazz associates each value in the explosion range with a wedge of the pie. The first value in the explosion range is associated with the first wedge of the pie, the second value with the second wedge, and so on. When the value in the explosion range is any number except zero, Jazz explodes the wedge. When it is zero, the wedge remains in the pie.

You can put the explosion range anywhere on the worksheet.
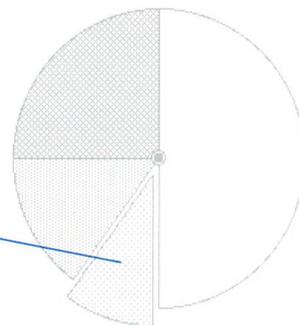
To draw an exploded pie chart, create the explosion range in the worksheet or database, select the range, click the graph, and use the Plot Selector to select a pie chart. Choose Set Pie Wedges from the Plot menu. When you select a pie that already has one or more wedges exploded, this menu choice becomes Clear Pie Wedges. Choose Clear Pie Wedges to return all exploded wedges to the pie.

Drawing a Line or Area Graph

A line graph usually shows change over a period of time. For example, you can use a line graph to show sales over a 10-year period.

A line graph represents numeric data as a set of data points that are evenly spaced along one axis. When you draw a line graph, Jazz marks each data point on the graph with a symbol and connects the symbols with a line. Jazz uses a different symbol for each range of data points to distinguish one range from another in a multiple line graph.

Ticket Sales -- 1970 - 1980

Each value in the range is a data point on the line.
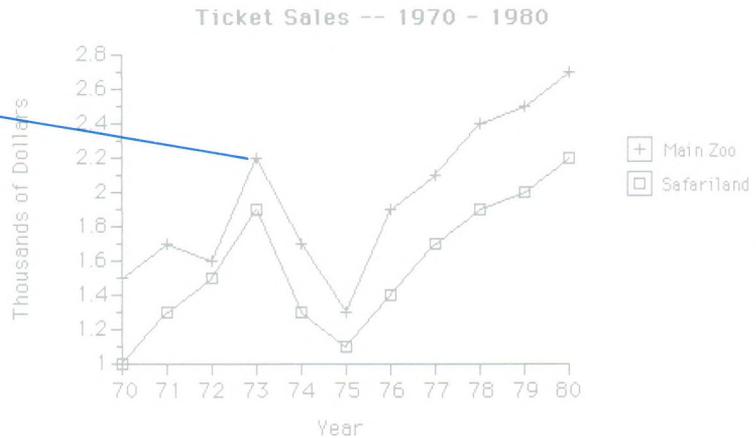
An area graph is similar to a line graph, except Jazz fills the area below the line with a pattern. When you draw more than one range in an area graph, Jazz stacks one area on top of another.

An area graph with more than one range emphasizes the combined total of all values. For example, the area graph that follows shows yearly sales totals. Where the line graph emphasizes the changes in sales from year to year, the area graph emphasizes the total sales for each year.

An area graph emphasizes total sales.

1. **Open the worksheet or database that contains the data you want to graph.**
   Open an existing document by choosing Open... from the File menu. To create a new worksheet or database, choose New... from the File menu. If the worksheet or database is already open, click it to make it active.

2. **Select the range that contains the data.**
   You can use any worksheet range. In a database range, however, all the values must be in the same field.

3. **Open a graph.**
   If the graph is already open, click it to make it active. To create a graph, choose New... from the File menu.

4. **Choose Line, Bar, & Area from the Type menu.**
   If you have already chosen the type, you do not have to perform this step.

5. **Choose Line or Area from the Plot menu.**
   Choosing Line, Bar, & Area from the Type menu lets you create many different kinds of graphs. You must also choose Line or Area from the Plot menu to specify whether you want to plot the selected range as a line or as an area.

6. **Repeat steps 1 through 5 for each additional range you want to plot.**

Drawing a Bar Graph

A bar graph uses bars of varying lengths to compare different values in a range. Bar graphs place special emphasis on individual values rather than on overall trends. For example, you can use a bar graph to compare costs or employee salaries.

A bar graph shows numeric data as a set of side-by-side bars. Each bar represents a value in the range you select from the worksheet or database. When you select one range, Jazz draws a bar for each value in the range.

When you plot more than one range, Jazz draws a set of bars for each range. Each set of bars in a multiple bar graph has a different pattern to distinguish one range from another. For example, you can draw a graph using one range that shows the total salaries of one department, or a graph using many ranges that shows the salaries of a number of departments.

1. **Open the worksheet or database that contains the data you want to graph.**
   Open an existing document by choosing Open... from the File menu. To create a new worksheet or database, choose New... from the File menu. If the worksheet or database is already open, click it to make it active.

2. **Select the range that contains the data.**
   You can use any worksheet range. In a database range, however, all the values must be in the same field.

3. **Open a graph.**
   If the graph is already open, click it to make it active. To create a graph, choose New... from the File menu.

4. **Choose Line, Bar, & Area from the Type menu.**
   If you have already chosen the type, you do not have to perform this step.

5. **Choose Bar from the Plot menu.**

Choosing Line, Bar, & Area from the Type menu lets you create many different kinds of graphs, so you must also choose a plotting method from the Plot menu.

6. **Repeat steps 1 through 5 for each additional range you want to graph.**

Drawing a stacked bar graph. A stacked bar graph compares totals in addition to individual values. A stacked bar is composed of smaller bars stacked one on top of the other. Jazz makes the values in the first range you select the bottom section of each stacked bar. Jazz then stacks the values in the second range on top of the first section, the values in the third range on top of the second section, and so on.

For example, you can use a stacked bar graph to show the total amount you pay in salaries to each department and the portion allocated to each group within the department. The bottom section of each stacked bar shows the first group's total salaries. The section stacked on top of the bottom section shows the next group's salaries, and so on.

To draw a stacked bar graph, follow the steps in this section, but choose Stacked Bar from the Plot menu instead of Bar for each range you select.

Drawing an overlapped bar graph. An overlapped bar graph is similar to a multiple bar graph, but the bars overlap each other slightly instead of standing side by side. Overlapped bars are particularly effective when you want to contrast two ranges. For example, an overlapped bar graph can emphasize the savings in overtime pay between two months.

To draw an overlapped bar graph, follow the steps in this section, but choose Overlapped Bar instead of Bar from the Plot menu.

Changing plot type. To change one kind of bar graph to another, select one of the plots in the bar graph and choose the new plotting method from the Plot menu. For example, to change a bar graph to an overlapped bar graph, click the Plot Selector and choose Overlapped Bar from the Plot menu. Jazz changes the entire bar graph to an overlapped bar graph. This affects only the bars. If the graph has other types of plots, such as a line or area, they do not change.

If you select a bar plot and change it to a plot other than another type of bar plot, Jazz changes only the plot you select. For example, if you select a plot in a bar graph and then choose Line from the Plot menu, Jazz changes only the selected plot to a line graph.

Selecting a Plot

When you work with a graph, you may need to work with a particular plot. For example, you may want to change the way Jazz draws the line on a line graph or the bar pattern on a bar graph. To do this, you need to select the plot you want to change.

1. **Click the Plot Selector in the Graphics console.**
   Each time you click the Plot Selector, Jazz selects a different plot on the graph, starting with the first range you plotted. Jazz marks each value in the plot with a plot marker. It also displays the worksheet or database name and the range the plot illustrates in the reference box next to the Plot Selector. If the graph is a pie chart, Jazz places one plot marker in the middle of the pie.

Plot Selector

DATA POINTS: A1..A4

Graphics 1

The reference box displays the worksheet or database range the plot represents.

Plot marker
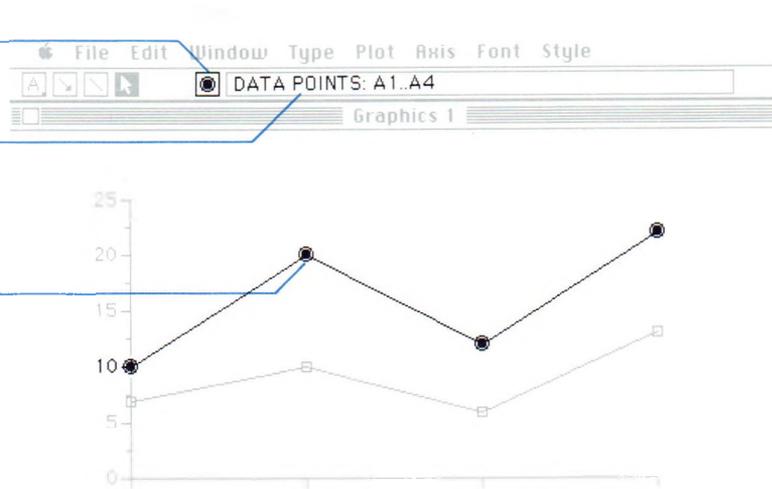
2. **Change the plot as necessary.**
For example, you can change the plot type by choosing a different one from the Plot menu, or you can change the symbols, lines, or patterns Jazz uses in the plot. See Choosing Symbols, Lines, and Patterns later in this chapter.

3. **Click anywhere on the graph to cancel the plot selection.**

Clearing a Plot

After you select a plot, you can remove it from the graph. For example, you may decide that you plotted too many ranges, or that your graph contains a plot you no longer want to use.

1. **Select the plot you want to clear.**
Use the Plot Selector to select the plot.

2. **Choose Clear from the Edit menu.**
Jazz redraws the graph without the plot you selected.

Combining Graph Types

A combination of graph types can show relationships among different data. For example, you can use a line to show the change in employee attrition over a number of years, and use a bar in the same graph to show the number of employees who left for a particular reason.
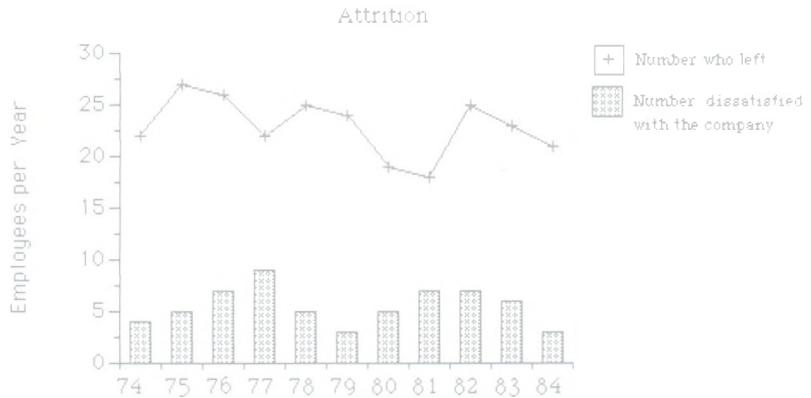
Attrition

1. **Open the worksheet or database that contains the data you want to graph.**
   Open an existing document by choosing Open... from the File menu. To create a new worksheet or database, choose New... from the File menu. If the worksheet or database is already open, click it to make it active.

2. **Select the range that contains the data.**
   You can use any worksheet range. In a database range, however, all the values must be in the same field.

3. **Open an existing graph or create a new one.**
   If the graph is already open, click it to make it active. To create a graph, choose New... from the File menu.

4. **Choose the graph type from the Type menu.**

5. **Choose the plot type from the Plot menu.**

6. **Repeat steps 1 through 5 for each additional range you want to graph.**
   Each time you perform the steps, you can select a different plot type. For example, you can use bars in the first plot and a line in the second.

Restrictions on mixing graph types. Jazz only lets you mix graph types that are compatible. For example, a pie chart shows values as wedges in a circle, while all other graphs plot them on axes. Thus, you cannot combine a pie with any other type of plot.

Changing a graph to another type. To change an entire graph from one type to another, choose the new type from the Type menu. Jazz redraws the graph with the characteristics of the new graph type. For example, to convert a bar graph with a single range to a pie chart, select Pie from the Type menu. Jazz redraws the graph as a pie. If the bar graph has many ranges, Jazz changes each range to a separate pie.

Changing individual plots on existing graphs. You can change particular plots on an existing graph rather than creating a new graph. For example, you may want to change one of the plots on a bar graph to a line. Use the Plot Selector to select the plot you want to change, and choose a plotting method from the Plot menu. Jazz changes only the plot you select. Repeat this procedure for each plot you want to change.

You cannot combine bar, stacked bar, and overlapped bar plots. If you select one bar in a multiple bar graph and choose another type of bar from the Plot menu, Jazz redraws all the bars using the new plotting method.

How to Enhance a Graph

After you draw a graph, you may need to emphasize and clarify parts of it. Jazz lets you enhance a graph in many ways. Some techniques, such as adding labels and titles to an axis, make your data easier to understand. Other techniques, such as changing the kind of plot lines in a line graph or patterns in a bar graph, help make your graph more attractive. For example, you can emphasize a line in a line graph by making it bolder or emphasize a set of bars in a bar graph by using a darker bar pattern.

Adding Text and Tick Marks to an Axis

Axes are lines on a graph against which you plot data. After you draw a graph, you can add information to the axes, such as axis titles and labels that identify the data. When you graph sales, for example, axis labels can show the months when the sales took place. Axis titles show the category of information you are graphing. If, for example, the months you are graphing show sales for the first quarter, use First Quarter as the axis title. An axis to which you add this type of information is a text axis.

The axis that displays the numeric scale Jazz uses to plot your data is a numeric axis. When you plot a range, Jazz automatically sets the minimum and maximum value of the numeric axis. Unless the graph is a line graph, Jazz makes the minimum axis value zero and the maximum axis value the largest value in the range. If the graph is a line graph, Jazz makes the maximum value on the axis slightly higher than the largest value in the ranges you plot and makes the minimum value slightly lower than the smallest.

The short lines on the numeric axis, called tick marks, mark the scale. Jazz puts tick marks at regular intervals between the maximum and minimum values. For example, if the minimum value in the range is zero and the maximum value is 100, Jazz places major tick marks at intervals of 10, 20, 30, and so on up to 100. Jazz also marks intervals between major tick marks; for example, it puts a tick mark at 15, between 10 and 20.

You can alter a numeric axis by changing the minimum and maximum values on it. You can also change the intervals at which Jazz places major and minor tick marks. For example, instead of placing minor tick marks at intervals of 5, you can place them at intervals of 1. In addition, you can make the tick marks appear on the inside, outside, or across either the text or numeric axis, or choose not to display tick marks at all.

Livestock -- Number on Farms
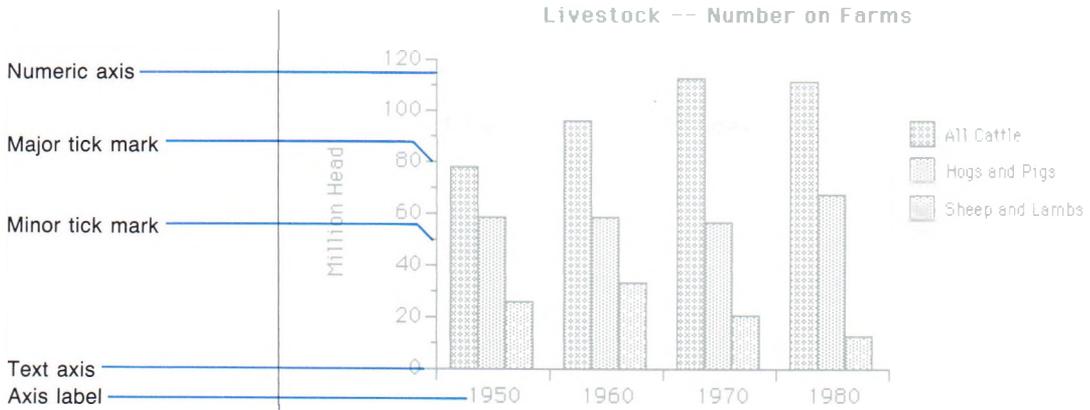
Numeric axis

Major tick mark

Minor tick mark

Text axis
Axis label

Million Head

120
100
80
60
40
20
0

1950   1960   1970   1980

All Cattle
Hogs and Pigs
Sheep and Lambs

Adding labels to a text axis

1. **Open an existing worksheet or database or create a new one.**

2. **Select the range that contains the entries you want to use as labels.**

3. **Open the graph.**
   If the graph is already open, click it to make it active.

4. **Choose Set Labels from the Axis menu.**
   Jazz places the labels at each tick mark along the text axis.

   After you choose Set Labels, the command changes to Clear Labels. To replace existing axis labels, you must first choose Clear Labels to delete the old labels. To add new ones, repeat steps 2 through 4.

Adding tick marks and axis titles

1. **Choose Left..., Bottom..., Right..., or Top Axis... from the Axis menu.**
   If the axis is a numeric axis, Jazz displays boxes in which you can specify the minimum and maximum axis values and the intervals for tick marks. In most graphs, the left axis is the numeric axis.

   When you first open a document, the left axis is a numeric axis and the bottom axis is a text axis.

Dialog box for a numeric axis

Dialog box for a text axis

Bottom Axis Settings

☐ Display Axis

OK

Cancel

Tick Marks:

	MAJOR	MINOR
	None	None
	Inside	Inside
	Outside	Outside
	Cross	Cross

Axis Title:

Label Range: Worksheet $A1..$A5

Left Axis Settings

☐ Display Axis

OK

Cancel

Tick Marks:

	MAJOR	MINOR
	None	None
	Inside	Inside
	Outside	Outside
	Cross	Cross

Axis Title:

Settings for Manual Scaling

Minimum:

Maximum:

Major Interval:

Minor Interval:

2. **Click the box next to Display Axis to check it.**
If the box is checked, you do not have to perform this step. When the box is checked, the axis and labels appear with the graph. If the box is empty, the axis and labels do not appear.

3. **Click a Tick Mark option.**

- None erases all tick marks from the axis.

- Inside places tick marks inside the axis.

- Outside places tick marks outside the axis.

- Cross places tick marks across the axis.

4. **Type a title for the axis.**
To change a title that already exists, click the location in the title box where you want to add or delete text. Type new text or Backspace to delete existing characters.

5. **Click OK.**

Modifying a numeric axis

In addition to adding titles and tick marks to a numeric axis, you can change the minimum and maximum values on the axis and the intervals between major and minor tick marks.
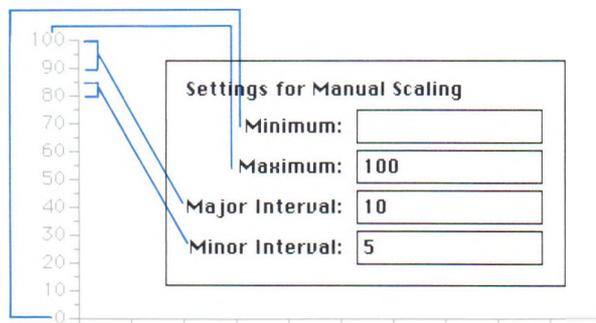
Set a minimum axis value that is no higher than the minimum value in the range you are graphing and a maximum value that is no lower than the maximum value in the range. Jazz plots up to the maximum value on the numeric axis and cuts off any value in the plot that rises above that point. For example, if you set the maximum value at 10 and the largest value in the range you are plotting is 100, Jazz tries to plot 100. If you are drawing a bar graph, Jazz tries to draw the bar to a point that is beyond the borders of the graph. Since the bar cannot go beyond the maximum value of 10, it appears that the value you are plotting is 10, instead of 100.

1. **Choose Left..., Right..., Top..., or Bottom Axis... from the Axis menu.**
Be sure that the axis you choose is a numeric axis. If the axis is a numeric axis, Jazz displays boxes in which you can specify the minimum and maximum axis values and the intervals for tick marks. In most graphs, the left axis is the numeric axis.

2. **Click Minimum and type the lowest value for the numeric axis.**

3. **Click Maximum and type the highest value for the numeric axis.**

4. **Click Major Interval and type the major interval value.**
   If you type 10, Jazz puts major tick marks at every multiple of 10, beginning at the minimum value you set and ending at the maximum value you set.

5. **Click Minor Interval and type the minor interval value.**
   For example, when the major interval is 10 and the minor interval is 5, Jazz places one tick mark midway between the major tick marks.

6. **Click OK.**

Keep in mind

Selecting numbers as labels. When you select numbers as labels, Jazz treats them as text rather than numbers. For example, you can make the title Quarterly Earnings and select a range that contains numbers that represent each quarter (1, 2, 3, and 4) as labels. Jazz treats the numbers as text.

Making long labels fit on a text axis. When an axis is too small for a label to fit, Jazz cuts off the text that does not fit. To make the complete label appear, shorten the label or choose a smaller font size.

Adding Labels to Data Points

Each value you represent in a plot is a data point. In a line graph, a symbol represents each data point; in a bar graph, the top of each bar represents a data point. You can use labels to identify the value each data point illustrates. In a bar graph, Jazz places the labels along the tops of the bars. In a line graph, Jazz places the labels above the data points. In a pie chart, Jazz places the labels outside each pie wedge.

Data point label

Data point
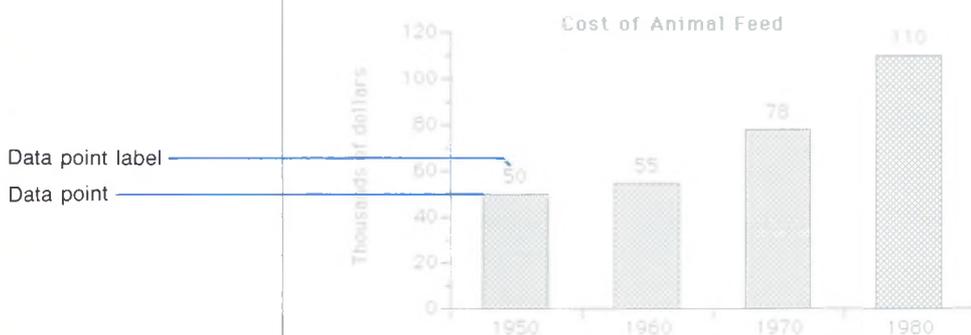
1. **Open an existing worksheet or database or create a new one.**

2. **Select the range in the worksheet or database that contains the entries you want to use as labels.**
   You can use any worksheet range to store the labels. In a database range, however, all the labels must be in the same field.

3. **Open the graph.**
   If the graph is already open, click it to make it active.

4. **Click the Plot Selector to select a plot.**

5. **Choose Set Point Labels from the Plot menu.**
   Set Point Labels places data from the range you select at the corresponding data point on the graph.

   After you choose Set Point Labels, the menu choice becomes Clear Point Labels. Choose Clear Point Labels after you select the plot to delete the labels from the graph.

Keep in mind

Matching range size with the number of data points. If you select a range that has more entries than the graph has data points, Jazz uses as many labels as there are data points. For example, if you select a range with 10 entries as labels for a graph with 5 data points, Jazz places only the first 5 labels on the graph. If you select a range with 3 entries, Jazz places data point labels only on the first 3 data points.

Adding Text to a Graph

Text on a graph can help to explain the whole graph or certain parts of it. For example, you might want to use text to add a title to a graph or to describe an unusual rise or drop in sales.

Notation (a graph title) ———————————— Rolling Park Zoo -- Concession Sales

Notation (emphasizes a particular bar)
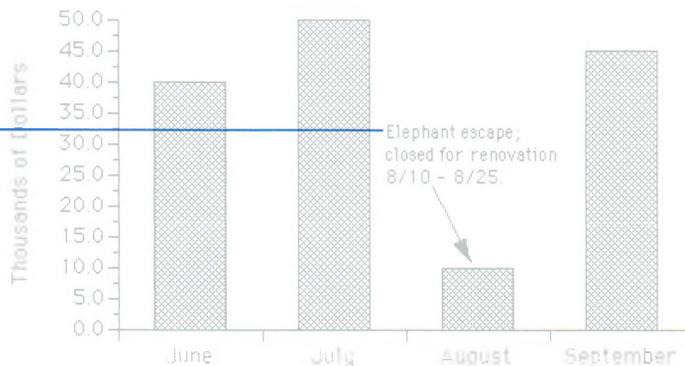
1. **Click the notation well in the Graphics console.**

2. **Click anywhere on the graph and drag.**
   As you drag the pointer, Jazz draws a notation box. Make the notation box larger than you need to hold your text. You can make the box smaller after you enter the text.

Rolling Park Zoo -- Concession Sales
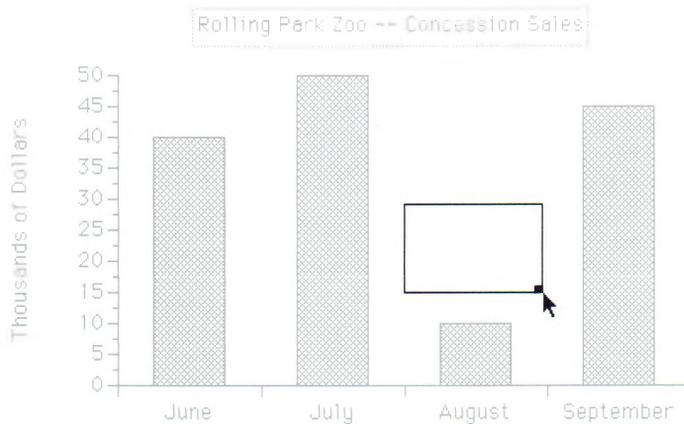
To change the size of the notation box, drag the size box in the same way you drag the size box of a Jazz window. The text changes to match the new size of the notation box. For example, when you make a long box shorter, one line of text may be split into two. If you make a box too small, Jazz will cut off some of the letters.

3. **Type the text inside the box.**

When the text reaches the end of the box and there is room for another line, Jazz automatically puts the last word you typed on the next line. If there is no more room in the box, Jazz does not allow you to type any more characters. To type more characters, drag the size box and expand the size of the notation box so that it is big enough to hold your text.

4. **Click anywhere in the graph.**

Jazz clears the notation box but leaves the text.

Keep in mind

Deleting text. Click the text you want to delete. Jazz draws a notation box around it. Choose Clear from the Edit menu. Jazz deletes the text and the notation box.

Editing text. You can edit text within notation boxes. Click the text; Jazz draws a notation box around it. To add or delete text, click the location where you want to insert or delete. Type the text you want to add, or press Backspace to delete text.

You can also use commands on the Edit menu to work with text in notation boxes. Click the text. When the notation box appears, select the text you want to edit by dragging across it and choose the command you need. Cut deletes text from the graph and places it on the Clipboard. Copy leaves text in the graph and places a copy on the Clipboard. Paste replaces the selected text in the notation box with what is on the Clipboard or adds the text on the Clipboard at the insertion point if no text is selected. Duplicate Notation creates an identical notation box that you can drag to another part of the window. Undo undoes the last command you performed.

To paste text to a new graph, select the text, choose Cut or Copy from the Edit menu, click the graph you want to paste the text in (or open it if it is not already open), draw a notation box, and choose Paste from the Edit menu.

To cancel the selection of the notation box, click anywhere on the graph.

Moving the notation box. To move a notation box, position the pointer on the border of the box and drag it to the new position.

Keeping a notation box from covering parts of the graph. When you place a notation box over part of the graph, such as a bar in a bar plot, the notation box hides the part that it covers even after you cancel the notation box selection. To keep this from happening, move the box or change its size.

Changing the font, size, and style. Click the text you want to change. Jazz draws a notation box around it. Choose the font or point size from the Font menu or the style from the Style menu. You can use only one font, size, and style in a notation box, but you can use different fonts, sizes, and styles in different notation boxes. Each time you change the font, size, or style of a notation, Jazz uses the new font, size or style for text in subsequent notation boxes until you change it again.

Drawing Arrows and Lines

You can combine arrows and lines with text to annotate parts of a graph.

Arrow

Lines (created from three separate lines)
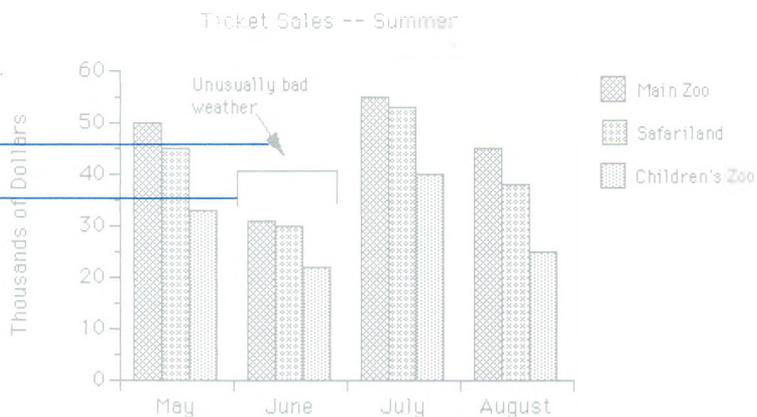
1. **Click the arrow or line well in the Graphics console.**

2. **Click anywhere on the graph and drag.**
   When you release the mouse, stretch boxes appear at the ends of the arrow or line. Dragging a stretch box extends, shortens, or moves the arrow or line in the direction in which you drag it.

3. **Drag either of the stretch boxes to position the arrow or line and to change its length.**
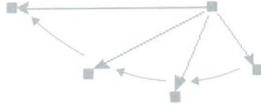
4. **Repeat steps 1 to 3 for each additional arrow or line you want to draw.**
To draw a figure that contains more than one line, you must draw each line separately. For example, to draw a box, you must draw four separate lines.

5. **Click anywhere on the graph to make the stretch boxes disappear.**
To use the stretch boxes again, click the arrow or line. The stretch boxes reappear.

Keep in mind

Deleting an arrow or line. To delete an arrow or line, click the arrow or line well. Jazz places stretch boxes on the arrow or line. Choose Clear from the Edit menu. Jazz deletes the arrow or line.

Moving an arrow or line. To move an arrow or line, drag it to the new location.

Choosing Symbols, Lines, and Patterns

When you draw a graph, Jazz automatically chooses data point symbols, plot lines, or bar and area patterns. You can, however, choose your own symbols, lines, and patterns.

Symbol

Line

Bar pattern

Bar outline

Area outline

Area pattern
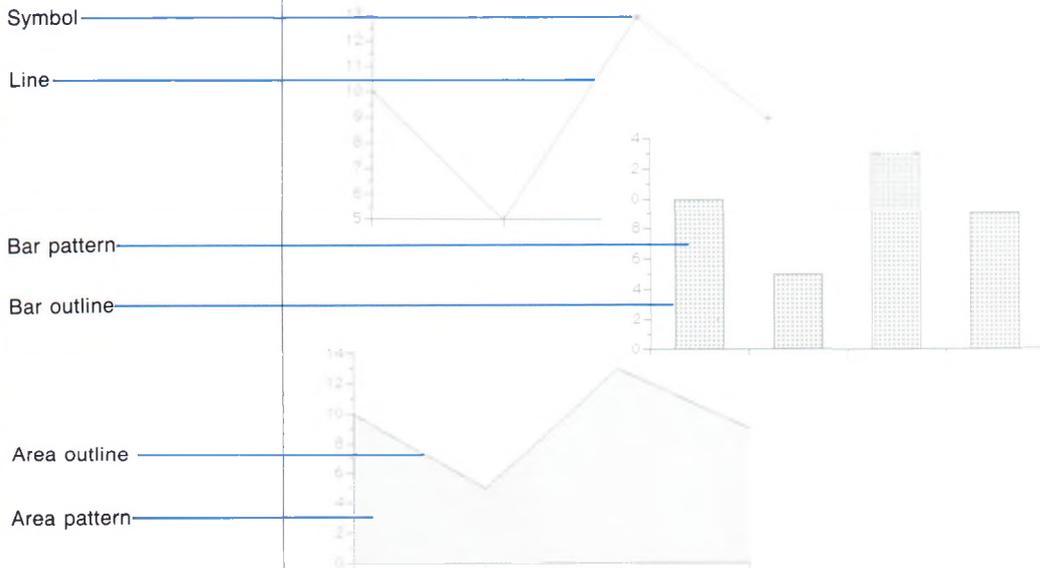
1. **Click the Plot Selector in the Graphics console.**
Click until the plot you want is selected.

2. **Choose Symbols..., Lines..., or Patterns... from the Style menu.**
Your choice must fit the type of graph you are drawing. For example, patterns are not appropriate for line graphs, just as symbols are not appropriate for area or bar graphs. Menu choices that are not compatible with the selected plot are dimmed on the menu.

The type of dialog box that appears depends on the command you selected.
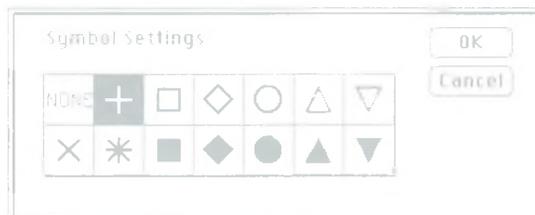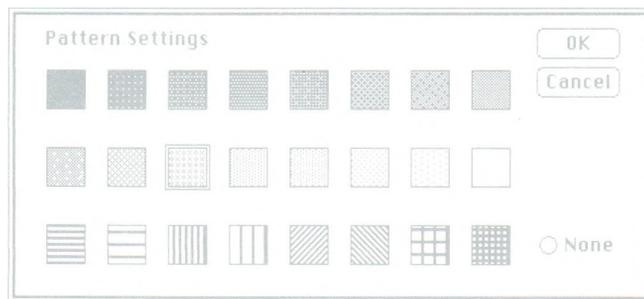
3. Click the symbol, line, or pattern you want to use.
Although lines are most often used in line graphs, you can also use them to change the outline of the bars in a bar graph or the outline of an area graph. This is useful when you want to make a particular plot stand out.

4. Click OK.
Jazz draws the plot with the symbol, line, or pattern you chose.

5. Repeat steps 1 through 4 for each additional symbol, line, or pattern you want to change.
Click anywhere on the graph to cancel the plot selection.

Adding a Legend

A legend provides a description of the ranges that the patterns or symbols in a graph represent. Each legend is composed of legend entries. Each legend entry consists of a symbol or pattern that represents one of the ranges, and text that you type to describe what the symbol or pattern represents.

Legend entry
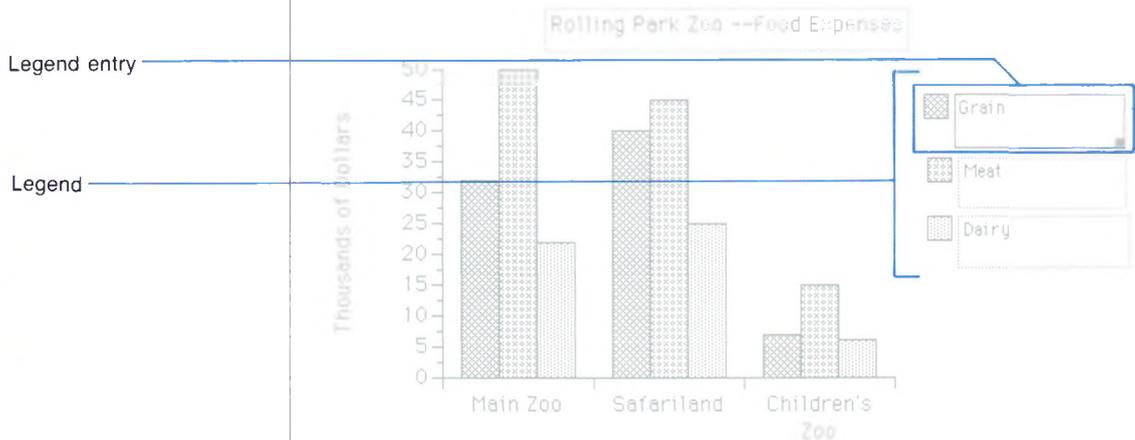
Legend

1. Choose Set Legend from the Style menu.
Jazz creates legend entries for each symbol or pattern in the graph on the right hand side of the graph and draws a box next to each symbol or pattern where you enter text. Jazz places an insertion point in the bottom box.

2. Type a description at the insertion point.

3. Click one of the remaining boxes.

4. Repeat steps 2 and 3 for each remaining box.

5. Click anywhere on the graph to clear the boxes.
This clears the box around the text, not the text within it.

Moving a legend entry. Click the text of a legend entry to select it. Jazz draws a box around the text. Drag the border of the box to the desired position.

Changing the way Jazz displays text. You may want to make a long text entry appear on a single line or divide one line into a number of smaller lines. Click the text to select it. Jazz draws a box around the text. You can drag the size box the way you drag the size box of a Jazz window. The text changes to match the new size of the box. For example, when you make a long box shorter, one line of text may become two. If you make a box too small, Jazz cuts off the characters that do not fit and will not let you type more characters until you expand the size of the box.

Changing the font, size, and style. You can change the font, size, and style of the text in the legend entries. Click the text in the legend entry. Jazz draws a box around it. Choose the font or point size from the Font menu or the style from the Style menu. Jazz rewrites the text in the font, size, or style you chose. Each time you change the font, size, or style of the text portion of a legend entry, Jazz uses the new font, size, or style until you change it again.

Editing legend entries. Click the legend entry you want to edit. Jazz draws a box around the text. To add or delete text, click the location where you want to insert or delete. Type the text you want to add, or press Backspace to delete text.

Drawing a Grid

A grid is a set of horizontal and vertical lines through a graph that makes it easier to see the exact point at which data falls between two axes. You can create a grid with any type of graph except a pie chart.
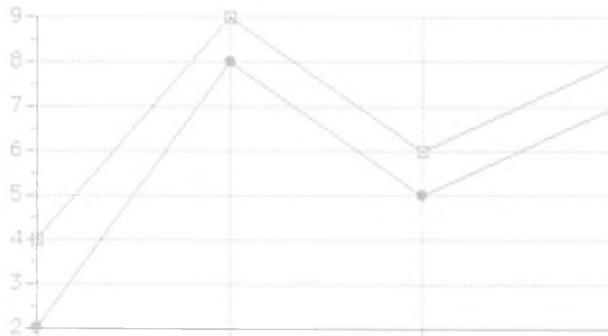
1. **Choose Grid Lines... from the Style menu.**
2. **Click a grid option.**

   - Click None to clear the grid lines.
   - Click Horizontal to draw a line from each major tick mark on the vertical axis across the entire graph.

- Click Vertical to draw a line from each major tick mark on the horizontal axis across the entire graph.

- Click Both to draw horizontal and vertical grid lines.

3. **Click OK.**

Adjusting the Size of a Graph for Printing

Before you print a graph, you may want to adjust its size. For example, you may want to make a graph small enough to fit in a report, or large enough for a presentation. You specify the graph size before you actually begin printing the graph.

1. **Choose Size... from the Style menu.**

2. **Click the Width box.**

3. **Type the width you want (in inches).**
   For parts of inches, use decimal equivalents instead of fractions.

4. **Click the Height box.**

5. **Type the height you want (in inches).**

6. **Click Fit to Window or Show Actual Size.**
   Fit to Window makes the graph fit the size of the window. When you print the graph, however, Jazz uses the sizes you specified in the Width and Height boxes.

   Show Actual Size makes the graph the size you specified in the Width and Height boxes. If the actual size is larger than the window, use the scroll bars to move from one part of the graph to another.

   Make sure that you set a graph size that is smaller than the size of the page you are printing on. If the graph is larger than the page, Jazz prints only the portion of the graph that fits on the page.

7. **Click OK.**

Keep in mind

Printing a graph. To print a graph, use the same procedure you use to print any Jazz document. When you set up the page for printing, use Tall Adjusted as the Orientation option in the Page Setup... dialog box. See How to Print a Document, Chapter 1.

The Graphics Screen

Notation well

Arrow well

Line well

Cursor well

Plot Selector

Menu bar

Console

🍎 File Edit Window Type Plot Axis Font Styl

▤ □ ▤▤▤ ≡ Graphics 1 ≡

Sales in Millions

9
8
7
6
5
4
3
2
1
0

1981   1982   Profits   1983
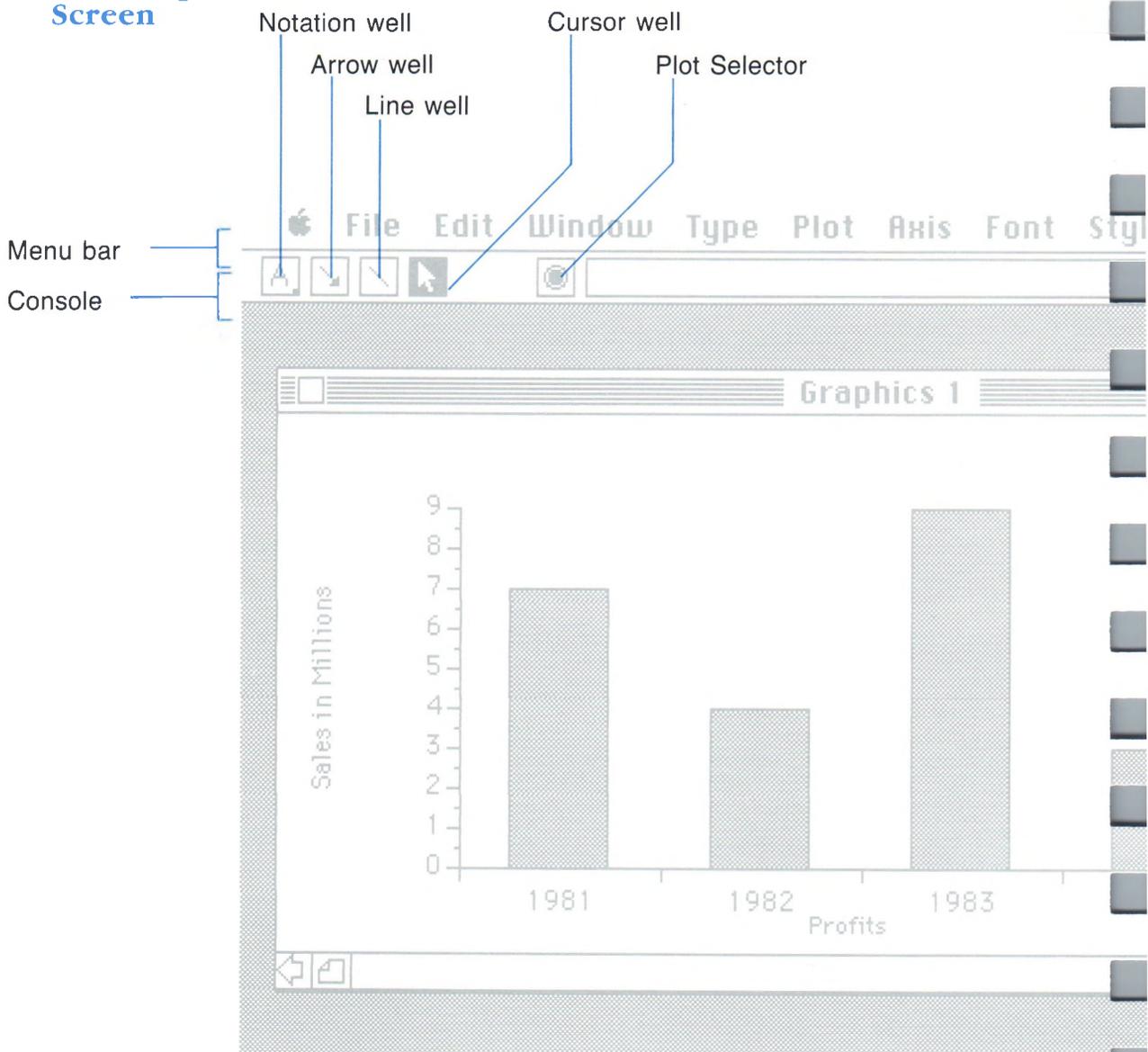
Reference box

The Graphics Reference

Menu bar displays the titles of all Graphics menus.

Console displays information about the active graph and displays the cursor well, the line well, the arrow well, and the notation well for adding details to the graph.

Reference box displays the name of the source document for a selected plot.

Plot Selector selects a single plot on the graph. Clicking the Plot Selector cycles you through the plots one at a time. The selected plot appears with plot markers on it. To cancel a selection, you click anywhere else on the graph.

Cursor well lets you select any part of the graph so that you can make a portion of the graph active or edit a notation. Jazz automatically returns to the cursor well after you have created a line, arrow, or notation box.

Line well lets you create a line to connect a data point with its notation. You click the line well, place the pointer on the graph, and drag the pointer to where you want to place the line.

Arrow well lets you create an arrow to connect a data point with its notation. You click the arrow well, place the pointer on the graph, and drag the pointer to where you want to place the arrow.

Notation well lets you place a notation box anywhere on a graph. You click the notation well, place the pointer on the graph, and drag the pointer to where you want to place the box. You can then enter text in the box. You can vary the size of the box and change the style and font of text within it. All the text in a notation box appears in the same font.
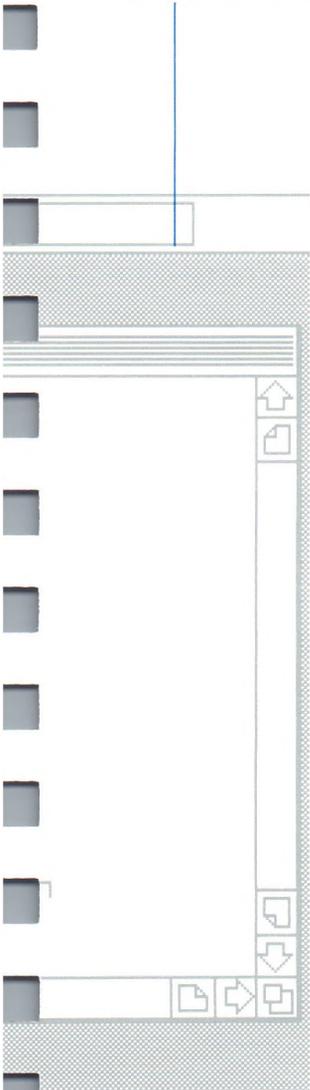
Graphics

The Graphics Menu Bar
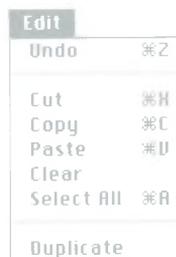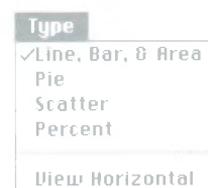
The Apple, File, Window, Font, and Style menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

Edit menu

⌘	File	**Edit**	Window	Type	Plot	Axis	Font	Style

Undo reverses your last action, such as cutting, copying, pasting, or clearing.

If Jazz can't undo your last action, this command appears dimmed as Can't Undo. If you disabled Undo, this command is **Undo Disabled**.

Cut removes selected text from a notation box or a legend entry and places it on the Clipboard.

Copy places a copy of selected text from a notation box or a legend entry, or places a copy of an entire graph (chosen with the Select All command) on the Clipboard. This command works the same as the Cut command, except that Jazz does not remove the copied graph or box from the document.

Paste places the contents of the Clipboard in a selected notation box or legend entry. Pasted text is left-aligned in the current font and style. If a line becomes full, Jazz wraps text to a new line. If the box becomes full, Jazz will not place the text in the notation box. If this happens, expand the notation box by dragging the size box.

Clear erases selected plots, notation boxes, arrows, or lines from a graph or erases an entire graph (chosen with the Select All command). Jazz does not place the deleted items or graph on the Clipboard.

Select All selects the entire graph.

Duplicate alternates between **Duplicate Notation**, **Duplicate Arrow**, and **Duplicate Line**, depending on whether you select a notation box, arrow, or line. This command is dimmed until you make a selection.

Duplicate Notation copies the currently selected notation box. You can drag the copy to the desired location on the graph.

Duplicate Arrow copies the currently selected arrow. You can drag the copy to the desired location on the graph.

Duplicate Line copies the currently selected line. You can drag the copy to the desired location on the graph.

If duplication would lead to an invalidly placed notation, arrow, or line, Jazz beeps to indicate the error.

Type menu

⌘	File	Edit	Window	**Type**	Plot	Axis	Font	Style

The Type menu contains the major graph types. The major type determines which minor types you can choose from the Plot menu. When you choose a new major type, Jazz changes the entire active graph to that type. This menu also lets you change the vertical or horizontal orientation of the graph.
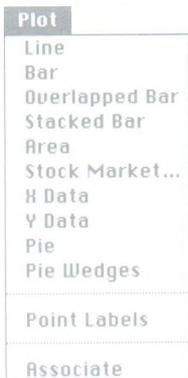
Line, Bar, & Area sets the major graph type to line, bar, and area. This results in Plot choices of Line, Bar, Overlapped Bar, Stacked Bar, Area, and Stock Market.

Pie sets the major graph type to a pie chart. The active choices on the Plot menu are Pie and Pie Wedges (which become active only when you select a pie chart). Jazz plots each of the selected data ranges as a separate pie. The currently selected pie chart appears with a plot marker in the center.

Scatter sets the major graph type to a scatter chart. The active choices on the Plot menu are X Data and Y Data.

Percent sets the major graph type to percent. The active choices on the Plot menu are Stacked Bar and Area.

View Horizontal alternates with **View Vertical**. View Horizontal flips the graph 90 degrees so that the horizontal axis becomes the vertical axis. View Vertical makes the vertical axis become the horizontal axis. You can use this command with bar graphs or with any graph types that have axes.

Plot menu

| Plot |
| Line |
| Bar |
| Overlapped Bar |
| Stacked Bar |
| Area |
| Stock Market... |
| X Data |
| Y Data |
| Pie |
| Pie Wedges |
| Point Labels |
| Associate |

| File | Edit | Window | Type | **Plot** | Axis | Font | Style |

The Plot menu contains the minor graph types. The active choices are determined by the major graph type you choose from the Type menu. You use this menu to plot a new range on an existing graph, or to change an existing plot. You can combine any of the active plot choices in one graph except for bar, stacked bar, and overlapped bar. You can also have as many plots as you want in a graph.

Line represents each number in a worksheet or database range as a single point on a line. This command is active when the major graph type is Line, Bar, and Area.
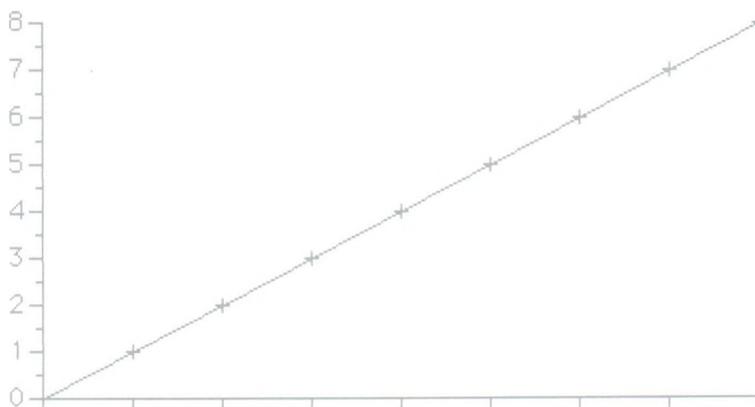
Bar represents each number in a worksheet or database range as a bar. You can use this command, for example, when you are comparing a small number of items to one another. This command is active when the major graph type is Line, Bar, and Area.
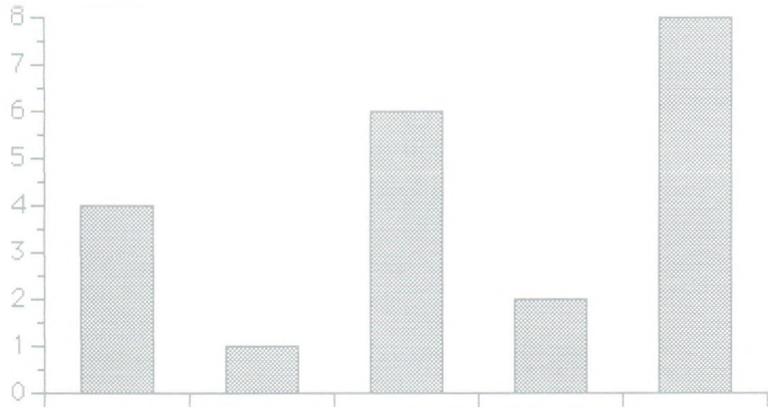
Overlapped Bar shows different data ranges by drawing bars that overlap one another slightly, rather than ones that stand side by side. This command is active when the major graph type is Line, Bar, and Area.
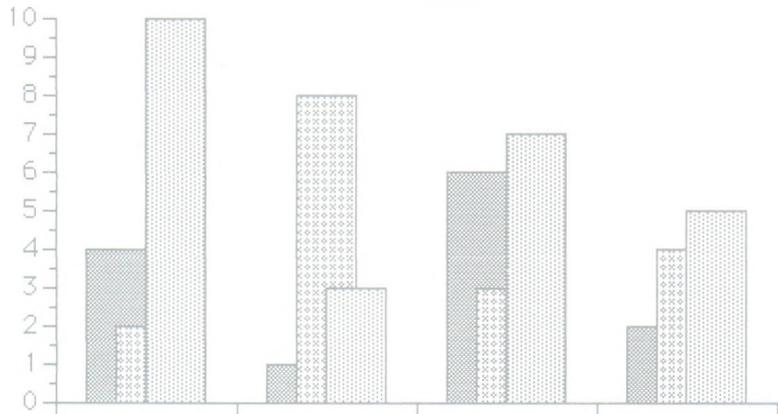
Stacked Bar displays shorter bars stacked one on top of the other, comparing individual as well as total values. You can use this command, for example, when you are combining several ranges in a single bar graph. This command is active when the major graph type is Line, Bar, and Area, or Percent.

When the major graph type is Line, Bar, and Area, the stacked bar graph represents actual values.
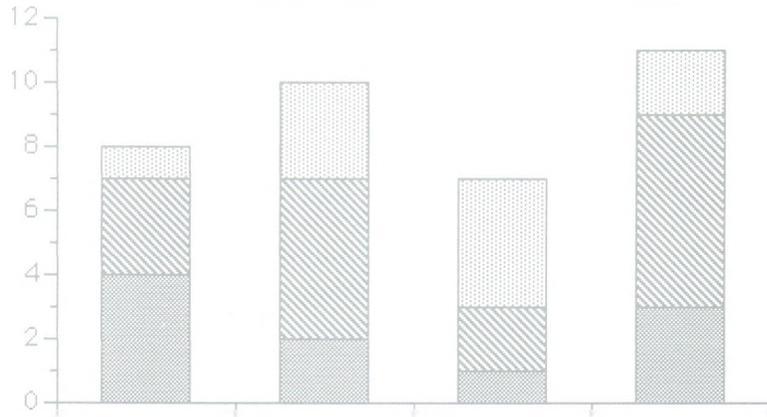
When the major graph type is Percent, the stacked bar graph represents relative values. The total of each stack of bars is 100%.
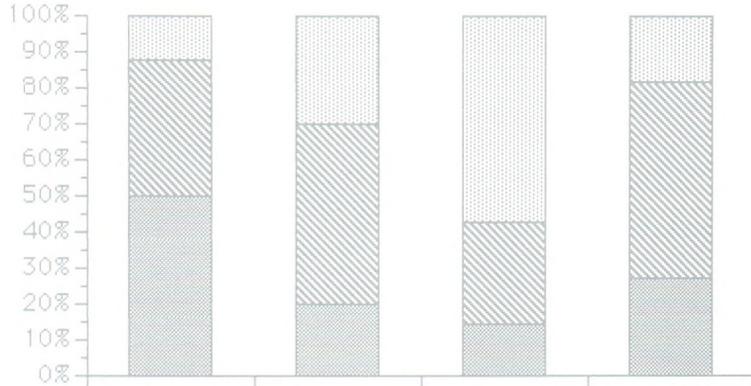
Area draws a line connecting data points and fills the area below the line with a pattern. If you graph two or more ranges, Jazz will draw them one on top of the other. You can use this command, for example, when you are emphasizing total amounts. This command is active when the major graph type is Line, Bar, and Area, or Percent.

When the major graph type is Line, Bar, and Area, the area graph represents actual values.
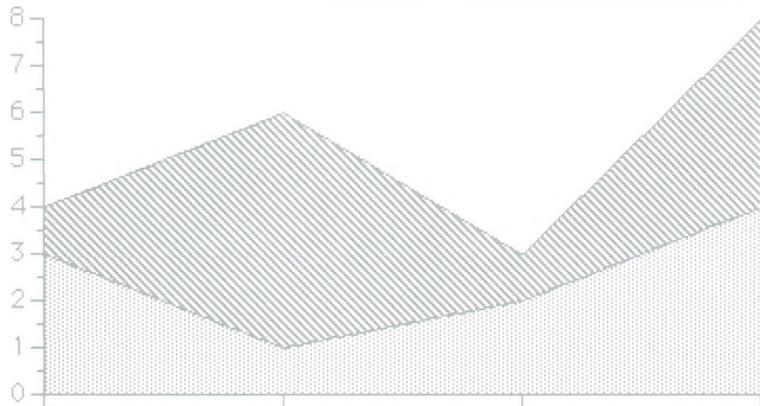
When the major graph type is Percent, the area graph represents relative values. The total of the plotted areas is 100%.
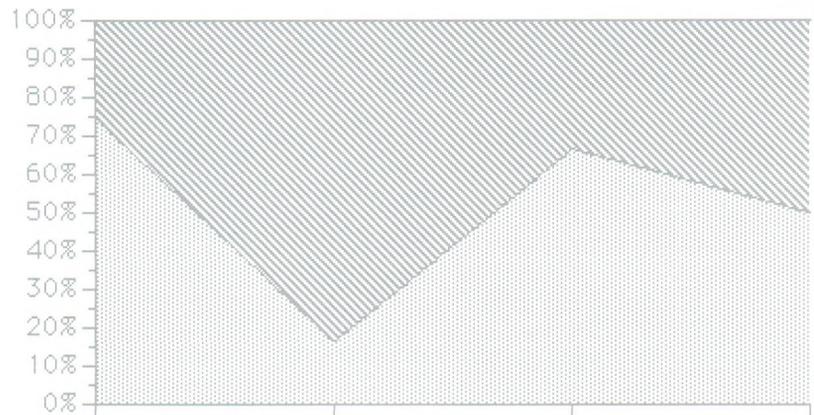
Stock Market... graphs stock price trends, and is active when the active graph type is Line, Bar, and Area. This command plots four data ranges: the high, low, open, and close values of a Stock Market graph. A plot may have one of each of the high, low, open, and close portions but you don't have to provide all four values. You can plot the ranges on the graph in any order. You can also specify a new data range to replace an existing portion of a Stock Market graph.
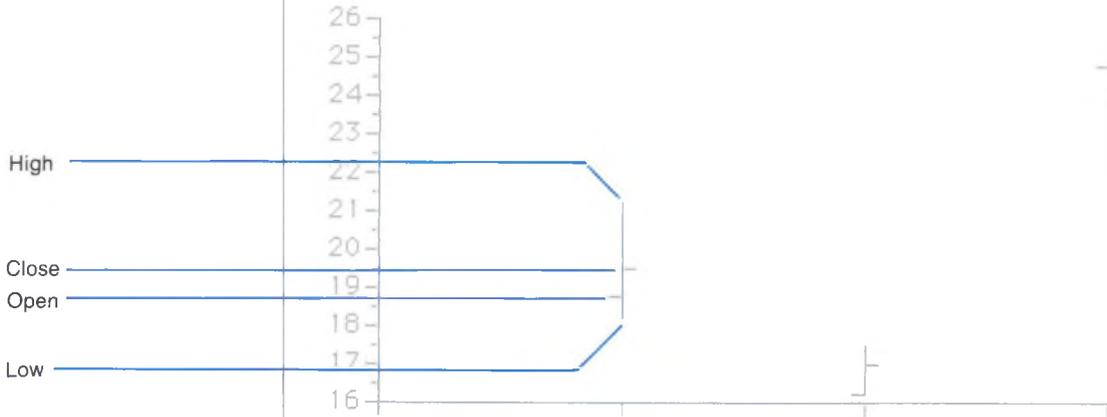
- High: Plots the selected data range as the high values of the stocks.

- Low: Plots the selected data range as the low values of the stocks.

- Open: Plots the selected data range with a tick mark on the left side of the vertical line that connects the high and low points. These data points represent the opening values of the stocks.

- Close: Plots the selected data range with a tick mark on the right side of the vertical line that connects the high and low points. These data points represent the closing values of the stocks.

X Data plots one set of data points (X range) along the bottom axis. This command is active when the major graph type is Scatter. You can have only one X range per scatter chart. Choosing a new X range replaces the previous X range on the graph.

Y Data plots one or more sets of data points (Y ranges) against a different set of data points (X range). You can use this command, for example, when you are showing the relationship between two sets of values. This command is active when the major graph type is Scatter. You can have as many Y ranges per scatter chart as you want.
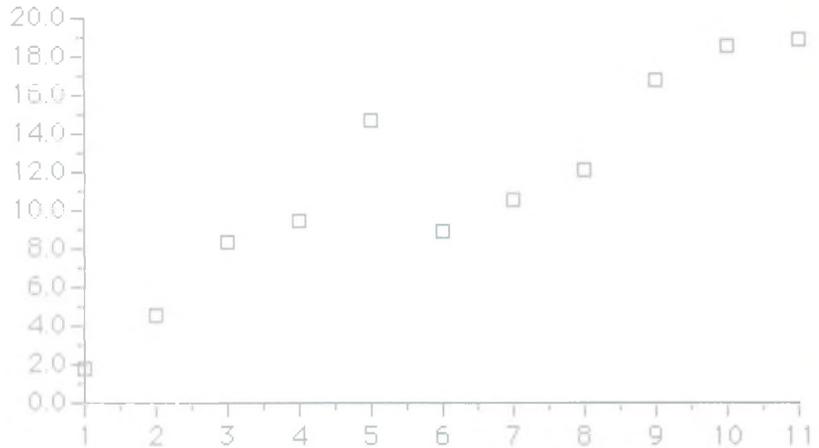
Pie compares single values to the whole by drawing the values as wedges in a pie. The size of each wedge corresponds to the percentage of the total that the value represents. This command is active when the major graph type is Pie. Each plotted data range appears as a whole pie.
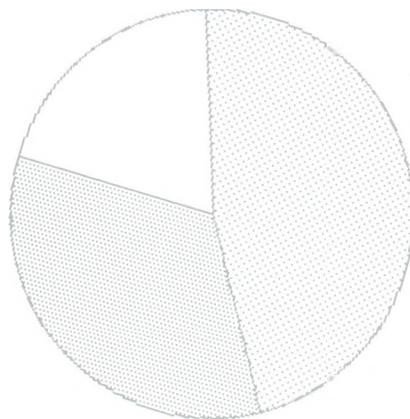
Pie Wedges emphasizes selected values in a data range by exploding the corresponding wedges from the pie chart. This command is active when the major graph type is Pie and you have selected a pie chart. The command becomes **Set Pie Wedges** when the selected pie chart has no exploded wedges, and it changes to **Clear Pie Wedges** when the selected pie chart has exploded wedges.

To use this command, you must first create and select an explosion range in the worksheet or database. If the range is in a database, all the values must be within one field. Moving clockwise from the top of the pie, Jazz associates each value in the explosion range with a pie wedge. Any value in the explosion range that is not zero causes Jazz to explode the corresponding wedge. You can explode as many wedges of a pie chart as you want.

Exploded wedge —————————————
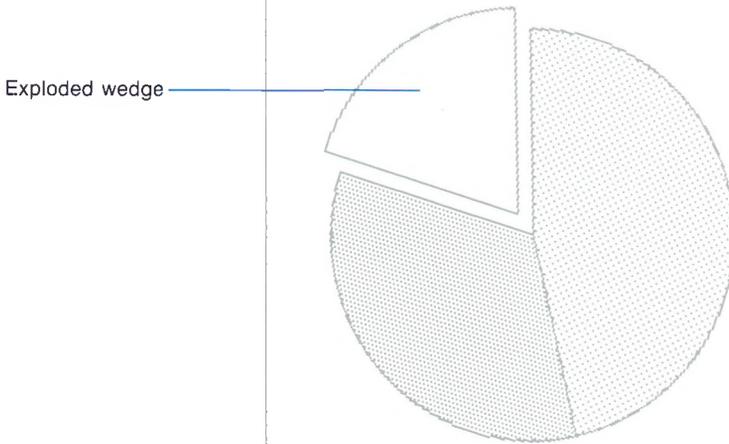
Point Labels specifies entries you selected in a worksheet or database range that you want to associate with data points in a plot. When no labels are present in a selected plot, **Set Point Labels** displays selected database or worksheet entries as point labels. When labels are present in the selected plot, the command becomes **Clear Point Labels**, removing all data labels.

Associate specifies the numeric axis to which you want to associate a plot. You can use this command when you have more than one plot on the graph and the data range for each plot varies greatly. For example, if one plot has values ranging from 1 to 10 and a second plot has values ranging from 3,000 to 6,000, you could associate the first plot with the left axis and the second plot with the right axis. Each axis can have a different minimum and maximum value.

The command is active only when you select a plot. If the selected plot is associated with the left axis, the command becomes **Associate to Right Axis**. If the selected plot is already associated with the right axis, the command becomes **Associate to Left Axis**. When you associate one plot in a stacked bar or a stacked area graph with the right axis, Jazz associates all the plots in the stacked bar or the stacked area graph with the right axis.

Associated with right axis

Associated with left axis

Axis menu

Axis
Left...
Bottom...
Right...
Top...

Set Labels
Format...
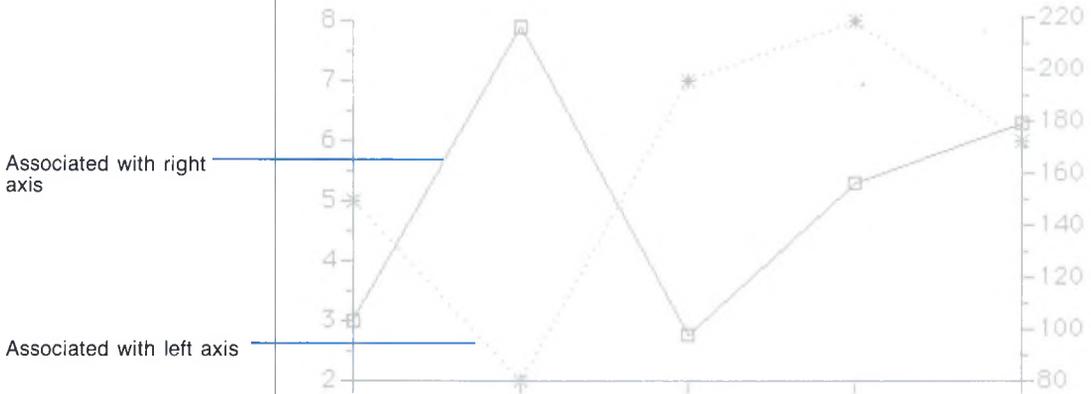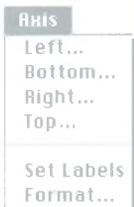
The Axis menu contains commands that change the left, bottom, right, and top axes on your graph. The changes you can make depend on whether the axis is numeric or text. A numeric axis has values along it, and a text axis has labels.

Left... brings up a dialog box to define the settings for the left axis. The dialog box depends on whether the currently selected axis is numeric or text.

The first line in the dialog box shows which axis you are defining. The following settings appear in both the text and numeric axis dialog boxes. Jazz determines the type of axis according to the type of plot you have selected.

- Display Axis: Specifies whether the axis appears on the graph.

- Tick Marks: Specifies whether tick marks appear inside, outside, or across major and minor points on the axis. You can also choose to have no tick marks. The options can be different for the major and minor points.

- Title: Specifies a title for the axis.

The following settings appear only for numeric axes. You can enter fractions as decimals. Jazz automatically calculates values for any settings you leave blank, so you don't have to provide values for all four settings.

- Minimum: Specifies a minimum value at which the axis begins. You can type any positive or negative number. The minimum value must be less than the maximum value.

- Maximum: Specifies a maximum value at which the axis ends. You can type any positive or negative number. The maximum value must be greater than the minimum value.

- Major Interval: Specifies the increments on the axis at which major tick marks are placed. The major interval must be less than the difference between the maximum and minimum value and greater than the minor interval.

- Minor Interval: Specifies the increments on the axis at which minor tick marks are placed. The minor interval must be less than the difference between the maximum and minimum value and less than the major interval.

Jazz displays the following information only for text axes.

- Label Range: Displays the range in the worksheet or database that contains the axis labels.

Bottom... specifies the settings for the bottom axis. This command brings up the same dialog box as for Left.... The dialog box depends on whether the selected axis is numeric or text.

Right... specifies the settings for the right axis. This command brings up the same dialog box as for Left.... The dialog box depends on whether the selected axis is numeric or text.

Top... specifies the settings for the top axis. This command brings up the same dialog box as for Left.... The dialog box depends on whether the selected axis is numeric or text.

Set Labels specifies entries you selected in a worksheet or database range to appear as labels on a text axis. The labels are placed along the axis, and a major tick mark appears at each label. When the axis already has labels, the command becomes **Clear Labels**.

Format... changes the display format for numbers along the numeric axis.

The dialog box shows the format of the numbers along the numeric axis, and lets you choose a different format for the numbers. If you have more than one numeric axis, you can change the format of the numbers along each axis.

If you select a numeric format other than General, Jazz gives you the option of specifying the number of decimal places, up to 15. Clicking the up or down arrow in the dialog box cycles you through the number of decimal places. (Jazz stores numbers that have up to 15 decimal places.)

Format is an alternative for labeling a numeric axis. For example, instead of including the words "In Dollars" in an axis title, you can format the axis so that the numbers appear in Currency format.

You can choose any available style for text in notation boxes, axis labels, and titles. The chosen style also affects text you are about to type. The style you choose is checked in the menu. The default style is Plain Text, which cannot be mixed with other styles. You can combine the other styles, however, for a variety of effects.

Lines... specifies the type of line for line graphs, for scatter graphs whose data points are connected by lines, and for the outline around bars in bar graphs. The command is active whenever you select anything containing lines. A dialog box displaying different line types appears.

Patterns... specifies the pattern for bar or area graphs, and is active whenever you select any bar or area plot. A dialog box displaying different patterns appears.

Symbols... specifies the symbols used to mark data points in scatter and line graphs. This command is active whenever you select a plot containing symbols. A dialog box displaying different symbols appears.

Grid Lines... specifies whether the graph has horizontal and/or vertical grid lines on it.

Size... scales the graph to a specified size. You generally use this command to set the size of the graph for printing.

- Fit to Window: Causes the entire graph to appear within its window. If you print the graph, it will print in the size you specified at the width and height settings.

- Show Actual Size: Causes the graph to appear in the size you specified at the width and height settings. If necessary, you can use the scroll bars to view different portions of the graph.

- Width: Specifies the width of the graph in inches. You can enter any positive number, using decimals for fractions. If you print the graph, the width should not exceed the width of the paper.

- Height: Specifies the height of the graph in inches. You can enter any positive number, using decimals for fractions. If you print the graph, the height should not exceed the height of the paper.

Legend specifies a legend to be associated with each data range in the graph. The command becomes **Set Legend** when you plot a data range. For each data range, this command creates a legend entry containing the pattern or symbol that represents the data range on the graph. You can enter explanatory text in a box to the right of the corresponding pattern or symbol. You can move and size these boxes.

Style menu

Style	
✓Plain Text	⌘P
Bold	⌘B
Italic	⌘I
Underline	⌘U
Outline	⌘O
Shadow	⌘S
Lines...	
Patterns...	
Symbols...	
Grid Lines...	
Size...	
Legend	
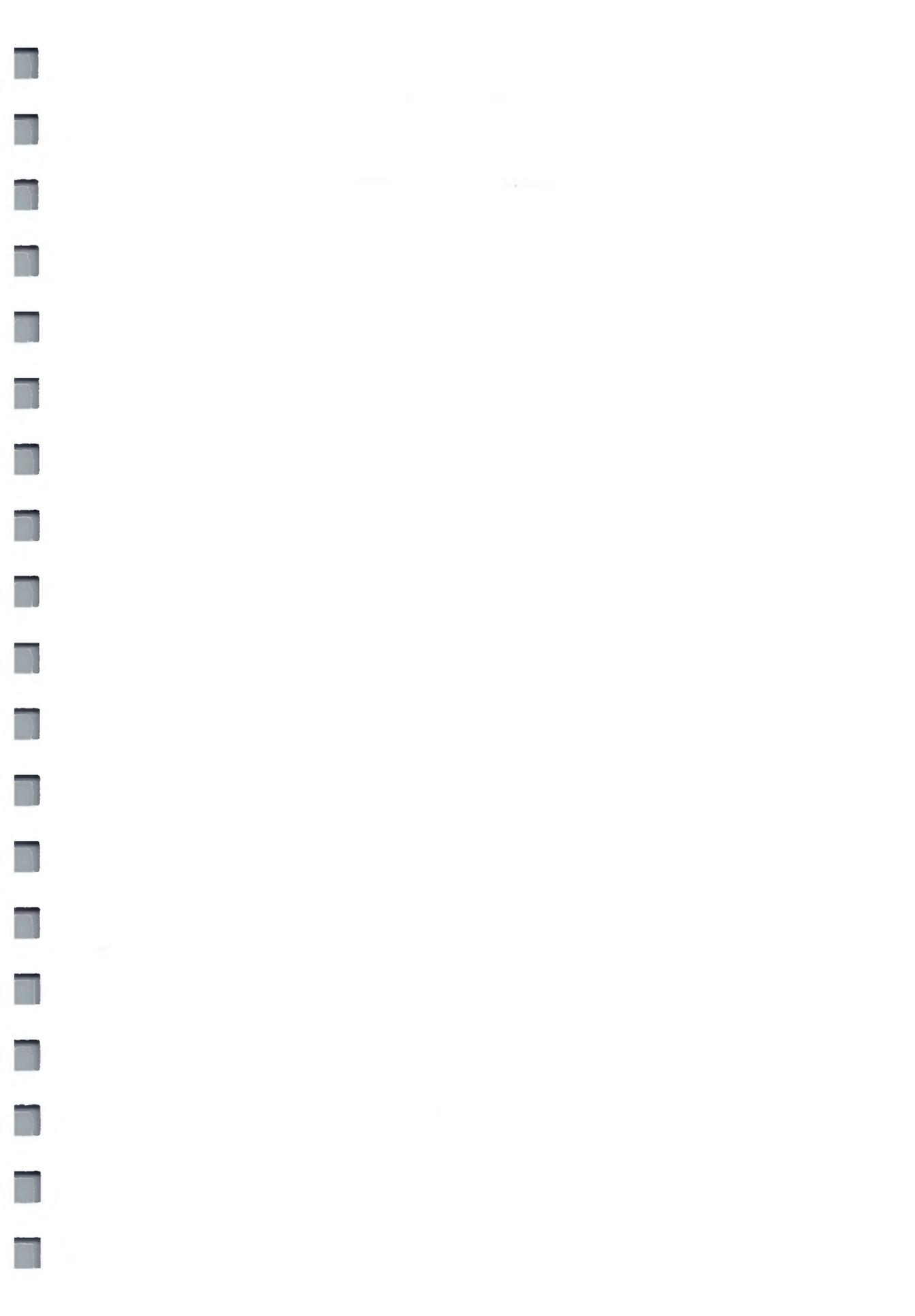
Chapter 4
Word Processing

Jazz Word Processing is an easy way to create letters, memos, reports, or any typed document. When you use Jazz Word Processing, you type just as you would on a standard typewriter. With Jazz Word Processing, however, you can edit the document, rearrange it, or change its format quickly and easily. Jazz Word Processing can even replace a word or phrase automatically every time it occurs in the document. Jazz lets you enter text quickly, without worrying about format or accuracy, and arrange it or correct it later.

You control the format of text with rulers, which resemble the margin scale on a typewriter. Rulers control margin, tab, and paragraph indentation settings. To change the format of text in the document, you only need to change the ruler, not the text itself.

The margin scale controls the format of text on a typewriter.

The ruler controls paragraph indentation, margins, and tab settings.
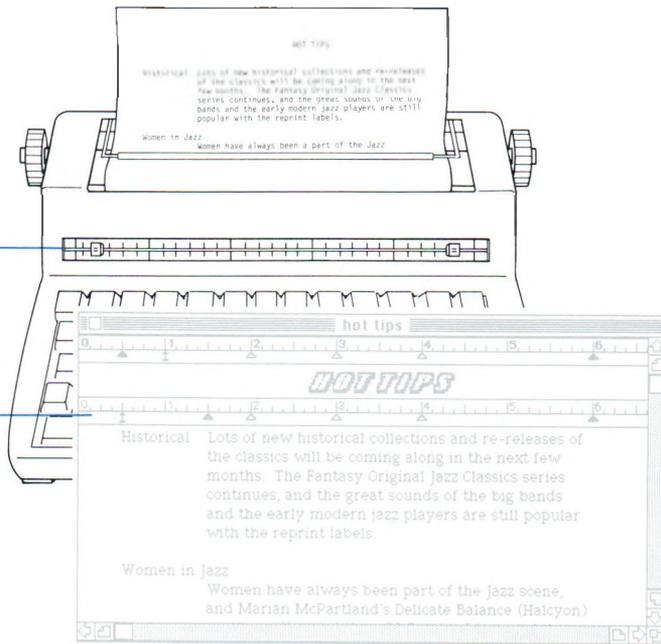
Jazz Word Processing also lets you change text alignment, such as from left-aligned to fully justified, and line spacing. You can also use different fonts, styles, and point sizes to vary parts of the text.

After you create a document and format it, you will probably want to print it. Printing a word processing document is similar to printing any other Jazz document. With word processing, however, you can include certain information in the document automatically, such as page numbers, headers and footers and the date and time.

One of the unique features of Jazz Word Processing is that you can include information from a Jazz worksheet or database, or an entire graph, using a HotView. HotViews let you create custom documents such as form letters, or documents that contain graphs or information from a worksheet or database. For example, to send a letter about your company's sales to all employees, you can include the part of the worksheet that shows sales totals in the letter. You can then use Jazz to create a copy of the letter for each employee using names and addresses from an employee database. Jazz can also create mailing labels using names and addresses from a database.

A HotView is dynamic: Jazz changes the word processing document automatically whenever you change any of the data in the database, worksheet, or graph you've included. If you don't want the word processing document to change, you can freeze the HotView. A frozen view does not change even if its original source changes.

How to Enter and Change Text

Entering text with Jazz Word Processing is as easy as typing. When you type a character, Jazz inserts it in the document. You don't even have to press Return at the end of a line: when you type beyond the right margin, Jazz automatically moves the current word to the next line.

Once you enter text, you can change it. Generally, you select the text and then perform a command on it. For example, you can move two lines of text to another area of the document, or copy several paragraphs to another word processing document. You can also emphasize text by choosing a different font, style, and character size for it.

Entering and Inserting Text

To enter text in a new document, you type it at the insertion point, which appears as a blinking vertical bar on the first line.

You can also insert new text in existing text by positioning the insertion point and typing the new text. Jazz automatically readjusts the text within the margins each time you add a character to an existing paragraph.

Entering text in a new document

1. Create a new word processing document.
To create a new document, choose New... from the File menu and click the Word Processing icon. Then click New.

2. Type text without pressing Return.
When you type a character, it appears in the document at the insertion point, and Jazz moves the insertion point to the right of the new character.

When you type a word that extends beyond the right margin, Jazz moves the word and the insertion point to the beginning of the next line.

Before

When you type a character at the right margin . . .

As I promised in my last memo, I'm passing along the fig

After
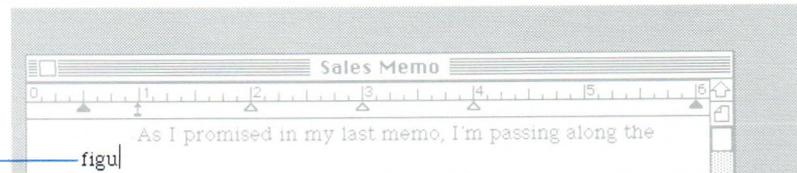
. . . Jazz moves the insertion point and current word to the next line.

As I promised in my last memo, I'm passing along the
figu

3. Press Return at the end of the paragraph.
The insertion point moves to the beginning of the next line.

Always press Return to end a paragraph. This tells Jazz where one paragraph ends and the next one begins.

1. Move the pointer to where you want to insert text.
The pointer appears as an I-beam in a word processing document.

If the text you want to change isn't visible in the window, you can move around in the document using standard Macintosh features such as scroll arrows or scroll boxes. In addition, you can click a page box to move through the document one window at a time.

2. Click the location.
The insertion point moves to the new location.

3. Type new text.
Jazz readjusts the spacing in the paragraph.

Before
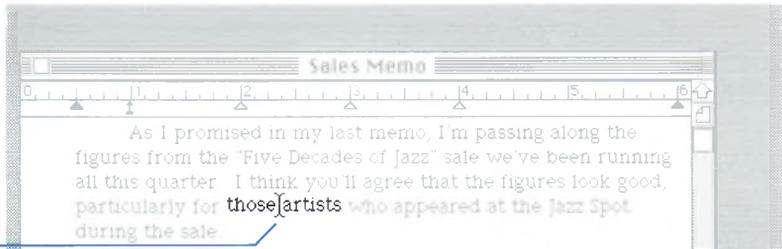
Move the pointer to where you want to insert text.

After
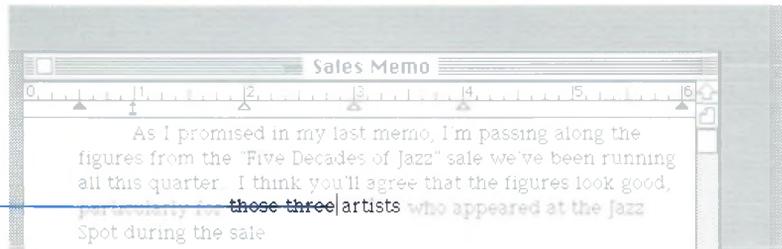
Click an insertion point and type the new text.

Keys with special functions. In Jazz Word Processing, the Tab and Shift keys function as they do on a typewriter. Press Backspace to delete a character to the left. Press Caps Lock once to make letters appear uppercase when you type them. Press Caps Lock again to make letters appear lowercase.

Selecting Text

You must select text before you can perform a command on it, such as copying or moving. Selected text can be a single character, several sentences or paragraphs, or the entire document. When you select text, Jazz highlights it.

1. Drag the pointer from the beginning of the text you want to select to the end.
You can drag the pointer up, down, to the left, or to the right. Jazz highlights the entire block of text from its beginning to the current pointer position.

To extend the selection to include text that is outside the window, drag the pointer across the scroll bar onto the desktop. Jazz automatically scrolls the document and the highlight in the direction of the pointer. Move the pointer back into the document to stop the scrolling.

2. Release the mouse button.
Jazz highlights the selected text. You can now perform a command on it.

Before
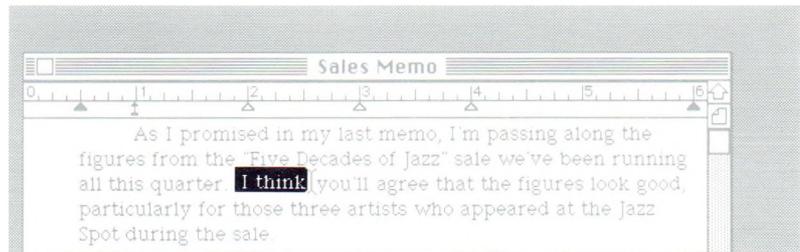
After
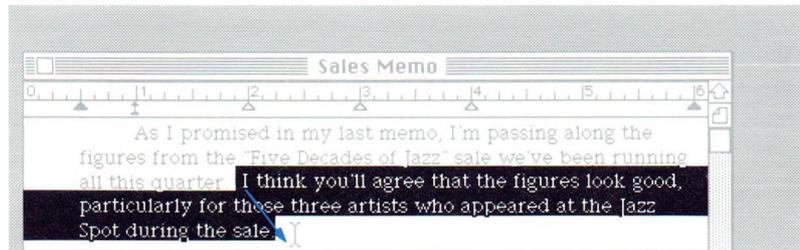
Expanding and shrinking the selection. To expand a text selection, hold down the Shift key and click a location outside the selection. To shrink a selection, hold down the Shift key and click a location inside the selection.

Selecting a word. Double-click anywhere in a word to select it.

Selecting the entire document. To select the entire document, choose Select All from the Edit menu.

Deleting Text

You can delete one character or an entire block of text from a word processing document. When you delete text, Jazz automatically readjusts the spacing of the surrounding text.

1. Click the location to the right of the character you want to delete.
The insertion point, a blinking vertical bar, disappears at its previous location and appears at the location you clicked.

To select text, you can drag horizontally...

. . . or vertically.

Keep in mind

Deleting one character at a time

2. **Press Backspace.**
The character to the left of the insertion point disappears.

Continue to press Backspace to delete more characters. You can also insert characters or move the insertion point to a new location.

Before

Click to the right of the character you want to delete.

As I promised in my last memo, I'm passsing along the
figures from the "Five Decades of Jazz" sale we've been running

After

Press Backspace.

As I promised in my last memo, I'm passing along the
figures from the "Five Decades of Jazz" sale we've been running
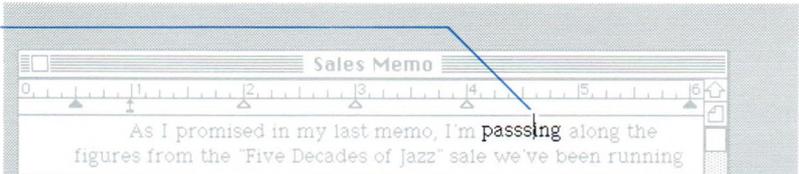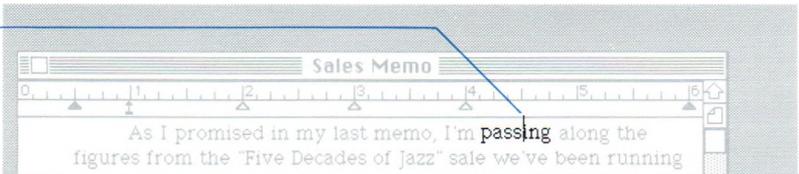
Deleting a block of text

1. **Select the text you want to delete.**

2. **Choose Clear from the Edit menu.**
Jazz removes the selected text and readjusts the spacing in the document. Jazz does not place the deleted text on the Clipboard.
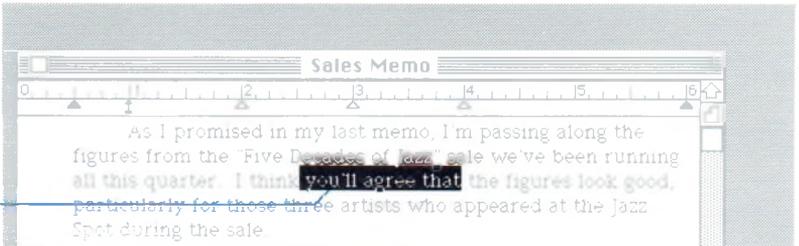
Before

Select the text you want to delete.

As I promised in my last memo, I'm passing along the
figures from the "Five Decades of Jazz" sale we've been running
all this quarter. I think you'll agree that the figures look good,
particularly for those three artists who appeared at the Jazz
Spot during the sale.

After

Choose Clear from the Edit menu.

As I promised in my last memo, I'm passing along the
figures from the "Five Decades of Jazz" sale we've been running
all this quarter. I think the figures look good, particularly for
those three artists who appeared at the Jazz Spot during the
sale.
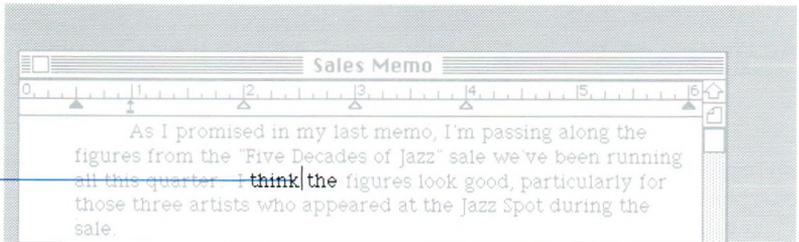
Other methods of deleting text. Select the text you want to delete and press Backspace. The selected text disappears. This is like choosing Clear from the Edit menu.

You can also select the text you want to delete and type any character. The selected text disappears and the character you type appears at the insertion point.

Cutting and pasting. To remove text in order to paste it in another location, select the text and choose Cut from the Edit menu instead of Clear. This places the text on the Clipboard. You can then paste the text in a new location.

Moving and Copying Text

You move text by cutting it and then pasting it in a new location. This lets you reorganize your document. When you move text, it disappears from the original location and appears in a new one.

Copying text lets you use the same text in different places without retyping it. When you copy text, it remains in the original location *and* appears in the new one.

You can move or copy text within the same document or to any other Jazz document.

1. **Select the text you want to move or copy.**

2. **Choose Cut or Copy from the Edit menu.**
   Choose Cut to remove the text you selected from the document and place it on the Clipboard. Choose Copy to copy the text onto the Clipboard.

3. **Click the location where you want the text to appear.**
   To move or copy text to another document, open the other document and then click the location where you want to paste the text.

4. Choose Paste from the Edit menu.

Jazz moves or copies the text from the Clipboard to the new location and readjusts the spacing in both locations.

You can repeat steps 3 and 4 to paste this text in other locations until you place new text on the Clipboard.

Before

Select the text you want to move or copy.

As I promised in my last memo, I'm passing along the figures from the "Five Decades of Jazz" sale we've been running all this quarter. You can see that the sale did very well, coming in second among the sales we've had in the last year.
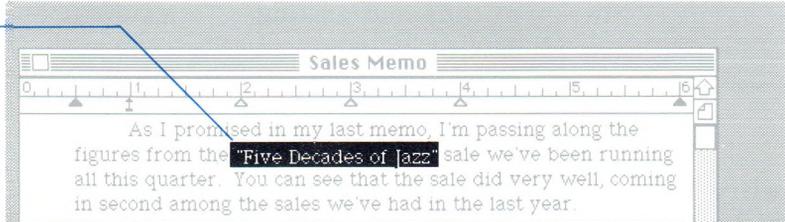
After

When you cut and paste, Jazz moves the text to the new location.

As I promised in my last memo, I'm passing along the figures from the sale we've been running all this quarter. You can see that the "Five Decades of Jazz" sale did very well, coming in second among the sales we've had in the last year.

After

When you copy and paste, Jazz copies the text to the new location.

As I promised in my last memo, I'm passing along the figures from the "Five Decades of Jazz" sale we've been running all this quarter. You can see that the "Five Decades of Jazz" sale did very well, coming in second among the sales we've had in the last year.
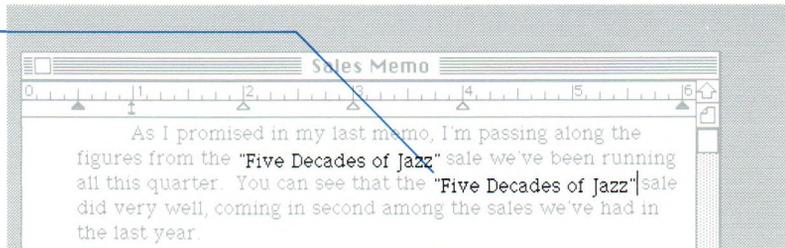
Keep in mind

Including a picture from the Clipboard. You can paste pictures from the Clipboard or Macintosh Scrapbook into a word processing document. Place the pictures on the Clipboard or Scrapbook using the Cut or Copy command in other Macintosh programs (such as MacPaint) before you open Jazz. Then paste the picture in the word processing document. You can adjust, cut, copy, clear, or paste the picture after you paste it in the word processing document.

Finding Text

You can locate a word or phrase you entered in a document easily with Jazz. This lets you find the place in a document that contains a particular phrase, for example, or find all the occurrences of a word.

When Jazz searches for a word or phrase, it ignores capitalization, accents, fonts, point sizes, and styles.

1. Click the location in the document where you want to begin searching.

2. Choose Find... from the Search menu.
The Find window appears. You can move and close this window or make it active, just like any other window.

3. Reposition the windows, if necessary.
Move the document and Find windows and adjust the document window size so that you can see the contents of both windows. This lets you see the document automatically when Jazz finds a word or phrase. If you do not do this, you may have to click the document window to see the word or phrase that Jazz finds.

4. Type the characters you want to find in the space provided.
You can type any word or phrase, including spaces, up to the length of the space provided.

5. Click Forward or Backward.
Click Forward to search forward from the insertion point. Click Backward to search backward from the insertion point.

6. Click Partial Word or Whole Word.
Click Partial Word to find the characters either as complete words or as parts of words. For example, if you type **the** and click Partial Word, Jazz finds the words the, there, other, and so on.

Click Whole Word to find the characters only as a complete word or words. For example, if you type **the** and click Whole Word, Jazz finds only the word the.

7. Click a Find option.
If you are searching forward, click Find Next to find and select the next occurrence of the word or phrase after the insertion point. Click Find First to find and select the first occurrence of the word or phrase in the document.

If you are searching backward, click Find Prev to find and select the occurrence of the phrase before the insertion point. Click Find Last to find and select the last occurrence of the phrase in the document.

Jazz displays an alert message if it cannot find the word or phrase. Click OK to return to the Find window.

When you click
Find Next, Jazz selects
the next occurrence of
the text.

8. Click Find Next or Find Prev to find other occurrences of the text, if necessary.

9. Close the Find window.

You can now choose Find Next from the Search menu to find and select the next occurrence of the text.

You can also keep the Find window open on the desktop. This lets you switch between entering text in the document window and finding text using the Find window. To return to the word processing document, click it to make it active.

Keep in mind

Finding another word or phrase. The text you enter in the Find window remains there until you leave the current Jazz session or change the text. Changing the text in the Find box of the Replace window also changes the text in the Find box in the Find window. To search for a different word or phrase, select the text and type a new word or phrase. You can also edit the text by clicking the location you want to change and inserting or deleting characters.

Replacing Text

Jazz lets you replace a word or phrase in a document with another word or phrase. You can replace all the occurrences of the word automatically, or only some. For example, you may want to replace a word that you misspelled or used incorrectly. You may also want to replace words or phrases to adapt a document for a new purpose.

When Jazz searches for a word or phrase, it ignores capitalization, accents, fonts, point sizes, and styles.

Both the word or phrase that you want to replace and the new word or phrase can be as long as the space provided. When you replace a word or phrase, Jazz automatically adjusts the spacing in the document.

1. **Click the location in the document where you want the search to begin.**

2. **Choose Replace... from the Search menu.**
   Jazz opens the Replace window. You can move and close this window just like any other window. If the Replace window is open when you're working in another window, click the Replace window to make it active.

3. **Reposition the windows, if necessary.**
   Move the document and Replace windows and adjust the size of the document window so that you can see the contents of both windows. This lets you see the document when Jazz finds a word or phrase. If you do not do this, you may have to click the document window to see the word or phrase that Jazz finds.

4. **Type the characters you want to replace in the Find box.**

5. **Type the new characters in the Change to box.**

6. **Click Forward or Backward.**
   Click Forward to search forward from the insertion point. Click Backward to search backward from the insertion point.

7. **Click Partial Word or Whole Word.**
   Click Partial Word to replace the characters either as complete words or as parts of words. For example, if you type **the** and click Partial Word, Jazz finds and replaces the characters in the words the, there, other, and so on.

   Click Whole Word to replace the characters only as a complete word or words. For example, if you type **the** and click Whole Word, Jazz finds and replaces only the word the.

8. **Click a Find option.**
   If you are searching forward, click Find Next to find and select the next occurrence of the word or phrase after the insertion point. Click Find First to find and select the first occurrence of the word or phrase in the document.

   If you are searching backward, click Find Prev to find and select the occurrence of the word or phrase before the insertion point. Click Find Last to find and select the last occurrence of the word or phrase in the document.

   Jazz displays an alert message if it cannot find the characters. Click OK to return to the Replace window.

9. **Click a Change option.**
   - Click Change, then Find to replace the current phrase with the new phrase. Jazz finds and selects the next occurrence of the phrase.

   - Click Change to replace the current phrase with the new phrase. Jazz selects the new phrase.

   - Click Change All to replace all occurrences of the phrase in the document. An alert message warns that you cannot undo this command. Click OK to replace all occurrences of the phrase with the new phrase.

Before

When you click
Change . . .

After
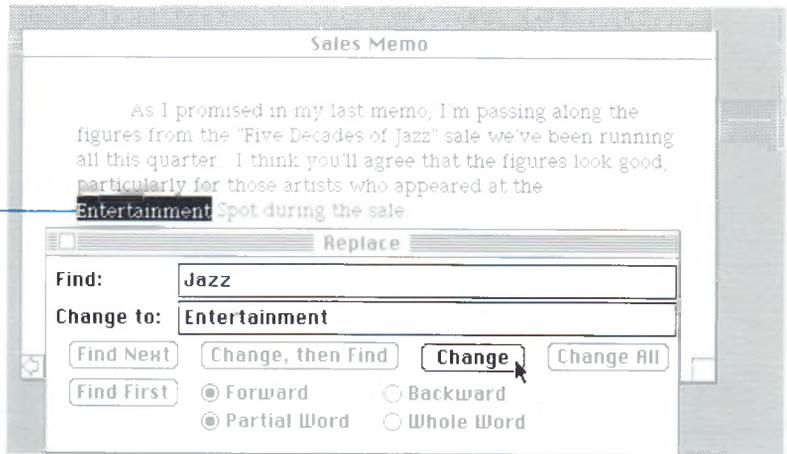
. . . Jazz replaces the
selected text with the
new text.

10. **Continue to find and replace characters using the above
    steps, if necessary.**

11. **Close the Replace window.**
    You can continue to find and select the text in the Find box by
    choosing Find Next from the Search menu.

    You can also keep the Replace window open on the desktop. This
    lets you switch between entering text in the document window
    and replacing text using the Replace window. To return to the
    word processing document, click it to make it active.

Keep in mind

Deleting a word or phrase. To delete every occurrence of a
word or phrase from the document, enter the word or phrase
in the Find box. Leave the Change to box blank, and click
Change All.

Changing the text. The text you enter in the Replace window remains there until you leave the current Jazz session or change the text. Changing the text in the Find box of the Find window also changes the text in the Find box in the Replace window. To use a different word or phrase in the Find or the Change to box, select the text in the box and type a new word or phrase. You can also edit the text by clicking the location you want to change and inserting or deleting characters.

How to Format a Document

Jazz Word Processing lets you control a document's format by setting margins, tabs, line spacing, and text justification. You can also indent the first line of paragraphs, start a new page, create headers and footers, and set page numbers. To format a document, you use the rulers in the document and the icons in the console.

Tab icons
Alignment icons
Line Space icons

Console

Ruler

Margin marker
Indentation marker

File   Edit   Window   Format   Search   HotView   Font   Style

hot tips
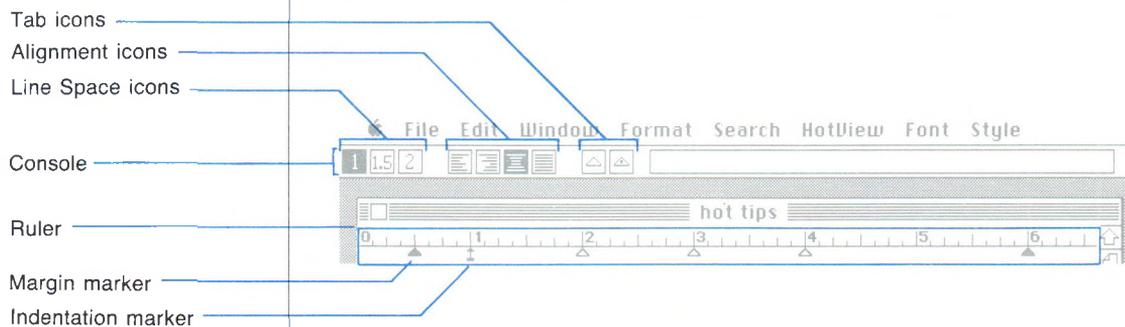
Inserting a Ruler

At the top of each new word processing document is a ruler that contains default format settings. The console for the document also contains default format settings. You can set a different format by changing the settings on the ruler and in the console. You can also insert other rulers to create different formats in different parts of a document.

You can insert a ruler at any point in a document. A ruler affects all the text that follows it, up to the next ruler. If the document doesn't have any more rulers, the ruler affects the remainder of the document.

Rulers never appear when you print a document.

1. **Click the location where you want to insert the ruler.**

2. **Choose Insert Ruler from the Format menu.**
Jazz moves the insertion point and anything that follows it below the ruler. The inserted ruler is a copy of the preceding ruler.

Keep in mind

Hiding rulers. Hiding all rulers in a document lets you see more of the document at one time. To hide the rulers, choose Hide Rulers from the Format menu. After you hide rulers, the command changes to Show Rulers. Rulers control the format of the document even if they do not appear on the screen.

Deleting rulers. To delete a ruler from a document, click the top half of the ruler and choose Cut or Clear from the Edit menu.

Copying rulers. To insert a new ruler with the same settings as those on an existing ruler, copy the existing ruler and paste it where you want to insert the new ruler. Click the top half of the ruler you want to copy, choose Copy from the Edit menu, click the location where you want to place the new ruler, and choose Paste from the Edit menu.

Setting Margins, Tabs, and Paragraph Indentation

A ruler lets you set the margins and tabs for text and the indentation for the first line of paragraphs. Margin settings control the width of your text. Tabs are useful in aligning tables. With the paragraph indentation marker, you control where the first line of each paragraph begins: at the margin, to the left of the margin, or to the right of the margin.

Setting margins

The margins you set on a ruler determine how close to the left and right edges of the paper Jazz prints the text. Jazz sets the margin markers at 1 inch and 7 1/2 inches on the default ruler, leaving 1-inch left and right margins on letter-size (8½ X 11 inch) paper. Depending on the size of the window, however, the full margins may not appear on your screen.

1. **Click the text you want to set margins for.**
   Click anywhere under the ruler that controls the text.

2. **Drag the left and right margin markers on the ruler to where you want to set the margins.**
   You can't place a margin marker on a tab marker, but you can place it on the indentation marker.

Setting tabs

You set tabs by placing tab markers on the ruler. You can also drag the tab markers that are already on the ruler to change the position of existing tabs. Once you set tabs, Jazz moves the insertion point to the next tab marker every time you press the Tab key.

Tabs are especially useful for creating tables. Adding or deleting text at one tab doesn't disturb text at the next tab, as long as the changes you make don't extend into the next column.

You can right-align text or align numbers at the decimal point by placing a decimal tab marker on the ruler. Decimal tabs are useful in tables that contain columns of numbers with decimals.

1. **Click the Tab or Decimal Tab icon in the console.**

2. **Click the location on the ruler where you want to place a tab stop or decimal tab.**

Tabs
Decimal tab

Artist	Title	Price
Corea and Gulda	The Meeting (Philips)	7.99
Monk, Thelonius	Underground (Columbia)	6.99
Ellington, Duke	Ellington Indigoes (Columbia)	6.99
Goodman, Benny	Together Again (RCA)	6.99
Gillespie, Dizzy	At Salle Pleyel '48 (Prestige)	7.99
Jarrett, Keith	Sun Bear Concerts (ECM-10 recs.)	69.99

To delete a tab, click the Tab or Decimal Tab icon and then click the tab marker on the ruler.

The indentation marker sets the position of the first character in a paragraph. When you press the Return key to signal the beginning of a new paragraph, Jazz indents the next character you type to the position of the indentation marker.

1. **Click under the ruler that contains the indentation marker you want to set.**

2. **Drag the indentation marker to where you want to indent a paragraph.**
   You can place the indentation marker on the margin marker or to the right or left of the left margin marker. For example, place it to the left of the left margin marker to number a series of paragraphs that are left-aligned.
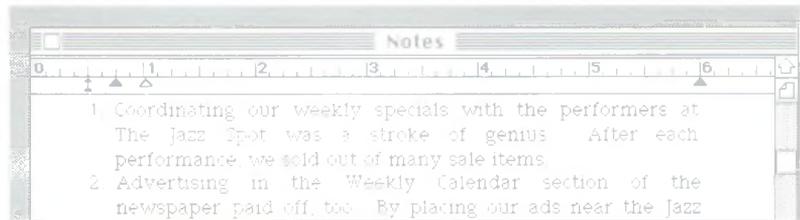
Indenting a block of text. To indent a block of text, insert a new ruler and move the margin and indentation markers to set the indented margin. To return to the format you used before the indented block of text, insert a copy of the ruler that has the format settings you want to use.

Justifying Text

Justification is the position of text in relation to the margins. You can justify, or align, text with the left or right margins, or with both margins. You can also center text between the left and right margins. In a new document, the default is left justification. You align text with an Alignment icon in the console. The Alignment icon you choose affects only the text between the active ruler and the following ruler.

1. **Click the text you want to justify.**
   Click anywhere below the ruler that controls the text.

2. **Click an Alignment icon in the console.**

   • Click the Right icon to align text with the right margin.

   • Click the Full Justification icon to align text evenly with both margins. Jazz justifies all lines in a paragraph except the last one. Full justification does not change the last line in a paragraph or text you positioned with a tab.

   • Click the Center icon to center text between margins.

   • Click the Left icon to align text with the left margin.

Using more than one justification setting. To use different justification settings in the same document, insert a ruler where you want to change the justification. The new ruler is a copy of the preceding ruler. Click an Alignment icon. The new justification setting affects all text you enter below the ruler until you insert another ruler and change the setting.

Setting Line Spacing

Line spacing is the amount of space between lines of text in a document. You can choose single, 1.5, or double spacing. In a new document, the default is single spacing. The line spacing you choose affects only the text between the active ruler and the following ruler.

1. **Click the text where you want to change the line spacing.**
   Click anywhere below the ruler that controls the text you want to change.

2. **Click a Line Space icon in the console.**

   - Click the Single Space icon to put no blank lines between each line of text.

   - Click the 1.5 Space icon to put half a blank line between each line of text.

   - Click the Double Space icon to put one blank line between each line of text.

Keep in mind

Varying the line spacing. To use different line spacings in various parts of a document, insert a new ruler. The new ruler is a copy of the preceding ruler. Click a Line Space icon. The new line spacing affects all text between this ruler and the next ruler.

Inserting Page Breaks

A page break tells Jazz to start a new page when it is printing a document. Jazz automatically inserts page breaks when you fill a page. These page breaks appear as a dotted line across the document. You can also insert a page break as you are typing a document or in text you typed previously. You do so if you want Jazz to start a new page when it is printing the document, even if the previous page is not full. A page break you insert appears as a solid line across the document.

Page break lines are always visible in the window, but Jazz does not print them when you print the document.

1. **Click the location where you want to begin a new page.**

2. **Choose Insert Page Break from the Format menu.**

Keep in mind

Removing page breaks. To remove a page break, move the insertion point to the beginning of the line following the page break and press Backspace once.

Creating Headers and Footers

A header is text that appears at the top of every page of a document but the first page. A footer is text that appears at the bottom of each page of a document. Headers and footers can include such things as chapter titles, pictures, page numbers, and the date and time. A header or footer can be as long as 1/4 of a page.

You create a header or footer in a Header and Footer window. Jazz displays a header or footer in the active document and prints it when you print the document.

The text you type in the Header window . . .

SALES MEMO:Header

January 21, 1985
Quarterly Sales Report
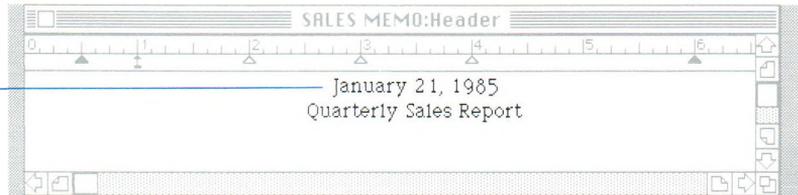
...appears at the top of each document page except the first.

SALES MEMO

January 21, 1985
Quarterly Sales Report

figures from the "Five Decades of Jazz" sales we've been running all this quarter. I think you'll agree that the figures look good, particularly for those artists who appeared at the Jazz Spot during the sale. Here's a copy of the Jazz Sales worksheet.
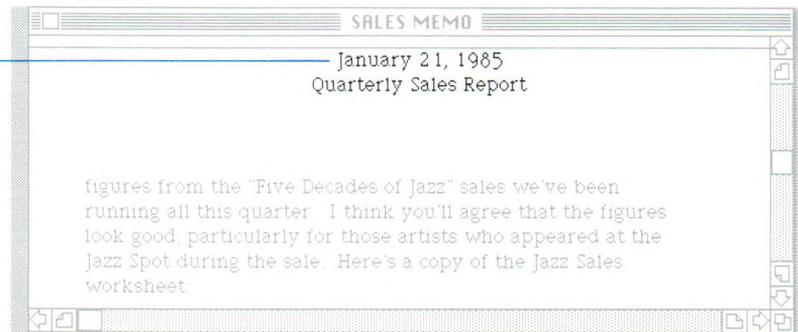
1. Choose Header... or Footer... from the Format menu.
If you are creating a new header or footer, a blank Header or Footer window appears. If you have already created a header or footer for this document, the window contains the existing header or footer.

2. Move the insertion point to the location where you want to enter information.
Use the pointer, the Return and Tab keys, and the space bar to position the insertion point.

3. Type new text, or paste text or a picture from the Clipboard into the Header or Footer window.
Use the ruler and the icons in the console as you would in the document itself to set margins, tabs, indentation, text alignment, and line spacing. You can use more than one font, style, and point size for text you type in a header or footer.

To insert the date, time, or page number, choose Date, Time, or Page from the HotView menu. Jazz continuously updates the date, time, and page number unless you freeze them. See Freezing a HotView later in this chapter for information on freezing the date, time, and page number.

4. Click the close box in the Header or Footer window to close the window and display the header or footer in the document.

Setting the First Page Number

Clearing a header or footer. If you create a header or footer and then decide you don't want to use it, you can clear the Header or Footer window. Click the Header or Footer window to make it active, choose Select All from the Edit menu, and then choose Clear from the Edit menu.

Setting the first page number lets you change the page number Jazz assigns to the first page of a document. If you don't change the first page number, Jazz starts numbering at 1.

1. **Choose Set First Page # from the Format menu.**

2. **Type a number for the first page of the document in the dialog box.**

3. **Click OK.**
   Jazz numbers the first page of the document with the number you typed and numbers all following pages sequentially.

   To see page numbers on the screen and to include them when you print the document, you need to place the page number in the document by choosing Page from the HotView menu.

How to Include Other Jazz Documents in a Word Processing Document

Jazz Word Processing lets you incorporate dynamic pictures of graphs or of parts of databases and worksheets in a word processing document. These pictures are called HotViews. When you include a HotView, the word processing document automatically reflects any changes you make in the original document. For example, if you include sales figures from a worksheet in a word processing document, Jazz reflects any change you make to the worksheet figures in the word processing document as well.

In addition to HotViews of worksheets, graphs, and databases, Jazz can also include HotViews of the current date, time, or page number. Whenever the date, time, or page number changes, the HotView changes too.

You can break the link between the HotView and the original document by freezing the HotView. After you freeze a HotView, it no longer reflects any changes you make in the original document.

Jazz also lets you create word processing documents, such as form letters or customized reports, that contain information that varies from one copy of the document to the next. For example, you can customize the same letter for several people. Jazz can automatically insert a different name, address, and salutation in each letter and print each one as if you had typed it individually. Using the same technique, you can also print mailing labels.

Incorporating information from other documents requires familiarity with the Worksheet, Database, and Graphics applications. Read about these applications before you begin this section.

Including HotViews of Other Documents

HotViews of other Jazz documents can appear anywhere in a word processing document. HotViews can be entire graphs, ranges from worksheets, or areas from databases. Unless you freeze a HotView, it is linked to the original document. When you change the original document, Jazz changes the HotView, too.

1. **Open the document that contains the data you want to include in the HotView.**
   To open a document, choose Open... from the File menu. If the document is already open, click it to make it active.

2. **Select the data you want to include.**
   To include a graph, click anywhere on the graph. Jazz includes the entire graph, including graph enhancements such as titles, labels, notations, legends, and grids. To include data from a worksheet or database, select the range or area you want to include.

3. **Open an existing word processing document or create a new one.**
   If the word processing document is already open, click it to make it active.

4. **Click the location where you want to insert the HotView.**

5. **Choose Include from the HotView menu.**
   Jazz inserts the HotView after the insertion point.

   If the HotView is from a worksheet or database, Jazz displays the grid lines as long as they appear in the worksheet or database window. If you do not want the grid lines to appear, hide them in the worksheet or database. You can hide the grid lines before or after you include the HotView.

Adjusting a HotView. To move the HotView from side to side, click it. Jazz draws a box around it. Position the pointer on the border of the box and drag it to the right or left.

You cannot edit text in a HotView from a worksheet or database unless you freeze it. You cannot edit text in a graph.

To change the size of a HotView, drag the size box in the lower right corner of the box just as you drag the size box of a Jazz window.

To cancel the selection of a HotView, click above or below the HotView.

Cutting, copying, and clearing a HotView. To cut, copy, or clear a HotView, double-click the HotView and choose Cut, Copy, or Clear from the Edit menu.

If you cut or copied the HotView, you can paste it in another part of the word processing document. Click the location where you want to place the HotView and choose Paste from the Edit menu. Jazz places a copy of the HotView at the insertion point. The HotView still reflects any changes you make in the document to which it is linked.

Freezing a HotView

Freezing a HotView breaks the link between the HotView and the original document. After you freeze a HotView, it no longer reflects changes you make in the original document, and you can edit it in the word processing document.

1. **Click the HotView you want to freeze.**
   Jazz draws a box around it.

   If you want to freeze *all* the HotViews in the document, skip this step.

2. **Choose Freeze or Freeze All from the HotView menu.**
   Freeze freezes only the active HotView. Freeze All freezes all the HotViews in the document. The HotView is no longer linked to the original document.

   If the HotView is from a worksheet or database, Jazz makes the data conform to the tab settings in the ruler directly above it. The grid no longer appears with the worksheet or database data.

Editing a frozen HotView. Once you freeze a HotView, you can work with it just as you work with any text you type in the word processing document. That is, you can edit it or change its font and style, unless it is a graph. You cannot edit a frozen HotView of a graph, but you can cut, copy, clear, and paste it.

Inserting the Date, Time, and Page Number

Jazz can insert a HotView of the current date or time anywhere in a document. As the actual date and time change, Jazz changes the date and time in the word processing document. For example, you can use a HotView of the date and time in a form letter that you send at different times of the year.

Jazz can also insert a HotView of the current page number anywhere in a document, including a header or footer. You can use a HotView of the current page number in a header or footer to print the correct page number automatically on each page of a document.

1. **Click the location where you want to insert the date, time, or page number.**
   To place a page number in a header or footer, first choose Header... or Footer... from the Format menu. Use the pointer, the Return and Tab keys, and the space bar to position the insertion point where you want the date, time, or page number to appear.

2. **Choose Date, Time, or Page number from the HotView menu.**
   Jazz inserts the date, time, or page at the insertion point.

Keep in mind

Setting the time and date. You set the date or time in your Macintosh's memory with the Alarm clock on the Macintosh Control Panel desk accessory. For information, see *Macintosh*, the owner's guide.

Creating and Printing Form Letters

Jazz lets you create documents in which most of the text remains the same from copy to copy, while some of the information changes. In a form letter, for example, the text of the letter is the same but the name, address, and salutation change from letter to letter. The items that change are merged fields.

You can include field values from a database, such as names and addresses, or cell entries from a worksheet, such as monthly sales or commissions, as merged fields. You can also combine merged fields from several databases and worksheets in the same document.

Jazz lets you use information from a worksheet or database . . .

. . . as merge fields in a word processing document.

To create a document such as a form letter, you specify the worksheet cells or database fields that contain the merged field values and the location in the document where the merged fields should go. If you are using values from a database, you must select the records you want to use in the merged fields before you print the document.

Each time Jazz prints a copy of the document, it replaces the merged field with the contents of the next selected cell in the database or worksheet range. Jazz prints a copy of the document for each record or cell in the selection.

Using a worksheet range

1. **Open the worksheet that contains the entries you want to use in the merged fields.**
   Open an existing document by choosing Open... from the File menu. To create a new worksheet, choose New... from the File menu. If the worksheet is already open, click it to make it active.

2. **Select the range that contains the entries you want to use.**

3. **Open an existing word processing document or create a new one.**
   If the word processing document is already open, click it to make it active.

4. **Click the location where you want the worksheet entries to appear.**

5. **Choose Merge Field from the HotView menu.**
   Jazz inserts the contents of the first selected cell at the insertion point in the document and adjusts the spacing in the document according to the size of the entry.

6. **Continue to type text until you come to the next point where you want to include a merged field.**

7. **Repeat steps 1 through 5 for each merged field you want to insert.**

8. **Choose Print Merge... from the File menu.**
   Jazz displays the same dialog box that appears if you choose Print Document.... Specify the settings as you would for any Jazz document. Jazz prints copies of the document until it uses all the entries in the worksheet range.

Using database values

1. **Open the database that contains the values you want to use in the merged fields.**
   To open an existing document, choose Open... from the File menu. To create a new document, choose New... from the File menu. If the document is already open, click it to make it active.

2. **Select the field that contains the values you want to use.**
   To select an entire field, click the field name.

3. **Open an existing word processing document or create a new one.**
   If the word processing document is already open, click it to make it active.

4. **Click the location where you want the values from the database to appear.**

5. **Choose Merge Field from the HotView menu.**
   Jazz inserts the first field value from the selected field and adjusts the spacing to fit the merged field.

6. **Continue to type text until you come to the next point where you want to use a merged field, and repeat steps 1 through 5 for each merged field.**

7. **Click the database and select the records that contain the values you want to use.**
   You can select records by clicking, dragging, clicking while holding the Option key, or using a query. To select all the records, choose Select All from the Edit menu. Jazz uses only the values from the records you select in the merged fields.

8. **Click the word processing document.**

9. **Choose Print Merge... from the File menu.**
   Jazz displays the same dialog box that appears if you choose Print Document.... Specify the settings as you would for any Jazz document. Jazz prints copies of the document until it uses all the field values in the selected records.

Using unequal selections. You can include merged fields from fields or ranges from different documents. If one of the selections is larger than the other, Jazz repeatedly uses the last value in the smaller selection until it uses all the values in the larger selection. If the smaller selection consists of only one cell, Jazz uses the value in the cell in every copy of the document. For example, you can include address fields from a database and commissions from a worksheet. If you select more addresses than commissions, Jazz repeatedly prints the contents of the last cell in the range of commissions until it uses all the values in the group of addresses.

Adding spaces and punctuation. You must add punctuation and spaces between merged fields and other text within the document by typing the punctuation or space before or after the merged field. For example, if you want a comma between city and state, type it after you place a merged field for the city.

Editing a merged field. You cannot edit a merged field in a word processing document unless you freeze it. See Freezing a HotView earlier in this chapter. You can edit the value in the original worksheet or database. You can cut, copy, clear, or paste a merged field just as you would any other text in the word processing document.

Viewing field names. To see the names of the database fields in a word processing document instead of the merged fields, choose Show Definitions from the HotView menu. Choose Show Values to see the merged fields again.

Printing Mailing Labels

To create mailing labels, you use data from a database in a word processing document. Mailing labels are like other documents, such as form letters, that contain merged fields, or information that changes from one copy of the document to the next.

Jazz can print labels in three sizes: 3 1/2 by 15/16 inch, 3 by 5 inch, and on a 9 1/2 by 4 1/8 inch envelope (#10). Before you begin, be sure you have mailing labels of the correct size in the printer. Jazz prints mailing labels in single columns only.

Setting up mailing labels

1. Open the database that contains the values you want to use to print mailing labels.
To open an existing database, choose Open... from the File menu. To create a new database, choose New from the File menu. If the database is already open, click it to make it active.

2. Select the field you want to use in the mailing label.
Click the field name to select the entire field. When you create mailing labels, the first field is typically one that contains first names, or titles such as Ms. or Dr. Subsequent fields may include last name, address, city, state, zip or postal code, and country (if necessary).

3. Open an existing word processing document or create a new one.

4. Click the location where you want to include the selected field value from the database.
If you are printing business envelopes or large labels, adjust the left margin.

5. Choose Merge Field from the HotView menu.
Jazz inserts the first field value at the insertion point.

Jazz inserts the first field value in the selected field in the word processing document.

6. Type a space, a punctuation mark, or press Return if necessary.
Jazz does not include spaces between merged fields automatically. You must add spaces, commas, and other punctuation. You must also press Return to begin a new line.

7. Repeat steps 1 through 6 until you have created a complete mailing label.

1. **Open the database that contains the information you want to use in the mailing labels.**

2. **Select the records you want to use when you print labels.**
   You can select records by clicking or dragging, or by using a query.

3. **Open the word processing document that contains the labels.**

4. **Choose Page Setup... from the File menu.**

5. **Click the label option you want.**

   - Click Small Label to print 3 1/2 by 15/16 inch mailing labels.

   - Click Corporate Label to print 3 by 5 inch mailing labels.

   - Click Business Envelope to print 9 1/2 by 4 1/8 inch mailing labels.

6. **Click No breaks between pages.**

7. **Click OK.**
   A dotted line appears in the word processing document to mark the bottom of the label size you selected.

8. **Choose Print Merge... from the File menu.**
   Jazz displays the same dialog box that appears if you choose Print Document... Specify the settings as you would for any Jazz document. If you are printing business envelopes or separate labels, click Cut Sheet on the dialog box.

9. **Click OK.**
   Jazz prints a mailing label for each selected record in the database. Click Pause to stop the printing operation temporarily, then click Continue to resume printing. Click Cancel to cancel the printing operation before it is completed.

When you print the mailing labels, Jazz substitutes new field values in each label.
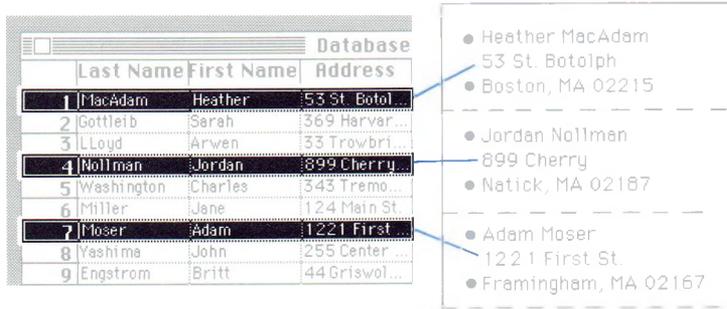
Keep in mind

Checking label alignment. Before you print all the mailing labels, choose Print Document... from the File menu. Jazz prints the first mailing label. Adjust the alignment of the labels, if necessary, and print the first label again until it is properly aligned.

Viewing field names. To see the names of the database fields in the word processing document instead of the merged fields, choose Show Definitions from the HotView menu. Choose Show Values to see the merged fields again.

The Word Processing Screen

Single Space icon

1.5 Space icon

Double Space icon

Left icon

Right icon

Center icon

Full Justification icon

Tab icon

Decimal Tab icon

Menu bar

🍎 File Edit Window Format Search HotView

Console

`1` `1.5` `2` ▤ ▤ ▤ ▤ △ △ Annual Sales:A3..D10

Line Space icons

Alignment icons

▤□ ═══════════════════ Memo ═══════════════

0 . . . | . . . |1| . . . | . . . |2| . . . |3| . . . |4| . . .

Left margin marker

Indentation marker

Decimal tab marker

Tab marker

INTEROFFICE MEMORANDUM

TO: All Employees
FROM: C. D. Hunt, General Manager
DATE: December 20
SUBJECT: End of Year Bonuses

As the following sales figures illustrate, this has been another
year for the company. I want to congratulate each of you for contribu
the outstanding success we have enjoyed this past year. In recogn
individual efforts, the stockholders voted last week to allocate a perc

Reference box

Ruler

Style

Right
margin
marker

The Word Processing Reference

Menu bar displays the titles of all Word Processing menus.

Console includes document formatting controls and the reference box.

Reference box displays the name of the source document for a selected HotView.

Ruler sets the margins, indentation, and the tabs that affect all text that follows the ruler, up to the next ruler. Clicking the top half of the ruler selects the ruler so you can clear, cut, or copy it. When rulers appear in a document, you can hide them using the Hide Rulers command from the Format menu.

Decimal Tab icon lets you add and erase decimal tabs. Clicking the Decimal Tab icon selects and deselects it. When the Decimal Tab icon is selected, clicking the ruler sets a decimal tab. Clicking an existing decimal tab deletes it from the ruler.

Tab icon lets you add and erase regular tabs. Clicking the Tab icon selects and deselects it. When the Tab icon is selected, clicking the ruler sets a tab. Clicking an existing tab deletes it from the ruler. When the Tab icon is not selected, you can drag tabs along the ruler.

Alignment icons control the alignment of text in your document and indicate which type of alignment affects text at the insertion point. Clicking one of these icons affects text between two consecutive rulers in your document. As you click in different parts of your document, the Alignment icon affecting text at that location is highlighted. There are Alignment icons for left, right, center, and full alignment.

Full Justification icon aligns text evenly between both margins. Click a location in your document and then click this icon to fully align the text under the ruler.

Center icon centers text between the margins. Click a location in your document and then click this icon to center the text under the ruler.

Right icon aligns text at the right margin. Click a location in your document and then click this icon to right-align the text under the ruler.

Left icon aligns text at the left margin. Click a location in your document and then click this icon to left-align the text under the ruler.

Line Space icons control the line spacing of text in your document and indicate which type of line spacing affects text at the insertion point. Clicking one of these icons affects text between two consecutive rulers in your document. As you click in different parts of your document, the Line Space icon affecting text at that location is highlighted. There are Line Space icons for single-spacing, 1.5, and double-spacing.

Double Space icon selects double-spacing for text. Click a location in your document and then click this icon to double-space the text under the ruler.

1.5 Space icon selects one-and-a-half spacing for text. Click a location in your document and then click this icon for 1.5 line spacing under the ruler.

Single Space icon selects single-spacing for text. Click a location in your document and then click this icon to single-space the text under the ruler.

Left margin marker sets the left margin. Drag the marker along the ruler to set the left margin.

Indentation marker sets the position of the first line in a paragraph, or each line in a list. Drag the marker along the ruler to set the indentation.

Decimal tab marker aligns numbers at the decimal point when you press the Tab key. Drag the marker along the ruler to set a decimal tab.

Tab marker left-aligns text at the tab marker when you press the Tab key. Drag the marker along the ruler to set a tab.

Right margin marker sets the right margin. Drag the marker along the ruler to set the right margin.

Selecting Text or Pictures

If you want to:	Do this:
Select a word	Double-click the word or drag across it.
Select text	Drag across the selection.
Select a picture	Double-click the picture, or drag across it. You can then cut, copy, clear, or freeze it.
Select text and pictures	Drag across the selection.
Expand or shrink the selection	Shift-click at the new location.
Move a picture horizontally	Click the picture to display a black border. Drag any part of the border left or right to move the picture.
Resize a picture	Click the picture to display a black border. Drag the size box in the border to resize the picture.
Select the entire document	Choose Select All from the Edit menu.

The Word Processing Menu Bar

Edit menu
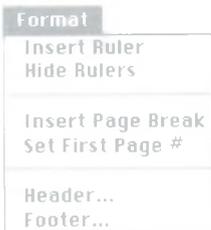
Edit

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘U
Clear	
Select All	⌘A

The Apple, File, Window, Font, and Style menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

| ⌘ | File | **Edit** | Window | Format | Search | HotView | Font | Style |

Undo reverses your last action, such as typing or editing text. This command alternates with **Redo**, which undoes the effects of the Undo command and restores your last action.

If Jazz can't undo your last action, this command appears dimmed as Can't Undo. If you disabled Undo, this command is **Undo Disabled**.

Cut removes selected text, rulers, or pictures (or any combination of these) from the document and places the selection on the Clipboard.

Copy places a copy of selected text, rulers, or pictures (or any combination of these) on the Clipboard. The contents of the document are not affected. This command works the same as the Cut command, except that Jazz does not remove the selection from the document or alter the document in any way.

Paste places the contents of the Clipboard into the document, replacing the current selection or beginning at the insertion point. When pasting text from another document, the pasted text assumes the font and style of surrounding text. When pasting text within a document, the pasted text retains its font and style.

Clear removes the current selection from the document but does not put it on the Clipboard. This command differs from the Cut command, which places the selection on the Clipboard.

Select All selects the entire document. This command performs the same action as dragging across the entire document to select it.

Format menu

Format

Format
Insert Ruler
Hide Rulers
Insert Page Break
Set First Page #
Header...
Footer...

| ⌘ | File | Edit | Window | **Format** | Search | HotView | Font | Style |

Insert Ruler places a ruler below the insertion point in the document. Any text after or below the insertion point moves down to make room for the ruler. The inserted ruler is a copy of the preceding ruler.

Hide Rulers hides the rulers from view, but maintains their formatting effects. When rulers are hidden, this command becomes **Show Rulers**. Show Rulers displays all inserted rulers in the word processing document.

Insert Page Break inserts a page break at the insertion point. A page break ends the current page, making the text after it appear at the top of the next page when you print the document. Inserted page breaks appear as a nonprinting solid line across your document. You insert page breaks to control page length when your document is printed.

Jazz automatically inserts a page break when you fill a page, according to the page size you specified with the Page Setup... command on the File menu. The page breaks Jazz inserts appear as a nonprinting dotted line across your document. You can insert a page break if you want Jazz to start printing a new page even if the previous page is not full.

Set First Page # sets the page number of the first page in the document. All subsequent pages are numbered sequentially from the page number you enter. Jazz displays the correct page number wherever you inserted the page number using the Page command from the HotView menu.

Header... opens the Header window so that you can enter or edit the header text for the word processing document. Click the window's close box to close it, or choose Close from the File menu. Jazz displays the header in the document and prints it when you print the document.

A header is text that appears at the top of each page of your document, beginning with the second page. It can contain one or more lines of text, pictures, the page number, time, and date. Each document can include one header. The header can have a maximum height of approximately one quarter of a page. If you exceed the allowable height, Jazz prints as much of the header as it can.

Footer... opens the Footer window so that you can enter or edit the footer text for the word processing document. Click the window's close box to close it, or choose Close from the File menu. Jazz displays the footer in the document and prints it when you print the document.

A footer is text that appears at the bottom of every page of your document. It can contain one or more lines of text, pictures, the page number, time, and date. Each document can include one footer. The footer can have a maximum height of approximately one quarter of a page. If you exceed the allowable height, Jazz prints as much of the footer as it can.

🍎   File   Edit   Window   Format   **Search**   HotView   Font   Style

Search
Find...
Find Next   ⌘F

Replace...

Find... locates and selects specified text, such as a word, phrase, or number. This command opens the Find window, which you can move, activate, and close just like any other window.

• Find: Enter the text you want to find.

• Find Next or Find Prev: If you chose the Forward option, this button is Find Next, which finds and selects the next occurrence of the specified text. If you chose the Backward option, this button is instead Find Prev, which finds and selects the previous occurrence of the specified text. The document scrolls automatically so that the selected text is visible. Jazz searches the document, beginning at the insertion point or current selection.

- Find First or Find Last: If you chose the Forward option, this button is Find First, which finds and selects the first occurrence of the specified text in the document. If you chose the Backward option, this button is instead Find Last, which finds and selects the last occurrence of the specified text in the document.

- Forward: Jazz searches from the insertion point or current selection forward to the end of the document.

- Backward: Jazz searches from the insertion point or current selection back to the beginning of the document.

- Partial Word: Jazz finds occurrences of the specified text when it appears either as a whole word or as part of another word.

- Whole Word: Jazz finds occurrences of the specified text when it appears as a whole word.

If Jazz can't find the text you're searching for, or if you click Find Next or Find Prev after Jazz selects the last occurrence of the specified text, a message informs you of this.

Find Next finds and selects the next occurrence of the specified text you entered in either the Find or Replace window. The document scrolls automatically to the next occurrence of the text. Jazz searches the entire document, beginning at the insertion point or current selection, and ending where it began. This command is the same as clicking Find Next in the Find or Replace window.

If Jazz can't find the text you're searching for, a message informs you of this.

Replace... finds and replaces specified text, such as a word, phrase, or number. This command opens the Replace window, which you can move, activate, and close just like any other window.

- Find: Enter the text you want Jazz to find.

- Change to: Enter the replacement text. If you don't enter anything, Jazz replaces the text with nothing (and adjusts the word spacing accordingly). You can use this to eliminate unwanted text.

- Find Next or Find Prev: If you chose the Forward option, this button is Find Next, which finds and selects the next occurrence of the specified text. If you chose the Backward option, this button is instead Find Prev, which finds and selects the previous occurrence of the specified text. The document scrolls automatically so that the selected text is visible. Jazz searches the document, beginning at the insertion point or current selection.

- Find First or Find Last: If you chose the Forward option, this button is Find First, which finds and selects the first occurrence of the specified text in the document. If you chose the Backward option, this button is instead Find Last, which finds and selects the last occurrence of the specified text in the document.

- Change, then Find: Replaces the current selection of the specified text with the replacement text, and then finds the next or previous occurrence in the document.

- Change: Replaces the current selection of the specified text with the replacement text, leaving the replaced text selected.

- Change All: Finds and replaces all occurrences of the specified text with the replacement text. This operation, once done, cannot be undone.

- Forward: Jazz searches from the insertion point or current selection forward to the end of the document.

- Backward: Jazz searches from the insertion point or current selection back to the beginning of the document.

- Partial Word: Jazz finds occurrences of the specified text when it appears either as a whole word or as part of another word.

- Whole Word: Jazz finds occurrences of the specified text when it appears as a whole word.

If Jazz can't find the text you're searching for, or if you click Find Next or Find Prev after Jazz selects the last occurrence of the specified text, a message informs you of this.

HotView menu

HotView
Include

Merge Field
Date
Time
Page
Show Definitions

Freeze
Freeze All

<menu> File   Edit   Window   Format   Search   **HotView**   Font   Style</menu>
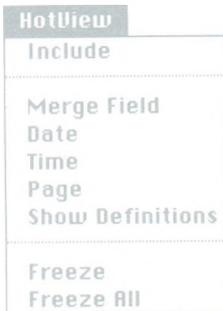
Include places a HotView of a graph, worksheet range, or database selection into the word processing document at the insertion point. The source graph, worksheet, or database document is not affected in any way.

The graph, worksheet, or database document must have been the last active document when you choose this command.

A HotView is linked to its source document, so that any changes in the source document will also be reflected in the HotView. This command differs from the Paste command, which places only static (unchanging) views of selected data or graphs into the word processing document.

Clicking a HotView displays a black border that includes a size box, so you can horizontally move or change the size of the HotView. HotViews of graphs are proportionally re-sized when you make them larger or smaller.

Dragging across a HotView, or double-clicking it, selects all of it. You can clear, cut, copy, and paste HotViews, but you cannot edit the data they contain. Any changes to a HotView must be made through its source document.

If you cut or copy a HotView to a document, other than a Jazz word processing document, it becomes a frozen view.

Merge Field inserts the value of the first cell in a selected database field or worksheet range into the word processing document at the insertion point. You use this command with the Print Merge... command from the File menu to print a word processing document that includes merged fields and/or ranges. When you print using the Print Merge... command, Jazz prints one copy of the document for each value in the selection. Form letters, mailing labels, and customized reports are examples of documents that include merged fields or ranges.

The Merge Field command inserts a HotView of the value, so that any changes made to it in the worksheet or database document are also reflected in the word processing document. You can clear, cut, copy, and paste the merged value, but you cannot edit it.

You can merge fields or ranges from more than one database or worksheet into the same word processing document.

You should generally use worksheet or database selections that are the same size (contain the same number of values), but your selections do not always have to be the same size. For example, you could merge the value in one selected worksheet cell with the values from 10 selected records in a database to have Jazz print the same worksheet value for each of the 10 database records.

Date inserts a HotView of the current date at the insertion point in a document, header, or footer. Jazz automatically updates the date unless you freeze it.

Time inserts a HotView of the current time at the insertion point in a document, header, or footer. Jazz automatically updates the time unless you freeze it.

Page inserts a HotView of the current page number at the insertion point in a document, header, or footer. Jazz automatically updates the page number unless you freeze it.

Show Definitions displays the definitions of all HotViews in your document. For merged fields, Jazz displays the name of the source document for each value you inserted using the Merge Field command on this menu. If the source document is a database, Jazz also displays the field name. If the source document is a worksheet, Jazz displays the address (or name) of the merged range. If you inserted a HotView of the date, time, or page, Jazz substitutes Date, Time, or Page for the actual information.

When Jazz displays definitions, this command becomes **Show Values**, which displays the value of the first cell in each merged database field or worksheet range.

Freeze converts the selected HotView into a frozen view. A frozen view no longer reflects any changes made in its source document. If you freeze database or worksheet data, Jazz reformats the data to conform to the tab settings in the ruler that is affecting text at that location. If you freeze dates, times, or page numbers, Jazz freezes the current value in the word processing document. If you freeze a graph, Jazz freezes the appearance of the graph so that it no longer reflects changes made in its source document.

You freeze a HotView if you don't want changes in the source document to be reflected in the word processing document, or if you want to either edit or reformat the HotView. Freezing a HotView also means Jazz uses less memory and works faster.

You can select, edit, reformat, clear, cut, copy, and paste frozen views. You can also change the font or style of the text in the frozen view. Frozen graphs can only be sized (but they will not be proportionally sized).

Freeze All converts all HotViews into frozen views. Frozen views are no longer linked to their source documents, and can be edited or reformatted (except frozen graphs).

Style menu

Style	
✓Plain Text	⌘P
Bold	⌘B
Italic	⌘I
Underline	⌘U
Outline	⌘O
Shadow	⌘S

🍎   File   Edit   Window   Format   Search   HotView   Font   **Style**

You can choose any available style for the current selection or for text you are about to type. The style you choose is checked in the menu. The default style is Plain Text, which cannot be mixed with other styles. You can combine the other styles, however, for a variety of effects.
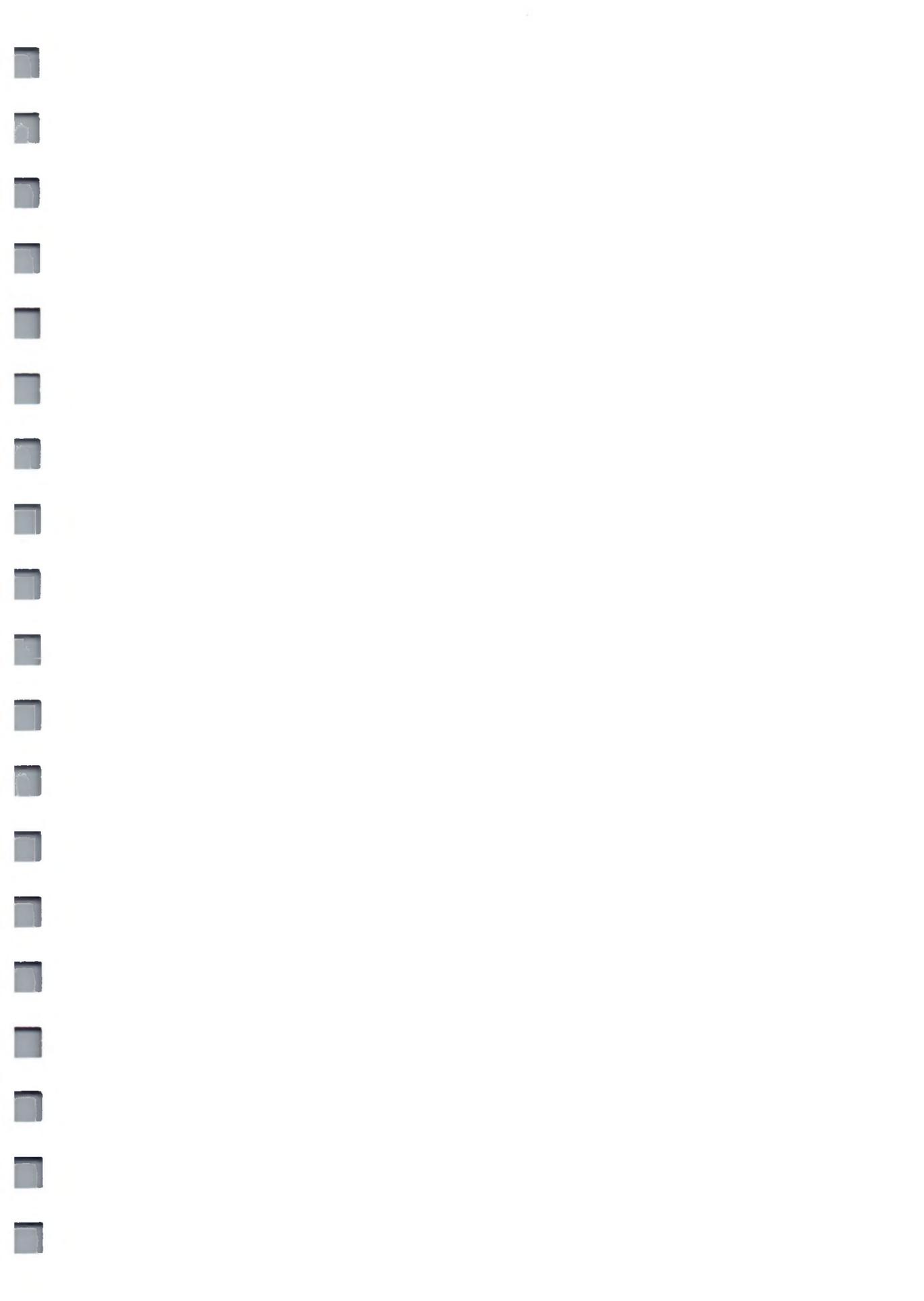
Chapter 5
Database

The Jazz Database is a sophisticated system for storing and organizing information. You can enter any kind of information in a Jazz Database, from an address file to sales records. Jazz makes it easy to work with information once you enter it: you can change the order of the database, or sort it, and you can search for information in the database records automatically. You can also have Jazz produce a report based on selected information in the database.

A database is a collection of related information. One kind of database you're probably familiar with is your company's employee records. Each file folder, or record, contains information about one employee. Each record is broken into categories that contain the same type of information, called fields. In an employee database, for example, a record contains all the information about one employee, broken into fields such as last name, job title, address, and so on. All the records contain the same fields.

Jazz stores records and fields in rows and columns. Each row contains all the information for one record, and each column contains all the information for one field. Within each record, Jazz stores each piece of data you enter in a cell. Each piece of data is called a field value.

In the database below, record 3 contains all of the information about one employee, Benjamin Maher. The column farthest to the left is the Last Name field; it contains all the last names in the database. The first cell in record 3 contains the field value for the Last Name field: Maher.

Each folder contains one employee record

A traditional database

Each row is one record

Each column is one field

A Jazz database

A Jazz database is very flexible: it can hold several thousand records, and each record can have up to 100 fields. The exact number of records and fields you can have in one database is determined by the amount of available memory in your computer. You can add, delete, or edit records and fields without redesigning the whole database.

Once you set up the database, you can manipulate the information it contains in several ways. You can enter records in the database in any order and then reorganize it as often as you like. For example, you would probably enter employee records as people are hired. When you use the information, you need to organize the records in some more logical order, such as alphabetically or by department. You may also need to find a particular record or set of records, such as employees who live in one city or who have been with the company for more than five years. Jazz lets you organize the database and find information in it quickly and easily.

If you have a lot of information to add to the database at one time, you may want to create and use a database form. A form is simply a different way of adding or editing records in the database. Instead of working with many database records, you work with them one at a time. Once you create a database and a form, you can add information to the database from the form without opening the database again.

You can also use database information in other Jazz applications. For example, you can create a graph using figures from your database. If you change the contents of the database, Jazz changes the graph, too. You can also use database information in a word processing document.

How to Create and Use a Database

Before you create a new database, you must decide how many fields you need and what kind of information each field will hold. The next step in creating a database is defining characteristics, or field attributes, for each field. For example, you can specify the name of the field, its display width, or its initial value. Once you define attributes for all the fields you need, Jazz automatically sets up the database according to the attributes you defined.

Creating Fields

When you create fields, Jazz automatically names them Field 1, Field 2, and so on. You can rename a field if you want the field name to indicate what kind of information the field contains.

You can also change a field's display width, or specify an initial value for it. An initial value is useful if many of the field values in one field will contain the same information. For example, if most of the employees in an employee database live in the same city, use the name of the city as the initial value for the City field. Jazz automatically enters the name of the city as the initial value in that field in each record.

1. Create a new database.
To create a new database, choose New... from the File menu, click the Database icon, and click New. Jazz displays a dialog box where you define field attributes such as field name, display width, and initial value.

Field name

Field Attributes	Add Another Field
Field 1	Done
⦿ Do Not Check Entry Format	Cancel
○ Check Entry Format	
○ Use Formula	
☐ Locked	
Initial Value:	
Display Width: 10 Characters	
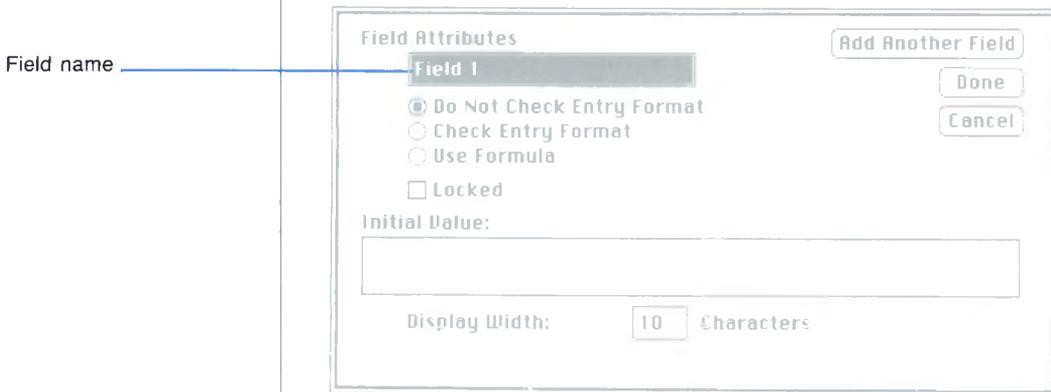
You can also check the field's format, use a formula to determine the field value, or protect the information the field contains by locking it. These advanced attributes are described in How to Use Advanced Field Attributes later in this chapter.

2. Type a new field name.
Jazz automatically gives each new field a default name. You don't have to erase the default field name before you type a new one unless you clicked the default name first. If you clicked the default name before you started typing, press Backspace to erase the old

name completely. Use only letters, numbers, or spaces, and make the first character of the field name a letter. A field name can be up to 15 characters long.

3. Click Initial Value if you want to enter an initial value.
An initial value is a field value that appears frequently in the same field in the database. If you type the repeated information in the box next to Initial Value, Jazz enters it in every record.

4. Type the initial value.
When you edit the database, you can replace the initial value with a different field value in individual records. You can also change the initial value later.

5. Click Display Width if you want to change the width of the field.
The display width indicates how wide the field display is.

6. Press Backspace to erase the default display width, and type a number from 3 to 254.
Make sure the field is wide enough to display both the field name and the data you plan to enter in the field. A field that holds years, for example, needs only 4 characters, but a field that holds last names may need 15 or more characters.

Each Jazz field holds up to 254 characters no matter how wide the field display is. If a particular field value contains more characters than the field's width allows it to display, Jazz displays part of the field value, followed by ellipses (...) to indicate that not all the information appears.

7. Click Add Another Field, Done, or Cancel.

- Click Add Another Field to enter the current field in the database and define the next field. A Field Attributes... dialog box appears for the next field.

- Click Done to enter the current field in the database and finish defining database fields. Jazz automatically creates and displays the new database. Click Done only when you are finished defining attributes for all the fields you want, not after each field.

- Click Cancel to discard the field you're currently defining. Jazz automatically creates and displays the database with all the fields you defined previously.

If this is the first database you created in this Jazz session, Jazz names it Database 1. If you create other databases, Jazz names them Database 2, Database 3, and so on. You can rename a database when you save it.

Creating Blank Records

Before you can enter information in a database, you must add space to hold it. The space that Jazz adds to hold your information is called a blank record. When you first create the database, Jazz automatically adds one blank record. When you add more blank records, Jazz places them at the end of the database and numbers them sequentially.

Jazz lets you add blank records one at a time, or several at once. If you add more blank records than you have information to enter, you can delete them later.

1. **Choose Add Record from the Edit menu.**

2. **Repeat step 1 for each blank record you want to add.**

Keep in mind

⌘

Adding many records quickly. To add several blank records quickly, hold down the Command key and type N repeatedly. Each time you type N, Jazz adds another blank record.

Inserting records. You can also insert a blank record between existing records. See Inserting New Records and Fields later in this chapter.

Entering and Changing Field Values

You can add field values directly to database records. You can also delete, replace, or edit field values in a record. To add a lot of information at once, you may want to use a Jazz form.

Entering a field value

1. **Click the cell where you want to enter a field value.**
   The cell you click becomes the active cell. The number of the record that contains the cell appears in the active record box.

2. **Type the field value.**
   The field value appears in the entry box.

Active field —
Active record box —
The field value you are — typing appears in the entry box.
Cancel icon —

File   Edit   Window   Query   Sort   Report   Font   Style

City

Cambridge   ⊗

Employee Database

	Last Name	First Name	Street	City	State	Zip Code	J
1	Engstrom	Britt	44 Griswold				
2							
3							
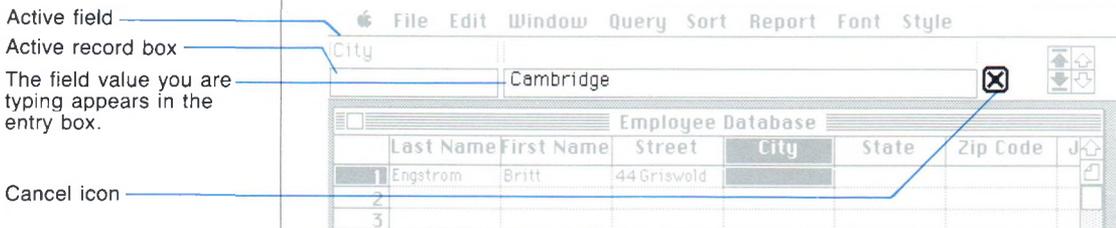
Field values can be numbers or text. Numbers can contain the following characters: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., $, %, /, and space. In addition, a number can begin with a plus sign (+) or minus sign (–); if you type these characters anywhere but at the beginning of a number, however, Jazz treats the value as text. Text can contain any character. You can begin a number or a formula with an equal sign (=); Jazz calculates the value and stores the result. You cannot begin a text entry with an equal sign (=).

The field value appears in the entry box as you type it. To erase the value in the entry box, click the Cancel icon and start again. To erase a single character after you type it, press Backspace. You can also use any of the standard Macintosh editing techniques.

If you type a text field value, Jazz places a double quotation mark (") before it to indicate that the field value is text, not a number. If you are typing numbers that you want Jazz to treat as text, such as zip codes, type a double quotation mark or one of the text formatting characters as the first character of the field value. See Changing the Format of a Field later in this chapter.

3. **Press Tab or Return, or click another cell.**
   If you press Tab, Jazz enters the field value, and the next cell in the same record becomes the active cell. If you were entering the last field value in a record, the first cell in the next record becomes the active cell. If you press Return, Jazz enters the field value, and the cell below becomes the active cell. If you click another cell, Jazz enters the field value, and the cell you clicked becomes the active cell.

   If the field's display width is too narrow to show the entire field value, Jazz shows as many characters as can fit in the cell, followed by ellipses (. . .). To see the entire field value, make the field wider. See Changing Field Attributes later in this chapter.

Replacing a field value

1. **Click the cell that contains the field value you want to replace.**

2. **Type the new field value.**

The old field value appears in the contents box.

New field value

3. **Press Tab or Return, or click another cell to continue entering field values.**
   The new field value appears in the cell and the original entry disappears.

Changing a field value

1. **Double-click the cell that contains the field value.**
   The field value appears in the entry box in the console and the entry box is highlighted. You don't have to double-click the cell to edit a field value you are currently typing.

2. **Click a location between characters in the entry box.**
   The pointer becomes an I-beam when you move it into the entry box. To add a character, click where you want to insert it. To delete a character, click to the right of the character you want to delete. After you click a location, the entry box is no longer highlighted. A vertical bar indicates the insertion point, the location where you add or delete information.

Insertion point ——————————

The pointer appears as —
an I-beam.
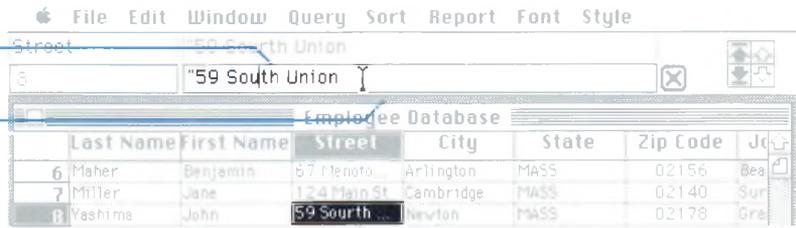
3. Add or delete one or more characters.
To add a character, type it. To delete the character to the left of the insertion point, press Backspace. You can continue to edit the field value by clicking another location and inserting or deleting characters.

Active record box ——————
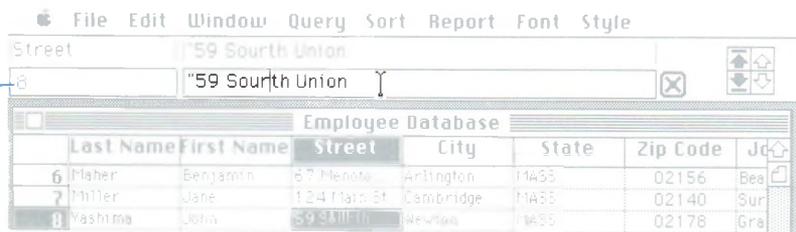
4. Press Tab or Return, or click another cell.

Keep in mind

Deleting several characters. After you click an insertion point, drag the pointer across two or more characters to highlight them. Press Backspace once to delete the highlighted characters.

Selecting Database Areas

Before you can work with a cell, record, field, or other area of a database, you must select it. For example, after you select a field, you can insert another field next to it, delete it, add field values to it, or lock it.

To select a cell, click the cell. The cell becomes the active cell; you can enter text in it or change text it contains. You can also perform commands on the active cell, just as you can on any selection.

To select an entire record or field, click its record number or field name. You can also select parts of records and fields; groups of records or fields; and cells, fields, and records that aren't next to one another.

Selected areas are highlighted until you select another area. Within a selected area, the active cell is outlined.

Selecting parts of records and fields

1. Drag the pointer from one corner of the area you want to select to the diagonally opposite corner.
To extend the area to include a cell that is outside the window, drag the pointer across the scroll bar onto the desktop. Jazz automatically scrolls in the direction of the pointer. Move the pointer back into the database to stop the scrolling.

2. Release the mouse button.

The area is highlighted and the active cell is outlined.

The selected cells and the record numbers and field names are highlighted.

Selecting a record with the active record box

1. Click the active record box.

The active record box is in the lower left corner of the console.

2. Press Backspace to erase the active record number.

The active record is the record that contains the active cell.

3. Type the record number you want to select and press Return.

Jazz scrolls the database to make the record visible, and makes it the active record. The previous selection is cancelled. If you type a number that is larger than the last record in the database, Jazz scrolls to the last record in the database and selects it.

Before

After

The number of the record you want to select.

This becomes the active record when you press Return.

Selecting records or fields

1. Drag across the record numbers or field names you want to select.

2. Release the mouse button.

Before

After

The records you want to select

Selecting separated cells

1. Click the first cell you want to select.

2. Position the pointer on the record number or field name that contains the next cell you want to select.

Database

3. Hold down the Option key and click.

You can hold down the Option key and click either a record number or a field name, but not a single cell. Jazz selects the cells that intersect both the old selection and the record number or field name you click.

4. Repeat steps 2 and 3 to select additional cells.

Selecting separated records or fields

1. Click the first record number or field name you want to select.

2. Position the pointer on the next record number or field name you want to select.

3. Hold down the Option key and click.

4. Repeat steps 2 and 3 to select additional records or fields.

Using the Record Navigator

1. Click one of the Record Navigator arrows.

- Click the black up arrow to move the active cell to the first selected record.

- Click the black down arrow to move the active cell to the last selected record.

- Click the white up arrow to move the active cell to the previous selected record.

- Click the white down arrow to move the active cell to the next selected record.

If only one cell in the database is selected, clicking the black arrows moves the active cell to the first or last record in the database, and clicking the white arrows moves the active cell to the next or previous record in the database.

2. Click a different arrow to move to another record.

Selecting the entire database. You can select the entire database by choosing Select All Records from the Edit menu.

Canceling part of a selection. To remove a record, or field from the selection, position the pointer on the record number or field name, hold down the Option key, and click.

Selecting for graphs. To create a graph that is based on information in a database, you must select a range of field values. The range can include any number of values in the same field. To create the graph, the values in the range must be numbers. You can also use a range of text values as labels after you create the graph. You select a range for a graph just as you select any field or part of a field. See Chapter 3 for more information on creating graphs.

Editing a field value without changing the current selection. If you have several cells, records, or fields selected, you can edit the field value in the active cell without changing the rest of the selection. Use Tab or Return to make the cell you want to edit the active cell, and choose Open Cell from the Edit menu. The field value in the cell appears highlighted in the console. You can then edit the field value using any of the methods described earlier in this chapter. Jazz changes the field value without changing the rest of the selection.

Database

How to Change a Database

Once you begin to use your database, you may need to change some of its elements. Jazz lets you change field attributes, such as field names, display widths, and initial values. To change the way Jazz displays text or numbers in a field, you change the field format.

If you need to add new information, or different kinds of information, to the database, Jazz lets you insert new records and fields between existing records or fields, or add new records and fields at the end of the database. You can also delete entire records and fields from the database or delete some of the information that particular records or fields contain.

Changing Field Attributes

You can change any of the field attributes you defined when you created a field. If you change the field width, Jazz displays the entire field in the new width. Changing the initial value, however, only affects records you add after you enter the new initial value.

1. **Click the field name of the field you want to change.**

2. **Choose Field Attributes... from the Edit menu.**

3. **Click Field Name, Display Width, or Initial Value.**
   If you change the field's initial value, Jazz uses the new value only in records you add from now on.

   For information on the advanced field attributes, see How to Use Advanced Field Attributes later in this chapter.

4. **Edit the current attribute or type a new one.**
   To edit a field attribute, follow the procedure you used to create the original field attributes.

5. **Click OK.**

Keep in mind

Changing field attributes for several fields. To change attributes for several fields, select the fields and choose Field Attributes... from the Edit menu. Jazz lets you edit field attributes for each selected field. When you finish editing the first selected field and click OK, the Field Attributes... dialog box for the next selected field appears. When you finish editing the last selected field and click OK, the database reappears.

Changing field widths. You can also change the display width of a field by dragging the column border. Position the pointer on the right border line of the field you want to change. The pointer becomes a double arrow. Drag the border to the right to widen the field and to the left to make it narrower.

Changing the Format of a Field

Information can appear in the Jazz database in different formats. Text can be left-aligned, right-aligned, or centered in a cell, and numbers can appear in many formats. For example, the number 44 can appear as $44.00 (Currency with two decimal places), 4400% (Percent), or 44.00 (Fixed format with two decimal places). A field's format only affects how Jazz displays the number or text, not its value. Changing a field's format affects existing field values as well as field values you enter after you choose the new format.

See The Database Reference for a complete description of the field formats you can use.

1. **Select the field you want to format.**

2. **Choose Field Format... from the Edit menu.**

3. **Click the format you want.**

Numeric formats
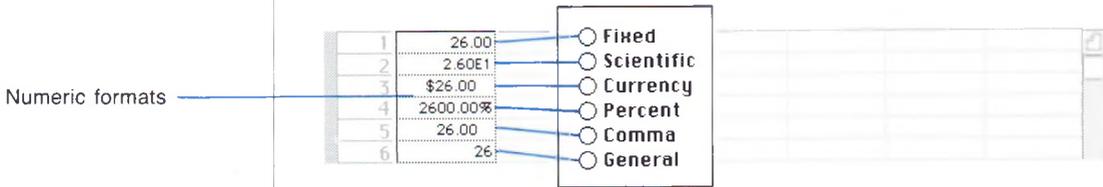
If you choose Fixed, Scientific, Currency, Percent, or Comma, the number of decimal places appears at the bottom of the dialog box. To change the default number of decimal places, click an arrow to make the number larger or smaller.

If you choose Text, Date, or Time, additional choices appear at the bottom of the dialog box. Click the option you want.
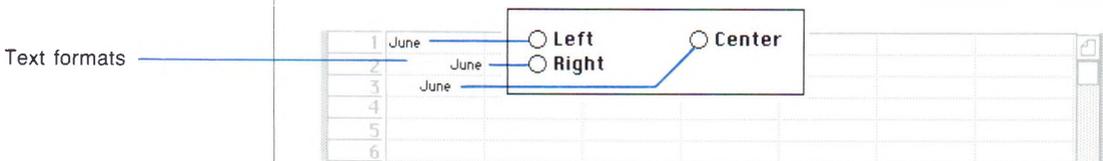
Text formats

4. **Click OK.**

Keep in mind

Text formatting characters. You can also use text formatting characters to control alignment of text in a cell. If you have formatted the field with the text alignment you want, you don't have to use a text formatting character.

You type a text formatting character as the first character in a field value. There are three text formatting characters you can use in a database. An apostrophe (') aligns text at the left of the cell. To align the field value at the right, type an accent mark (`) in front of the field value. To center it, type a caret (^). No matter what text formatting character you type, Jazz always displays a double quotation mark (") in the contents box to indicate that an entry is text. The quotation mark does not appear in the cell.

Database

To enter a number that you want Jazz to treat as text, type a double quotation mark or a text formatting character first.

Changing the format of several fields. To format several fields at the same time, select the fields you want to format, choose Field Format... from the Edit menu, and choose a new format. Jazz formats every selected field.

Inserting New Records and Fields

If you have already entered information in your database and decide you need a new field, you don't have to create a new database and enter the information again. You can insert a new field between existing fields in a database. If you have a record to add, you can insert it between existing records.

1. **Select a record or field.**

2. **Choose Insert Record or Insert Field from the Edit menu.**
   If you insert a new field, the Field Attributes... dialog box appears. Once you define field attributes, Jazz inserts the new field to the left of the selected field. All the fields to the right move over.

New field ——

	Last Name	First Name	Field 8	Street	City	Sta
1	Seamans	Heather		53 St. Botolph	Boston	MASS
2	Engstrom	Britt		14 Griswold	Cambridge	MASS
3	Maher	Benjamin		67 Menotomy	Arlington	MASS
4	Miller	Jane		124 Main St.	Malden	MASS
5	Yashima	John		255 Creighton	Arlington	MASS
6	Nollman	Jordan		899 Cherry	Newton	MASS

Employee Database

If you insert a new record, Jazz inserts a new record above the selected record and renumbers all the records below it. If you select more than one record, Jazz inserts the new record above the active record, and the first cell in the new record becomes the active cell. All the records below the new record move down.

New record ——
This was record 6 ——

	Last Name	First Name	Street	City	State	Zip C
1	Seamans	Heather	53 St. Botolph	Boston	MASS	021
2	Engstrom	Britt	14 Griswold	Cambridge	MASS	021
3	Maher	Benjamin	67 Menotomy	Arlington	MASS	029
4	Miller	Jane	124 Main St.	Malden	MASS	01
5	Yashima	John	255 Creighton	Arlington	MASS	038
6						
7	Nollman	Jordan	899 Cherry	Newton	MASS	01

Employee Database

Adding New Fields

You can add new fields to the right of existing fields. This allows you to adapt an existing database to hold new information. You must add field values to the new fields in existing records unless you define an initial value.

1. **Choose Add Field... from the Edit menu.**
   The Field Attributes... dialog box appears. Once you define field attributes, Jazz adds the new field to the database. Jazz automatically scrolls the database so you can see the new field.

2. **Repeat step 1 to add additional fields.**

Keep in mind

Adding new records. You can add another record whenever you need to by choosing Add Record from the Edit menu. To add several records, hold down the Command key and press N repeatedly. Each time you press N, Jazz adds another record.

Deleting Database Areas

Deleting a record or field, or a group of records or fields, removes it from the database. The other records or fields move up or to the left to fill up the space. Deleting a field value from a cell removes the field value, but doesn't remove the cell itself.

1. **Select the area you want to delete.**

2. **Choose Clear from the Edit menu.**
   Jazz deletes the selected area and does not place the deleted entries on the Clipboard.

Before

The records you want to delete

After

This was record 5

If you clear a single cell, or parts of records or fields, Jazz deletes the field values in the selected area and leaves the cells blank. You can enter new field values in them.

Before

The area you want to clear

After

The cleared area remains selected.
You can enter new field values in the cell.

Moving and Copying Database Areas

You move fields, records, or field values by cutting them and then pasting them in a new location. This lets you reorganize the information in your database. When you move a record, field, or field value, it disappears from the original location and appears in a new one.

Copying fields, records, or field values lets you use the same information in different parts of the database without entering it again. When you copy a field, record or field value, it remains in the original location and appears in the new one.

1. Select the area you want to move or copy.

2. Choose Cut or Copy from the Edit menu.
Depending on the area you selected, the menu choices are Cut (or Copy) Field, Cut (or Copy) Record, and Cut (or Copy) Value. If you choose Cut, Jazz removes the selected record, field, or field value and places it on the Clipboard. If you cut an entire record or field, or a group of records or fields, Jazz removes it from the database and the other records or fields move up or to the left to fill up the space. If you cut a single cell, or parts of records or fields, Jazz deletes the field values in the selected area and leaves the cells blank. You can enter new field values in them.

If you choose Copy, Jazz leaves the record, field, or field values in their original location and places a copy on the Clipboard. If you copy a field, you must change the name of the original field before you can paste the copy into the same database.

3. **Select the area where you want to paste the record, field, or field values.**

   Jazz pastes a field to the left of the field you select. It pastes a record above the record you select. The other fields or records move to the right or down to make room for the pasted field or record. If you are moving or copying field values, they replace existing values in the selected cells. If you select more cells than the number of values on the Clipboard, Jazz repeats the field values until it fills the area.

4. **Choose Paste from the Edit menu.**

   Depending on the area you cut or copied, the menu choice is Paste Field, Paste Record, or Paste Value. Jazz moves the record, field, or field values from the Clipboard into the selected area. After you paste, Jazz selects the record, field, or field value you pasted.

Before

The field you want to move

	Last Name	First Name	Soc. Sec. #	Street	City	State	
1	Miller	Jane	134-97-3...	124 Main St.	Cambridge	MASS	
2	Engstrom	Britt	155-52-0...	44 Griswold	Cambridge	MASS	
3	Seamans	Heather	473-05-9...	53 St. Botol...	Boston	MASS	
4	Scarpi	Lucia	382-06-4...	12 Elliott	Boston	MASS	

Employee Database

After

Jazz pastes the field in the new location.

	First Name	Street	City	State	Zip Code	Soc. Sec. #	J
1	Jane	124 Main St.	Cambridge	MASS	02140	134-97-3...	
2	Britt	44 Griswold	Cambridge	MASS	02139	155-52-0...	
3	Heather	53 St. Botol...	Boston	MASS	02114	473-05-9...	
4	Lucia	12 Elliott	Boston	MASS	02110	382-06-4...	

Employee Database

Effects on calculated fields.   When you cut or clear a field on which a calculated field depends, all field values in the calculated field become invalid. If you paste the cut field back into the database, the invalid field values become valid again. For more information on calculated fields, see Calculating Field Values Using Formulas later in this chapter.

How to Use Advanced Field Attributes

Jazz's advanced field attributes let you protect data, check field values, or calculate values for a field.

You can lock fields to prevent changes to the information in them, and unlock them when you want to add or change information in those fields. You can also have Jazz check the values you enter in a field to be sure they are the right kind of value.

To calculate field values, you enter a formula in the Field Attributes... dialog box. The formula calculates each field value using other field values in the same record or using values you provide.

Locking and Unlocking Fields

Locking a field ensures that someone looking at the database can't change the information in it without first unlocking the field. You can still add new records to the database, but Jazz won't let you enter or change a field value in the locked field. To add or change values in a locked field, you must unlock it first.

1. **Select the field you want to lock.**

2. **Choose Field Attributes... from the Edit menu.**

3. **Click Locked.**
   If the field is already locked, the box is checked. Click the box again to unlock the field.

   Field Attributes

   Soc. Sec.

   ⦿ Do Not Check Entry Format   OK
   ○ Check Entry Format   Cancel
   ○ Use Formula

   ☒ **Locked**

   Initial Value:

   Display Width: 10   Characters

4. **Click OK.**

Keep in mind

Clearing an entry from a locked field. If you lock a field, then try to enter a field value in any cell in the locked field, Jazz displays an alert message. To delete the entry, click OK to clear the alert message, then click the Cancel icon.

Checking Field Values

Jazz lets you check each field value to ensure it is the kind of entry you want in the field — text, a number, a date, or a time. For example, to allow only numeric entries in a field that contains salaries, set the field's format to Currency and click Check Entry Format. Jazz checks each field value you enter.

1. **Select the field you want to check.**

2. **Choose Field Attributes... from the Edit menu.**

3. **Click Check Entry Format.**
   If you chose Check Entry Format previously, clicking Do Not Check Entry Format cancels checking.

4. **Click OK.**
   Jazz checks new field values to see that they conform to the field's format. It does not check existing field values.

Keep in mind

Correcting an invalid entry. If you try to enter text in a field formatted for numbers or a number in a field formatted for text, Jazz displays an alert message. To delete the invalid field value, click OK to clear the alert message and click the Cancel icon. Enter a value in the correct format.

Calculating Field Values Using Formulas

Jazz can calculate and enter field values automatically using a formula you enter in the Field Attributes... dialog box. A formula can use functions, numbers, and values in other fields. For example, if your employee database contains fields such as Birthdate and Age, Jazz can calculate values in the Age field for you. You enter the formula $= (NOW - Birthdate)/365.25$ in the space provided for formulas. Jazz uses the current date supplied by the NOW function, the field values in the Birthdate field, and the number of days in a year (365.25) to calculate field values for the Age field. See Chapter 7 for more information on the Jazz functions you can use in a database.

1. **Choose Field Attributes... from the Edit menu.**

2. **Click Use Formula.**

3. **Click the space provided below Formula.**

4. **Type the formula.**

Database

Field Attributes — Add Another Field

Hourly Wage

Done

Cancel

○ Do Not Check Entry Format
○ Check Entry Format
○ Use Formula

Formula:
= (SALARY/52) /40

Display Width: [10] Characters

Formulas must begin with an equal sign (=), and must contain functions or numbers, or refer to other fields. They also contain operators, such as the addition (+) or division (/) operators, that tell Jazz what kind of operation to perform. For example, entering = (Salary/52)/40 calculates values for the Hourly Wage field. This formula uses values you enter in the Salary field, the number of weeks in a year, and the number of hours in a work week.

The field you refer to must already exist. If you enter a formula for the first field when you create the database, you can't refer to other fields because you haven't defined them yet.

If you enter a formula for a field that already contains field values, Jazz automatically deletes the uncalculated field values and replaces them with new values it calculates using the formula.

For complete rules on how to use formulas, see Entering Formulas in Chapter 2. For a list of operators, see The Worksheet Reference in Chapter 2.

5. Click Done or Add Another Field.
Jazz uses the formula to calculate values for the field.

How to Sort a Database

Sorting a database lets you reorganize the information it contains. When you enter records, you don't need to worry about the order, because you can change the order of the records in the database as often as you need to. For example, you may need to use the same database in different ways. In an employee database, sorting by last name gives you an alphabetical list of all employees. Sorting by department number groups employees according to the department they work in. After you sort a database, Jazz renumbers the records in numeric order.

Sorting a Database

Sorting a database reorders the information it contains, either alphabetically or numerically. The database field you use for sorting is the sort field. For example, if you sort a database alphabetically by last name, the database field that contains last names is the sort field.

You can choose more than one sort field. For example, if the database includes several employees with the same last name, you can specify a second sort field, such as first names. Jazz uses the second sort field to sort only those records that have the same value in the first sort field. You can specify up to three sort fields.

1. **Choose Set Fields... from the Sort menu.**

2. **Type the name of the first sort field in the space provided.**
   Use one of the database field names as the name of the sort field. You must type the field name exactly as it appears in the database.

3. **Click Ascending or Descending.**
   Click Ascending to order entries from A to Z or from the lowest number to the highest. Click Descending to order entries from Z to A, or from the highest number to the lowest. If you sort a field that contains both text and numbers, text values appear before numbers if you click Ascending, and after them if you click Descending.

4. **Click the space provided for the second sort field if you want to set up a second sort field.**

5. **Repeat steps 2 and 3 to set up second and third sort fields.**

6. Click Sort or OK.

Click Sort to sort the database immediately.

Click OK to return to the database without sorting it. Once you set up the sort fields, you can sort whenever you need to by choosing Sort from the Sort menu.

Before

	Last Name	First Name	Stree
1	Seamans	Heather	53 St. Bot
2	Engstrom	Britt	14 Grisw
3	Maher	Benjamin	67 Menot
4	Miller	Jane	
5	Yashima	John	255 Creig
6	Nollman	Jordan	899 Cher
7	Moser	Adam	32 Hudson
8	Scarpi	Lucia	166 Pleas

The records are not in alphabetical order.

After

	Last Name	First Name	Stree
1	Engstrom	Britt	53 St. Bot
2	Gottlieb	Sarah	943 Walk
3	Maher	Benjamin	67 Menoto
4	Miller	Jane	124 Main
5	Moser	Adam	32 Hudson
6	Nollman	Jordan	899 Cherr
7	Ortiz	Miguel	34 Elkwoo
8	Pryor	Molly	233 Grant

The records are sorted alphabetically by last name.

Keep in mind

Changing sort fields. To sort the database in a new order, choose Set Fields... from the Sort menu, click Reset to clear the existing sort fields, and enter new ones. You can also edit any sort field name the same way you edit a field value.

Preselecting sort fields. If you don't want to type the sort field name or if you can't remember which field you want to use as a sort field, you can return to the database and select it. Click OK to leave the Set Fields... dialog box and select the database field you want to use as a sort field. Choose Set Fields... from the Sort menu and click Use Selected. Jazz displays the name of the field you selected as the sort field. You can repeat this procedure to select other sort fields.

Sorting blank records. If you have blank records in the database, sorting in ascending order moves them to the beginning of the database. To delete them, select them and choose Clear from the Edit menu.

How to Find Information in a Database

Jazz can automatically select records that match criteria that you set up. The set of criteria you use to select records in this way is called a query. For example, you can use a query to select all database records of employees with the same last name, or to search for records that are over or under a value you set, such as the records of all employees over 65.

Defining a Query

You can create and name several queries, but only one can be active at a time. To define criteria, you use a Query window, which contains the same fields as the database. You can enter criteria in as many fields as you need. If you enter several criteria in fields in the same row in the Query window, Jazz searches for records that match all the criteria. If you enter criteria in different rows in the Query window, Jazz searches for records that match all the criteria in any one of the rows.

When you open a database, Jazz sets up a Query window and makes it the active query. To define criteria in this Query window, start at Creating a query, below.

Naming a query

1. Choose Names... from the Query menu.

Query Names — Done

Query 1

Active query — Name: Query 1

New — OK

Clear — Undo

Discard

Database
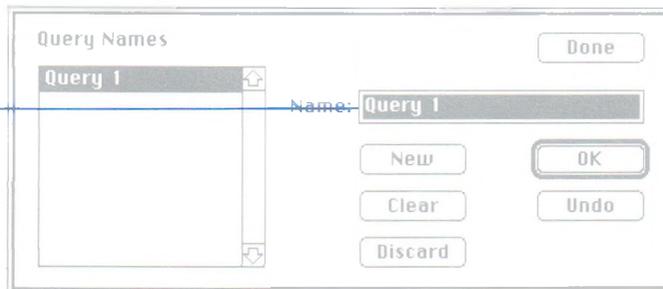
2. Press Backspace to erase the default query name.
Jazz automatically gives each query a default name, such as Query 1.

3. Type a new name.
The rules for query names are the same as those for field names.

4. Click OK or Done.
If you click OK, Jazz renames the active query and does not close the Names... dialog box. If you click Done, Jazz renames the active query and returns to the database.

Creating a query

1. **Choose Show Definition from the Query menu.**

   The active Query window appears. The title bar shows the query name and the name of the database the query is associated with.

Jazz copies each database field name in the query window.

	Database 1						
	Last Name	First Name	Date Hired	Birthdate	Sex	Address	Jo
1	Lloyd	Arwen	7/17/82	8/24/56	Female	443 Blanch...	Gra

Database 1: Query 1					
Last Name	First Name	Date Hired	Birthdate	Sex	Address

2. **Click a cell below the field where you want to enter a criterion.**

3. **Type the criterion that you want to search for in the database.**

   When you use the query, Jazz will select all the records with values in this field that match the criterion. You can type the criterion in uppercase or lowercase letters. Jazz ignores case when it searches for records that match a criterion.

    File   Edit   Window   Query   Sort   Report   Font   Style

Smith

	Database 1						
	Last Name	First Name	Date Hired	Birthdate	Sex	Address	Jo
1	Lloyd	Arwen	7/17/82	8/24/56	Female	443 Blanch...	Gra

Jazz will select all records with Smith in the last name field.

Database 1: Query 1						
Last Name	First Name	Date Hired	Birthdate	Sex	Address	Job
Smith						

4. **Press Return, Tab, or click another cell.**

5. **Repeat steps 3 and 4 to enter additional criteria, if necessary.**

   You can specify as many criteria as you want in the same query.

   Enter a criterion in a cell in the same field, but in a different row, if you want Jazz to match any criterion in that field.

Enter a criterion in a cell in another field in the same row if you want Jazz to match *all* of the criteria in that row. For example, Jazz can search for records of all male employees named Smith.

6. **Click the close box in the title bar to close the query window.**

Keep in mind

Using operators and wildcards. Criteria can be exact text or numeric matches, or they can use logical operators, such as greater than (>) and less than (<). Criteria can also be formulas. Formulas must start with an equal sign (=).

If you have a simple criterion, such as an exact text match, or a single condition, you can enter exactly what you want Jazz to search for. For example, entering <35 in the Age field finds all records in which the field value is less than 35.

You can also use wildcard characters in a criterion. A question mark (?) matches any single text character in a criterion. You can use ? anywhere in a criterion. For example, Ada?s matches field values such as Adams, Adans, and Adads.

An asterisk (*) matches any number of text characters in a criterion. For example, Ada* matches any entry that begins with Ada, such as Adams, Adamsky, Ada, etc. The asterisk must be the final character in the criterion. If you type *dams, Jazz ignores any characters after the asterisk. Because the asterisk is a wildcard, Jazz matches everything in the database.

For a complete set of rules on setting up criteria with formulas and wildcard characters, see Using Queries in The Database Reference.

Setting up another query. To create another query, choose Names... from the Query menu, press Backspace to erase the name of the active query, and click New. Jazz creates a new active query and gives it a default name. To rename it, type a new name and click OK. You can then enter criteria for the new query.

Selecting Records with a Query

Once you define a query, you can use it to select matching records in the database. To use a query, you must first make it active.

1. Choose Names... from the Query menu.

2. Click the name of the query you want to use.

3. Click OK or Done.
Click OK to confirm your choice and remain in the dialog box. Click Done to confirm your choice and return to the database. The query you click becomes the active query.

4. Choose Select with Criteria from the Query menu.
Jazz selects all records that match the criteria in the active query.

Changing a Query

You can delete all of the criteria in a query and set up new criteria, or you can delete the entire query. You can also edit criteria in a query.

Clearing or deleting a query

1. Choose Names... from the Query menu.

2. Click the name of the query you want to change.
If the query you want to change is already active, you don't have to click its name.

3. Click Clear or Discard.
Clear erases the criteria in the active query but leaves the Query window so you can enter a different set of criteria. Discard erases both the active query and the Query window. The query at the top of the list of named queries becomes the new active query.

4. Click OK or Done.
Click OK to confirm your choice and remain in the dialog box. Click Done to confirm your choice and return to the database.

Editing a query

1. Choose Names... from the Query menu.

2. Click the name of the query you want to edit.
If the query you want to change is already active, you don't have to click its name.

3. Click OK.

4. Click Done to leave the dialog box.

5. Choose Show Definition from the Query menu.

6. Click the criterion you want to edit, and make any changes you want.
Edit a criterion the same way you edit field values in the database.

7. Click the Database window.
You can now use the query you edited or continue with another task.

Discarding the last query. If you have only one query, you cannot discard it. You can, however, edit any or all of the criteria in the last query.

Changing the name of a query. To change the name of a query, choose Names... from the Query menu, and click the name of the query you want to rename. Press Backspace and type the new name.

Dropping duplicates from a query selection. If you have duplicate records in a selection, you can drop duplicates from the selection without affecting the other selected records. Choose Drop Duplicates from the Query menu. Choosing Drop Duplicates doesn't remove the duplicate records from the database; it just removes them from the selection.

How to Create a Database Report

A Jazz database report lets you see all or part of a database in printed form. You can make a report simple or complex. For example, you can create a simple report that lists every record in the database, or you can break a report into sections, give each section a title, calculate section and report totals, and include notes at the bottom of each page.

Page Header

Section Header

Record Detail Line

Section Summary

Report Summary

Page Footer

EMPLOYEE SALES COMMISSION REPORT				
Employee's Last Name	Employee's First Name	Current Sales Amount	Sales Commission	Change from Last Month's Sales
Store Number 27				
Pryor	Molly	$3,841	$384	$400
Yashima	John	$4,750	$425	$84
Engstrom	Britt	$3,351	$335	$400
Scarpi	Lucia	$4,985	$474	($265)
Total Sales for Store Number 27				$16,927
Total Commissions				$1,621
Store Number 35				
Ortez	Miguel	$5,100	$510	$104
Gottlieb	Sarah	$3,180	$382	$641
Noliman	Jordan	$3,468	$260	$1,352
Moser	Adam	$3,470	$347	($645)
Store Number 56				
Signoret	Justin	$3,527	$352	($124)
Hood	Helene	$4,286	$386	$146
Chen	Lee	$4,064	$366	$108
Total Sales for Store Number 56				$11,876
Total Commissions				$1,104
Total Sales		$118,763		
Total Commissions		$6,158		

Figures for the month of November, 1985

The database

The printed report

The completed report definition

Creating a report takes several steps. First, you open the database and sort the records the way you want them to appear in the report. Next, you set up a report definition. In it, you specify the information you want to include in the report, and how you want the report to look. After you complete the report definition, you name it and use it to produce the report. Before you produce the report, you can preview it on the screen, and modify the definition if you need to. When the report looks the way you want it to, you can print it or save it in a document.

Sorting the Database

Before you create a report, decide how you want to organize the records in the database. To break a report into sections, you must sort the records so that they are in the same order as the sections you want in the report. For example, if you want a report that lists employees' sales commissions by store, sort the records in the database using the Store field. You will also use the Store field to divide the report into sections.

The Store field is the *sort field* in the database and the *break field* in the report definition. It is called the break field because it is the field Jazz uses to break the report into sections.

1. Open the database you want to use.
To open the database, choose Open... from the File menu. If the database is already open, click it to make it active.

2. Sort the records in the database by the field you plan to use as the break field.
If you don't know how to sort, see How to Sort a Database earlier in this chapter.

	Last name	First name	Store	Sales
1	Pryor	Molly	27	$3,8
2	Yashima	John	27	$4,7
3	Engstrom	Britt	27	$3,3
4	Scarpi	Lucia	27	$4,9
5	Ortez	Miguel	35	$5,1
6	Gottleib	Sarah	35	$3,1
7	Nollman	Jordan	35	$3,4
8	Moser	Adam	35	$3,4
9	MacAdam	Heather	48	$4,3
10	Miller	Jane	48	$4,2
11	Lloyd	Arwen	48	$5,2
12	Washington	Charles	48	$3,9
13	Maher	Benjamin	48	$3,2
14	Signoret	Justin	56	$3,5
15	Hood	Helene	56	$4,2
16	Chen	Lee	56	$4,0

Each value in the break field creates a section.

EMPLOYEE SALES COMMISSION REPORT

Employee's Last Name	Employee's First Name	Current Sales Amount	Sales Commission	Change from Last Month's Sales
Store Number 27				
Pryor	Molly	$3,841	$384	$400
Yashima	John	$4,750	$428	$84
Engstrom	Britt	$3,351	$335	$400
Scarpi	Lucia	$4,985	$474	($265)
Total Sales for Store Number 27				$16,927
Total Commissions				$1,621
Store Number 35				
Ortez	Miguel	$5,100	$510	$104
Gottleib	Sarah	$3,180	$382	$641
Nollman	Jordan	$3,468	$260	$1,352
Moser	Adam	$3,470	$347	($645)
Total Sales for Store Number 35				$15,218
Total Commissions				$1,499
Store Number 48				
MacAdam	Heather	$4,356	$414	$155
Miller	Jane	$4,214	$379	$987
Lloyd	Arwen	$5,218	$391	$534
Washington	Charles	$3,925	$430	$363
Maher	Benjamin	$3,201	$320	$85

Setting Up a Report Definition

A database report consists of several categories. The page header can include the report title and column headings. The section header acts as a title for each section of a report. The record detail line contains the field values for each record. The section summary calculates statistics for a section of the report. The page footer contains notes you want to add to the bottom of a report page. The report summary calculates statistics for the entire report.

To specify what you want in your report and how you want it to look, you set up, or define, a report definition.

Beginning the definition

To define a report, you open a blank Report Definition window and then enter or specify the information you want to include in the report.

● **Choose Show Definition from the Report menu.**
A blank report definition appears on the screen.

You can enter three types of data in a report definition: text, field names, and formulas. You can also format each cell individually. General rules for entering and formatting data in a report definition include:

● Text appears in a report exactly as you type it in the report definition. For example, if you want a column heading in the report to say Sales Amount, type **Sales Amount** in the report definition.

● A field name preceded by an equal sign (=) in the report definition produces field values in the report. For example, to include the sales commission for each employee in the report (from the field named Comm), type **= Comm** under Record Detail Line in the report definition.

● Formulas perform calculations for a field. Begin all formulas with an equal sign (=). For example, to show the total sales commission for all employees in the report, type **= FSUM(Comm)** under Report Summary in the report definition.

- A cell's format affects how values appear in the report. It does not affect how the data appears in the report definition. For example, if you enter **Commission** in the report definition cell that you formatted for right-aligned text, it appears left-aligned in the report definition, but right-aligned in the final report. Choose Field Format... from the Edit menu to format each cell in the report definition.

Defining the page header

The page header appears at the top of every page of the report. It can include the report title and column headings.
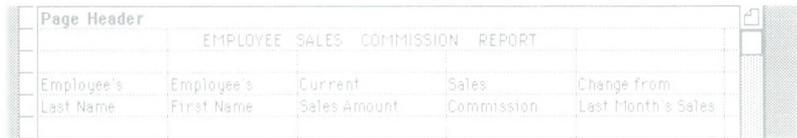
1. Insert the rows you need for the page header.
To insert a row, select a cell and choose Insert Report Line from the Edit menu. Jazz inserts a new row above the row that contains the cell you selected. You can insert a new row whenever you need one. Insert as many rows as you will need to enter the page header.

2. Select a cell in the row in which you want to type the report title.

3. Type the report title and press Enter.

4. Select a cell in the row in which you want to type column headings.

5. Type the first column heading and press Tab.
Pressing Tab enters the text and selects the next cell in the same row.

6. Repeat steps 4 and 5 to enter the rest of the column headings in the same row.
Type one column heading per cell. If you need more than one row for column headings, you can insert one and then repeat steps 4 and 5. To skip a line between the report title and the column headings, leave the row above the column headings blank.

You can delete a line by selecting a cell in a row and choosing Delete Report Line from the Edit menu. Jazz deletes the row that contains the cell you selected.

**Defining the
section header**

The section header appears above each section of the report. Because a section is created according to the break field, you probably want to use the values in the break field as part or all of the section header. For example, if you want to break the sales commission report into sections by store number, type **Store Number** in one cell and **=Store** in the next cell in the same row. Jazz uses the text, Store Number, and the individual store numbers from the Store field as the section header each time it begins a new section; for example, Store Number 1, Store Number 2, and so on.

```
Section Header
  Store Number =Store
```

1. **Insert the rows you need for the section header.**
   To skip a line after each section header, leave a blank row below the section header text.

2. **Select a cell in the row in which you want to type the section header.**

3. **Type the text part of the section header and press Tab.**

4. **Type the break field name, preceded by an equal sign (=), and press Enter.**
   Each time Jazz begins a new section, it uses the new break field value in the section header.

**Defining the
record detail line**

The record detail line specifies the fields whose values you want to include in the report. When you produce the report, Jazz includes the values in the fields you specify here. To define the record detail line, type either a field name preceded by an equal sign (=), or a formula that uses a field name. Type each field name or formula in the cell under the corresponding column heading in the page header.

Jazz evaluates a formula as it does in a worksheet. For example, to keep a running total of sales commissions, type the formula **=FPREV+Comm**, which adds the formula's previous value to the value in the Comm field.

You can use any of the worksheet functions that require a single value as an argument by using the field name as the argument. For example, to round the values of each sales amount to an integer, type **=ROUND(Sales Amt, 0)**.

Database

You can also create a formula by using operators and field names. For example, to show the difference between the present sales amount and the previous sales amount, type = Sales Amt−Prev Sales. You can also combine functions and operators in a formula. For example, to round the difference between the present sales amount and the previous sales amount, type = ROUND(Sales Amt−Prev Sales, 0).

| Record Detail Line | | | | |
| =Last name | =First name | =Sales Amt | =Comm | =ROUND(Sales Amt |

1. **Select a cell in the row under Record Detail Line.**

2. **Type the field name, preceded by an equal sign, that corresponds to the column heading above it, and press Enter.**
   Type the field name exactly as it appears in the database. Jazz does not accept an incorrect field name.

   To enter a formula that uses field names, enter the formula instead of the field name alone.

3. **Repeat steps 1 and 2 for each field whose values you include in the record detail line.**

Defining the section summary

The section summary appears at the end of each section of the report. You can enter text, field names, and formulas in the same line in a section summary, each in a separate cell.

Section Summary				
Total Sales for	Store Number	=Store		=FSUM(Sales Amt)
Total Commissions				=FSUM(Comm)

Jazz summarizes each section by performing the calculations you specify. You can use one of the following Jazz database report functions to make your summary calculations:

- FAVG(*field*) averages the values in *field*.
- FCOUNT(*field*) counts the number of values found in *field*.
- FMAX(*field*) finds the maximum value in *field*.
- FMIN(*field*) finds the minimum value in *field*.
- FPAGE inserts the current page number.
- FPREV is the value of the report cell when it was last evaluated.
- FSTD(*field*) finds the standard deviation of the values in *field*.
- FSUM(*field*) adds the values in *field*.
- FVAR(*field*) finds the variance of the values in *field*.

For example, when you type the summary line **Total Sales for Store Number** = **Store** = **FSUM(Sales Amt)**, Jazz uses the FSUM function to find the total sales for each store, and reports it at the end of each section. See Chapter 7 for a complete description of the database report functions.

1. **Insert the rows you need for the section summary.**
   You can have more than one summary line in a section summary.

2. **Select a cell in the row in which you want to type the section summary.**

3. **Type the beginning text of the summary and press Tab.**

4. **Type the name of the break field, preceded by an equal sign, and press Tab.**
   Use the break field because you are summarizing a section Jazz created according to the break field value.

5. **Type the formula part of the summary and press Enter.**

Defining the page footer

A page footer usually contains the page number and any notes you want to include at the bottom of each page of the report.

1. **Insert the rows you need for the page footer.**

2. **Select a cell in the row in which you want to type the page footer.**

3. **Type the footer text and press Enter.**
   A page footer can be more than one line.

4. Select a cell in the row under the page footer text.
Leave a blank row if you want to skip a line.

5. Type =FPAGE and press Enter.
The FPAGE database report function inserts the current page number in each page footer.

Defining the report summary

The report summary appears once, at the end of the report, and performs calculations for the entire report. You define a report summary the way you define a section summary, except that you don't include a field name because you want Jazz to make a calculation for every record in the report. You use the database report functions to make calculations for the entire report the way you use them in the section summary.

Report Summary			
Total Sales	=FSUM(Sales Amt)		
Total Commissions	=FSUM(Comm)		

1. Insert the rows you need for the report summary.
You can have more than one summary line in a report summary.

2. Select a cell in the row in which you want to type the report summary.

3. Type the text part of the report summary and press Tab.

4. Type the formula part of the report summary and press Enter.

Defining the break field

The break field is the field you used to sort the database. Jazz scans a database, record by record, to create a report, using the values in the field you specify after Break Field to group the records in sections. When Jazz gets to a record with a break field value that is different from the break field value in the previous record, it makes the calculations you specify in the section summary for all the records in that section. Jazz then begins a new section, which includes the next group of records with the same break field value. If you don't specify a break field, Jazz does not break the report into sections.
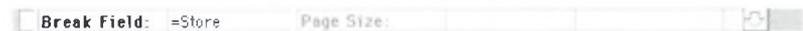
Break Field: =Store	Page Size:		

1. Select the first cell after Break Field.

2. Type the field name, preceded by an equal sign (=), that you used to sort the database.

Defining the page size

The page size is the number of lines per page of your printed report. The default page size depends on both the font you use to print the report and the length of your paper.

1. Select the first cell after Page Size.

2. Type the number of lines you want for each printed page and press Enter.
You can enter any number that is less than the default.

Closing the report definition

Once you complete the report definition, you can close the Report Definition window.

• **Click the close box to close the Report Definition window.**
The report definition disappears from the screen. Jazz automatically saves it under the default report definition name.

Keep in mind

Possible problems. If Jazz won't accept an entry in the report definition, or if the report contains incorrect information when you preview it later on, you may have:

• Sorted the database incorrectly. Jazz scans the database only once when it creates a report. It ends a section each time it finds a value in the break field that is different from the previous value. If your break field is not the same as your sort field, the report will probably contain more than one section for the same break field value.

• Entered a field name incorrectly. If you don't type a field name exactly the way you did in the database, Jazz does not accept it.

• Forgotten to type an equal sign (=) before a field name. If you don't begin a field name with an equal sign, Jazz uses the field name, not the field's values, in the report.

Naming a Report Definition

Jazz automatically saves the report definition when you save the database. You can use it again to create another report with the same database, even if the database changes. You will probably want to choose a name for each report definition to help you remember what type of report the definition produces.

Naming the first report definition

The first time you create a report definition, Jazz names it for you. When you choose Names... to name it, the default name appears in the report definitions list and as the active definition. You can use the default name or change it. You can name the first report definition either before or after you set it up.

1. **Choose Names... from the Report menu.**
   The Names... dialog box appears with the default report definition name.

2. **Type the new name in the box.**

3. **Click OK or Done.**
   Click OK to confirm your choice and remain in the dialog box. Click Done to confirm your choice and close the dialog box.

Naming other report definitions

After you create the first report definition, you will want to name a new report definition *before* you set it up, so it becomes the active report definition. Otherwise, when you choose Show Definition, you will see the last report definition you used.

1. **Choose Names... from the Report menu.**

2. **Type the name you want to give the report definition in the space provided.**

3. **Click New.**

4. **Click OK or Done.**

Producing a Report

Producing a report includes previewing a report on the screen and then printing a copy or saving the report on a disk. To produce a report, you must open a database and select the report definition you want to use with it. Jazz reads the records you select from the database and produces the report using the specifications in the active report definition.

Selecting records

Before you produce a report, you must select the database records you want to include in the report. To produce a report that contains information on certain records only, you must select those records. For example, in the sales commission report, you may only want to include records with sales over $1000.

1. **Open the database you want to use.**
   To open the database, choose Open... from the File menu. If the database is already open, click it to make it active.

2. **Select the database records you want to use in your report.**
   You can set up a query to select the records that match criteria you set. If you don't know how to select records with a query, see How to Find Information in a Database earlier in this chapter. To include all records, choose Select All Records from the Edit menu. To select a group of records that are next to each other, drag across the record numbers.

Making the report definition active

Before you can use a report definition to produce a report, you must make it active.

1. **Choose Names... from the Report menu.**

2. **Click the name of the report definition you want to use.**
   The report definition name becomes the active one.

3. **Click OK or Done.**
   Click OK to confirm your choice and remain in the dialog box. Click Done to confirm your choice and close the dialog box.

Previewing a report

Previewing a report lets you see the report on the screen, page by page, just as Jazz will print it. You can see if you need to change anything in the report definition before you print the report or save it in a document. If you haven't already done so, you must open the database, select the records you want to use, and make the report definition active.

1. **Choose Preview... from the Report menu.**

2. **Click the down scroll arrow to move down on the same page.**
   You can scroll back up the same page with the up scroll arrow.

3. **Click Next Page at the bottom of the window to move forward one page at a time.**
   You cannot go back to the previous page.

4. **Click Done when you finish previewing the report.**
   You can click Done at any point.

Printing a report

When the report looks correct on the screen, you are ready to print a copy of it. If you haven't already done so, you must open the database, make the report definition active, and select the records you want to use.

1. **Choose Page Setup... from the File menu.**

2. **Enter the number you want for the left margin and click OK.**

3. **Choose Print... from the Report menu.**
   Jazz displays the same dialog box that appears if you choose Print Document.... Specify the settings as you would for any Jazz document.

   The printed copy of a report is identical to the one you preview on the screen.

Saving a report in a document

You can save a report in a document on a disk. A saved report consists of the text in the report, but not the report definition. You can transport and use this document in Jazz Word Processing (as a Text Only document) or with any Macintosh application that can use text documents. If you haven't already done so, you must open the database, make the report definition active, and select the records you want to use.

1. **Choose Generate Document... from the Report menu.**

2. **Type the name you want to give the document in the space provided.**
   This name does not have to be the same as that of the report definition.

3. **Click Drive if you need to change the current disk drive.**

4. **Click Save to store the document on a disk.**

Changing a Report Definition

You can change parts of a report definition, or clear its contents completely. If you no longer need a report definition, you can delete it.

Changing parts of a report definition

You will probably create several report definitions for the same database. As you change the database, you may need to make minor changes to a report definition before you can use it to produce a report. For example, you may sort the database using a different field, and need to change the break field, section header, and section summary.

1. **Choose Names... from the Report menu.**

2. **Click the name of the report definition you want to change.**
   The report definition becomes the active definition.

3. **Click OK or Done.**
   Click OK to confirm your choice and remain in the dialog box.
   Click Done to confirm your choice and close the dialog box.

4. Choose Show Definition from the Report menu.
The report definition appears as you last used it.

5. Change the report definition as necessary.
You edit values in the report definition just as you edit field values in the database.

6. Close the Report Definition window.

Clearing a report definition

Clearing a report definition removes the information you entered under each category, but does not delete the report definition itself. You can use it when you need to enter new information for every category.

1. Choose Names... from the Report menu.

2. Click the name of the report definition you want to clear.
The report definition becomes the active definition.

3. Click Clear.

4. Click OK or Done.

5. Choose Show Definition from the Report menu.
The report definition appears with every category blank.

6. Enter new information in the report definition.

7. Close the Report Definition window.

Deleting a report definition

You may decide that you no longer need a particular report definition. In that case, you can delete it.

1. Choose Names... from the Report menu.

2. Click the name of the report definition you want to delete.
The report definition becomes the active definition.

3. Click Discard.
The report definition name disappears from the active definition box and from the report definition list.

4. Click OK or Done.

How to Create and Use a Database Form

To create a form, you must first create the database you want to associate with the form.

When you create a form, Jazz automatically links it to the active database and places a copy of each database field on the form. You can use the form to add information to database records, or to edit records that already hold information. Jazz automatically enters each field value you type in a field on the form in the associated field in a database record. The number of the database record you are working with appears in the active record box in the form console.

When you use a Jazz form, you work with two different menu bars and screens: Use Form and Modify Form. To enter or edit field values in a database, use the Use Form menu bar. When you are using the Use Form menu bar and screen, Jazz moves everything you type in the form to the database.

Use Form menu bar

The database this form is linked to
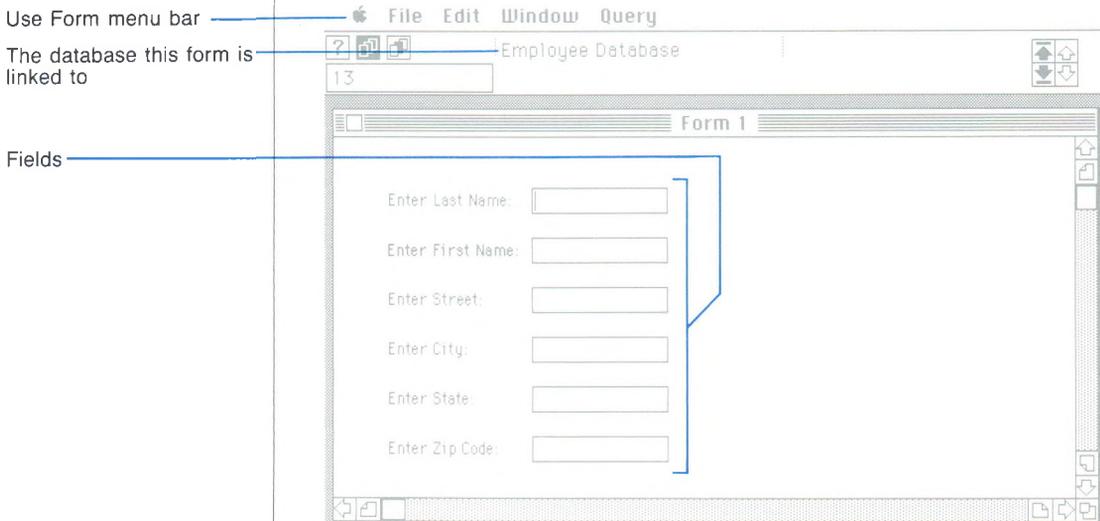
Fields

To change the way the form looks — to add to it, delete from it, or rearrange it — you use the Modify Form menu bar. When you work with Modify Form, the changes you make to the form do not affect the database. For example, if you delete a field from the form, the field remains in the database.

Fields

Notations boxes show
you can change the text
and placement of the
fields.

Modify Form menu bar

File   Edit   Window   Field   Font   Style

Employee Database

Form 1

Enter Last Name: Last Name

Enter First Name: First Name

Enter Street: Street

Enter City: City

Enter State: State

Enter Zip Code: Zip Code

Enter Job Title: Job Title
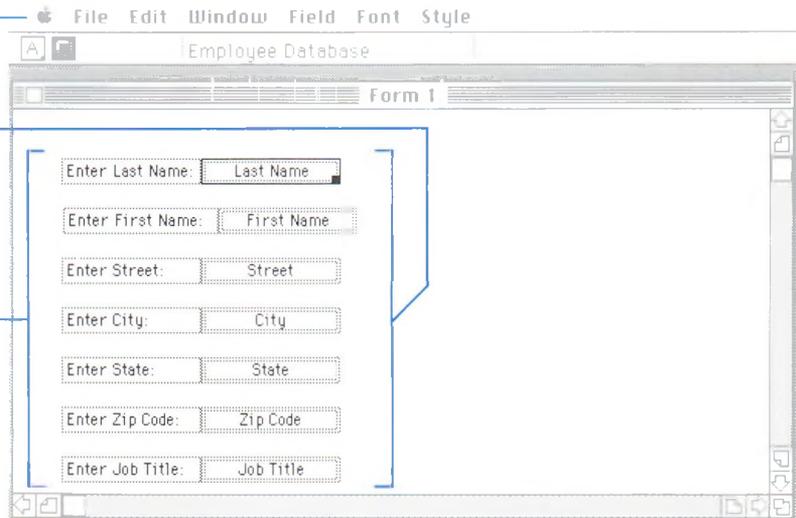
To move from the Use Form menu bar to the Modify Form menu bar, choose Modify Form from the Edit menu. Choose Use Form to move from the Modify Form menu bar to the Use Form menu bar.

Because a form is linked to the database you use it with, you should save the form and the database on the same disk. Once you create the form, however, you don't need to open the database to use the form.

Creating a Form

When you create a new form, Jazz automatically includes all the fields from the active database in the new form. If you have several databases open at the same time, the active database is the last database you clicked. Once Jazz creates a form, you use it to add completed records to the database. If you don't have a database open, Jazz creates a blank form.

1. **Create a database or open an existing one.**
   If you don't know how to create a database, see How to Create and Use a Database earlier in this chapter. If the database you want to use to create the form is already open, click it to make it active.

2. **Create a new form.**
   To create a new form, choose New... from the File menu, click the Form icon, and click New. Jazz automatically moves each field from the active database to the form. The text to the left of the field name indicates the kind of information you should enter in the field.

Database

Active record number —

Jazz displays each field value from the active record in the form.
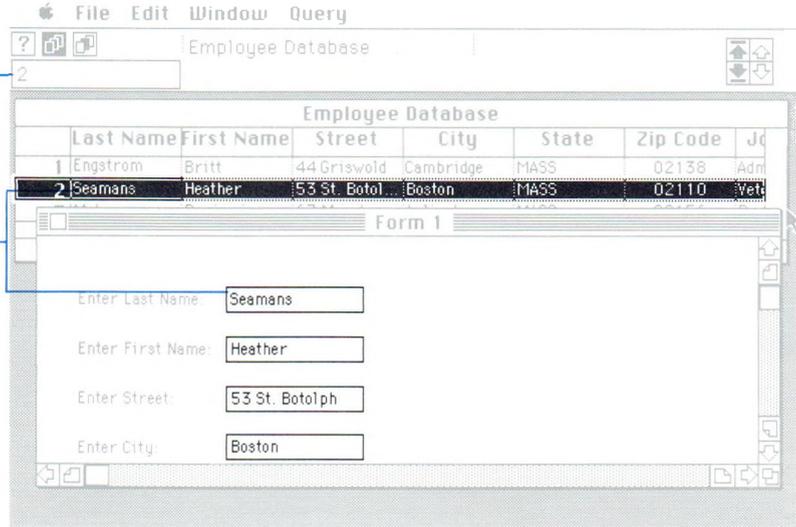
Keep in mind

Creating a tailored form. You can change a form to adapt it to your own needs. For example, you can delete fields if you have database fields that you don't want all users to see. See How to Change a Database Form later in this chapter.

Changing the text next to the field. You can change the text that accompanies each field. See Adding and Deleting Text later in this chapter.

Entering Field Values with a Form

To enter field values in the database, you must first add blank records to hold the new information. You can then fill in field values.

1. **Choose Use Form from the Edit menu.**
   Once you create a form, you must choose Use Form to enter information in the database. If you are already using the Use Form menu bar, Use Form does not appear as a choice in the Edit menu.

2. **Choose Add Record from the Edit menu.**
   This adds a blank record to the end of the database. Jazz scrolls to make the new record visible.

3. **Click the field on the form you want to enter information in.**

4. **Type the field value.**

5. **Press Tab to move to the next field.**
   Pressing Tab enters the field value into the database and makes the next field active.

6. **Repeat steps 4 and 5 to type the rest of the field values.**

7. **Press Return or choose Add Record from the Edit menu.**
   If you press Return after typing a field value for the last database field, Jazz moves to the first field in the next record. If you were adding field values to the last record in the database, Jazz beeps to let you know that you have to add another record before you can continue entering information.

8. Repeat steps 3 through 7 to enter field values in additional records.

Active record number ──────

Field values ──────

	File	Edit	Window	Query					

| ? | 🗗 | 🗐 | | Database 1 | | | | | ⬆⬆ |
| | | | | | | | | | ⬇⬇ |

| | | | | | | | | | | |

Employee Database

	Last Name	First Name	Street	City	State	Zip Code	J(
1	Engstrom	Britt	44 Griswold	Cambridge	MASS	02138	Adm

Form 1

Enter Last Name [Engstrom]

Enter First Name [Britt]

Keep in mind

Inserting a new record. You can insert a blank record before the current record by choosing Insert Record from the Edit menu.

Viewing Records with a Form

As you enter field values in a form, you move from field to field by pressing Tab or by clicking the field you want to move to. You can use the Record Navigator to move from record to record or from the first to the last record in the database. The number of the record you are viewing appears in the active record box in the lower right corner of the console.

1. **Click the black up arrow to view the first database record.**

2. **Click the black down arrow to view the last database record.**

3. **Click the white up arrow to view the previous record.**

4. **Click the white down arrow to view the next record.**

Editing Field Values in a Form

You can edit existing field values using a form. When you edit field values in a form, the values in the database change as well.

1. **Choose Use Form from the Edit menu.**
   If you are already using the Use Form menu bar, Use Form does not appear as a choice. Continue to the next step.

2. **Use the Record Navigator to locate the record you want to edit.**

3. **Click the field you want to edit.**

4. **Select the area you want to edit.**
   Drag to select a single letter, double-click to select a word, or drag from one end of the box to the other to select the entire field value.

5. **Press Backspace, or choose Cut or Clear from the Edit menu.**

Backspace deletes the selected area. Cut deletes the selected area and places a copy of the deleted text on the Clipboard. Clear deletes the selected area and doesn't place a copy on the Clipboard.

Before

Enter Street:	255 Creighton St
Enter City:	Newton
Enter State:	MASS
Enter Zip Code:	02178
Enter Job Title:	Administrattion

After

Enter Street:	255 Creighton St
Enter City:	Newton
Enter State:	MASS
Enter Zip Code:	02178
Enter Job Title:	A

6. **Edit the existing value or type a new field value.**

Keep in mind

Inserting or deleting a character in a field value. To insert or delete one or two characters, click the location in the field value where you want to insert or delete. The insertion point (a blinking vertical bar) appears where you clicked. Type the characters you want to insert, or press Backspace to delete characters to the left of the insertion point.

How to Change a Database Form

Changing a form lets you adapt it to your own needs. You can add titles, instructions, or explanatory text anywhere on the form, or delete text the form contains. You can also add new fields to the form, duplicate existing fields, and delete fields. Changing the appearance of the form by adding, deleting, or rearranging fields and notation boxes does not affect the database. You use the Modify Form menu bar to change the appearance of the form.

Adding and Deleting Text

You can change any of the text that Jazz placed on the form when you created it, or add new notation boxes with additional text. For example, you can add instructions for entering information in a particular field, or you can add a title or general instructions on how to use the form.

You can also delete a notation box or the text inside it. If you delete a notation box, you can't add text to it again. If you delete text in a notation box, you can enter new text in the box.

Changing text in notation boxes

1. **Choose Modify Form from the Edit menu.**
   If you are already using the Modify Form menu bar, Modify Form does not appear as a choice. Continue to the next step.

2. **Click the notation box you want to change.**

3. **Edit the existing text or type new text.**
   To edit text, click to the right of the first character you want to delete, press Backspace to delete old text, and type the new text. To insert a character or a word in existing text, click the location where you want to insert the new text, and then type the text. You can also drag over part or all of the text and cut it.

   To change the size of the notation box, drag the size box.

Before

Notation boxes ——————————

Size box ——————————

Enter Zip Code:	Zip Code
Enter Job Title:	Job Title
Enter Soc.Sec #:	Soc.Sec #

After

Enter Zip Code:	Zip Code
Enter Job Title:	Job Title
Enter your social security # in the format xxx-xx-xxxx	Soc.Sec #

When you finish editing the notation box, choose Use Form from the Edit menu and continue to another task.

Adding new notation boxes

1. **Choose Modify Form from the Edit menu.**

2. **Click the notation well.**

3. Drag the pointer diagonally across an open area on the form.
You can't drag over any part of an existing field or notation box.

4. Type the information you want in the notation box.

5. Repeat steps 3 and 4 to add additional notation boxes to the form.

1. Choose Modify Form from the Edit menu.

Deleting text or notation boxes

2. Click the box or drag over the text you want to delete.

3. Choose Cut or Clear from the Edit menu.
Cut deletes the selected text inside a notation box and places a copy of it on the Clipboard. Clear deletes both the notation box and the text and does not place a copy on the Clipboard.

Keep in mind

Changing the size of fields and notation boxes. Jazz fields and notation boxes can hold up to 254 characters, depending on how big the box is. If the field or notation box can't display all the text you enter, or if it is too big, you can change its size. Click the field or notation box you want to change and drag the size box to make it larger or smaller.

Before

After

Rearranging a Form
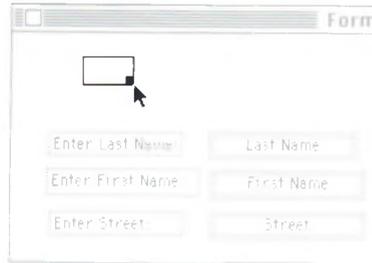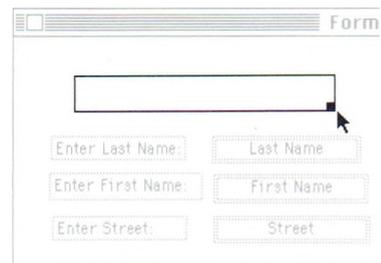
The fields on your form don't have to be in the same order as the corresponding fields in the database. You can move fields and notation boxes to arrange the form as you wish. Jazz won't move a field or notation box if you try to move it to a space that is too small for it.

1. Choose Modify Form from the Edit menu.

2. Click the notation box or field you want to move.

3. Position the pointer on any part of the border of the box.
Don't position the pointer completely inside a notation box or field.

4. Drag the box to a new place on the form.

You can drag notation boxes and fields over existing boxes to a clear place on the form.

Before

Original position of the field you want to move.

First Jazz moves the box

After

Then the text moves.

Adding and Deleting Fields

If you add a new field to the database, you can also add it to the form. You can also repeat fields if your form is too large for Jazz to display all at once. For example, if you have more than eight fields in an employee database, you may want to repeat the Last Name field so you or another user can always see whose record you are working with.

You can also delete fields from a form. Deleting fields is not the same as deleting field values. If you delete a field from a form, you can't add field values to that field in the database while using the form. If you delete a field value, you can enter a new field value in the field. In either case, the field still exists in the database.

Adding a field to a form

1. **Choose Modify Form from the Edit menu.**

2. **Open the database.**
   If the database is already open, click it to make it active.

3. **Select the field you want to place on the form.**
   Select a field by clicking the field name in the database.

4. **Click the form.**

5. **Click the anchor well.**

6. **Click the location where you want to place the field.**
   Jazz places the anchor at the location you clicked.

7. **Choose Place from the Field menu.**
   Jazz places a notation box and the field below the anchor.

Jazz places a copy of the field on the form.

Deleting a field from a form
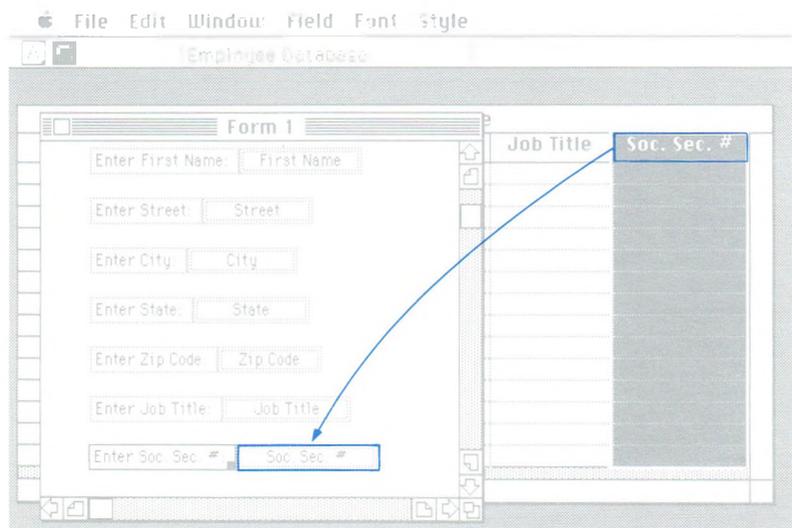
1. **Choose Modify Form from the Edit menu.**

2. **Click the field you want to delete.**

3. **Choose Clear from the Edit menu.**
   Clear deletes the field and does not place a copy of the cleared information on the Clipboard. Clearing a field from a form does not delete the field in the database.

How to Protect Information in a Form

Locking a field in a form is similar to locking a field in a database. If you lock a field in a form, you (or another user) can look at, but not change, information in that field. Locking a field in the form does not lock the field in the database. You can still add field values to the field in the database, but you can't add field values to the database from the form until you unlock the field. If you lock the field in the database, however, it is also locked in the form.

Locking a Field

1. **Choose Modify Form from the Edit menu.**
   If you are already using the Modify Form menu bar, Modify Form does not appear as a choice. Continue to the next step.

2. **Click the field you want to lock.**

3. **Choose Lock from the Field menu.**
   If the field is already locked, Lock is checked. When you lock a field, the box around it disappears when you use the form.

The fields in boxes are not locked.

This field is locked.

Keep in mind

Unlocking a field. When a field you click is locked, Lock is checked on the Field menu. Choose Unlock to unlock the field.

How to Select Database Records Using Form Query

A form query is similar to a database query: it selects records in the database according to criteria you enter in a query window. Before you try to set up a form query, read How to Find Information in a Database earlier in this chapter.

Using Query in a Form

Using a form query is similar to using a database query. You define criteria in a query, and use the query to search for matching records in the database. A form query differs from a database query in several ways, however:

- You can set up and use only one form query. To use a different query, you must clear the original criteria and enter new ones.

- You can use only one criterion per field.

- You can't save sets of criteria in a form query.

- When you use the query, you see the matching records one at a time.

These differences make a form query less powerful than a database query, but easier to use.

Defining and using criteria

1. **Choose Use Form from the Edit menu.**
   If you are already using the Use Form menu bar, Use Form does not appear as a choice.

2. **Choose Define Criteria from the Query menu or click the Query icon.**

3. **Type the criteria you want to match in the fields.**
   For example, if you want to find all the records with the field value Yashima in the Last Name field, type **Yashima** in the query Last Name field. If you enter criteria in more than one field, Jazz finds records that match *all* the criteria — for example, the records of all employees named Yashima who live in Boston.

The criteria that Jazz will match

Criteria can also include logical operators. For example, entering the criterion >65 in the Age field finds all the records that contain field values greater than 65. For a complete set of rules on setting up criteria, see Using Queries in the Database Reference.

4. Choose View Matching Records from the Query menu or click the View Matching icon.
Jazz automatically selects records that match the criteria and lets you look at only those records, one at a time. Click the black arrows in the Record Navigator to view the first or last selected record; click the white arrows to view the next or previous selected record.

5. Choose View All Records from the Query menu or click the View All icon to cancel the query selection.

Changing criteria in a query

1. Choose Use Form from the Edit menu.

2. Choose Define Criteria from the Query menu.

3. Double-click the criterion you want to change.

4. Type a new criterion or leave it blank.

5. Repeat steps 3 and 4 to change other criteria.

Keep in mind

Adding a new criterion. To add a criterion in a field that was previously empty, click the field and type the new criterion.

The Database Screen

Active field box   Contents box   Border line

Active record box   Entry box

Menu bar

    File   Edit   Window   Query   Sort   Report   For

Last Name   "Miller

Console

5   Muell

Field

Active field

Employee Database

	Last Name	First Name	Street	City
1	Engstrom	Britt	44 Griswold	Cambridge
2	Seamans	Heather	53 St. Botolph	Boston
3	Scarpi	Lucia	12 Elliot	Boston
4	Maher	Benjamin	67 Menotomy	Arlington
5	Miller	Jane	124 Main	Cambridge
6	Yashima	John	255 Creighton	Newton
7	Nollman	Jordan	899 Cherry	Natick
8	Signoret	Justine	32 Hudson	Beverly
9	Washington	Charles	166 Pleasant	Cambridge
10	Ortiz	Miguel	37 Bay	Boston
11	Pryor	Mollie	46 Elm	Brookline
12	Moser	Adam	22 Oxford	Framingha

Active cell

Active record

Record

Field value

Cell

Cancel icon

Record
Navigator

The Database Reference

Menu bar displays the titles of all Database menus.

Console displays information about the database selection. The console also lets you quickly locate records, using the Record Navigator or the active record box.

Record Navigator lets you quickly locate and activate records. Clicking the black up arrow activates the first record in the selection; clicking the black down arrow activates the last record in the selection. If only one cell is selected, the black arrows locate and select the first or last record in the database. Clicking the white up or down arrow activates the previous or next record in the current selection. If only one cell or record is selected, the white arrows select the previous or next cell or record.

Cancel icon erases the contents of the entry box. This icon appears only when you are entering or editing information in the entry box.

Border line separates fields and allows you to expand or shrink them. Dragging the border line to the right makes the field wider; dragging it to the left makes the field narrower.

Entry box shows the characters you are typing or editing.

Contents box displays the unformatted contents of the active cell. If the cell contains text, Jazz inserts a double quotation mark ('') as the first character.

Active record box displays the number of the record that contains the active cell. This box lets you quickly select a specific record by clicking the box, entering the record number, and pressing Enter. Entering a number greater than the number of records in the database selects the last record in the database.

Active field box displays the name of the field that contains the active cell.

Field is one column in the database and is identified by a field name. Each field contains one item of information within a record. For example, in an employee database, the first name of an employee is one field.

Active field is the field that contains the active cell. Jazz displays the name of the active field in the active field box.

Active cell is highlighted by a white border to indicate that it is affected by your next action.

Active record is the record that contains the active cell. Jazz displays the number of the active record in the active record box.

Record is one row in the database and is identified by a record number. Each record consists of a collection of information on one subject in the database. For example, in an employee database, all the information on Jordan Nollman comprises one record.

Field value is the contents of one cell in the database.

Cell is the intersection of a field and a record and contains a field value.
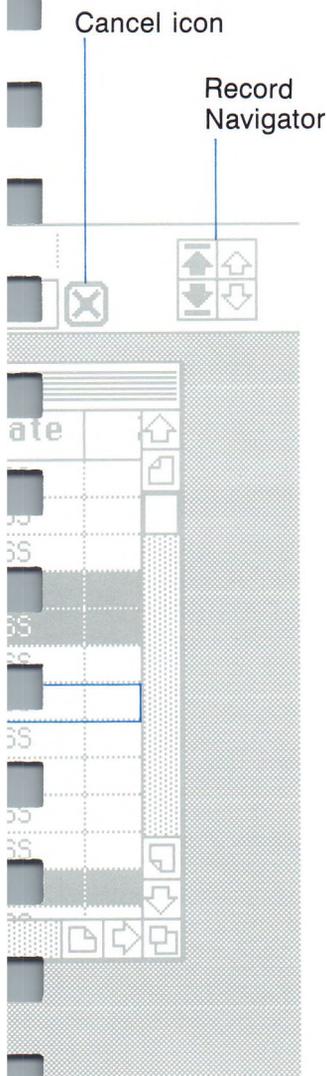
Selecting
Database Data

If you want to:	Do this:
Select a record	Click the record number, or use the Record Navigator or active record box.
Select neighboring records	Drag over neighboring record numbers.
Select all records	Choose Select All Records from the Edit menu.
Select an entire field	Click the field name.
Select neighboring fields	Drag over the neighboring field names.
Select a cell	Click the cell.
Select neighboring cells	Drag over neighboring cells.
Select the cell below the active cell	Press Return.
Select the cell above the active cell	Hold down Shift and press Return.
Select the cell to the right of the active cell	Press Tab.
Select the cell to the left of the active cell	Hold down Shift and press Tab.
Select separated records or fields	Click the first record number, or field name. Option-click each separated record number or field name, or Option-click and drag to select more than one.
Cancel a selected record, field or cell	Option-click the selected record number or field name.

Entering Database Data

The rules for entering database data are the same as for entering worksheet data, with the exception of formulas. See Chapter 2, Entering Worksheet Data, for a summary of the rules for entering numbers, text, dates, and times in a database.

If you enter:	Rules for entering:	Examples:
Formulas for calculated fields	You enter a formula that calculates the value of a field in the Field Attributes... dialog box. Jazz uses the formula to calculate the value of the field for each record.	= Sale – Cost = Profit * .95 = (Salary/52)/40
	The formula can consist of field names, text, numbers, and operators. Text must be enclosed in double quotation marks.	
	You must begin with an equal sign (=).	
Formulas in a Report window	You enter a formula in a record detail line, section summary, page footer, or report summary.	= FCOUNT(Last Name) = FSUM(No. Sold) = INT(Sales Amt)
	You can use formulas and functions, such as the Database Report Functions described in Chapter 7.	
	You must begin with an equal sign (=).	

Continued

If you enter:	Rules for entering:	Examples:
Queries in a Query window	You enter a query in a cell below the field that you want Jazz to search.	< 45 > "Foster" Smith Ada*
	A query can consist of field names, text, numbers, operators, and wildcard characters (? and *).	
	Text other than field names must be enclosed in double quotation marks, except when entered as an exact match.	
	You must begin with an equal sign (=) if the query begins with a field name. (You begin a query with a field name only when using logical operators such as #AND# or #OR#.)	

Editing Database Data

The procedures for editing database data are the same as for editing worksheet data. See Editing Worksheet Data in Chapter 2 for a summary of editing procedures.

Using Operators

The rules for using operators in database formulas are the same as for using operators in worksheet formulas. See Using Operators in Chapter 2 for the list of operators you can use in formulas.

Using Queries

This table summarizes the types of queries you can enter in a Query window to find matching records. Enter the query in the field you want Jazz to search.

To find all records that are:	Use this operator:	Example:	What Jazz finds:
Less than or equal to	< =	< = 50	All employees who are age 50 or under.
		< = "Jones"	All employees whose last names alphabetically pre-cede and include Jones.
Less than	<	< 25	All employees younger than 25.
		< "Baker"	All employees whose last names alphabetically pre-cede Baker.
Identical to		Jones	All employees named Jones.
		MAR-85	All employees hired on this date.
		35	All employees who are age 35.
Different from	< >	< > 45	All employees who are not age 45.
		< > "Foster"	All employees who are not named Foster.
Greater than	>	> 25	All employees older than 25.
		> "Davis"	All employees whose last names alphabetically follow Davis.
Greater than or equal to	> =	> = "Hudson"	All employees whose last names include and alpha-betically follow Hudson.
		> = 19	All employees who are age 19 or older.
Meeting more than one criterion	#AND#	= AGE = 25#AND#SEX = "M"	All employees who are age 25 and male.

Continued

To find all records that are:	Use this operator:	Example:	What Jazz finds:
Meeting any one of several criteria	#OR#	= AGE = 25#OR#AGE = 26	All employees who are age 25 or 26.
		= NAME = "Smith"#OR#NAME = "Jones"	All employees named Smith or Jones.
Matching any single text character (also for numbers formatted as text)	?	Ada?s	All employees whose last names are, for example, Adams, Adans, Adads, and so forth.
		0213?	All 5-digit zip codes that begin with 0213 and end with any other number (for example, 02134, 02138, 02139).
Matching any number of text characters at the end of an entry (also for numbers formatted as text)	*	Ada*	All names that begin with Ada and end with any number of other letters (for example, Adams, Adamsky, Adamson).
		576-*	All telephone numbers that begin with 576- and end with any other characters (for example, 576-1212, 576-2091).
Comparing one field with another field	(Use any operator)	= VAC TAKEN = VAC EARNED	Employees who have taken exactly as much vacation as they have earned.
		= VAC TAKEN < VAC EARNED	Employees who have taken less vacation than they have earned.

The Database Menu Bar

Edit menu

The Apple, File, Window, Font, and Style menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

** File Edit Window Query Sort Report Font Style
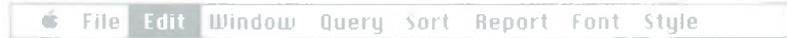
Undo reverses your last action, such as entering or cutting data.

If Jazz can't undo your last action, this command appears dimmed as Can't Undo. If you disabled Undo, this command is **Undo Disabled**.

Cut removes the selection from the database and places it on the Clipboard.

This command may be **Cut Record**, **Cut Field**, or **Cut Value**, depending on the current selection. Cutting one or more records removes the selected records from the database and moves all records up. Cutting one or more fields moves all fields over to the left. Jazz removes the display format of the selected field(s); they revert to General format.

Copy places a copy of the current selection on the Clipboard.

This command may be **Copy Record**, **Copy Field**, or **Copy Value**, depending on the current selection. For the Copy Field command, Jazz also copies the display format of the selected fields. This command is similar to the Cut command, except that Jazz does not remove the selection from the database or alter the database in any way.

Paste places the contents of the Clipboard into the selected location in the database. This command may be **Paste Record**, **Paste Field**, or **Paste Value**, depending on the current selection and the contents of the Clipboard.

Paste Record places the contents of the Clipboard above the selected record and moves all records down. No data is written over.

Paste Field places the contents of the Clipboard to the left of the selected field and moves all fields over. No data is written over. Only fields on the Clipboard that are not in the database are pasted. Jazz does not allow duplicate field names in a database.

Paste Value places the contents of the Clipboard into the selected location in the database. Jazz writes over the previous contents of the selected location. The cells on the Clipboard replace the selected cells in the database. If there are fewer cells on the Clipboard than in the selected area of the database, then Jazz pastes as many complete copies of the contents of the Clipboard as it can.

If the Clipboard contains text from another Macintosh program, or from a Jazz word processing document, Jazz pastes data into the database according to the options you chose with the Parse Settings... command on this menu.

Database

Clear erases the contents of selected records or fields but does not change the format or names of selected fields. Jazz does not place the contents of the selection on the Clipboard. This command may be **Clear Record**, **Clear Field**, or **Clear Value**. This command differs from the Cut command, which removes selected records or fields from the database and places the selection on the Clipboard.

Select All Records selects every record in the database.

Insert may be **Insert Record** or **Insert Field**, depending on the current selection. If a report definition is the active window, this command is instead **Insert Report Line**.

Insert Record inserts a new, blank record immediately above the selected record and moves all records down.

Insert Field inserts a new, blank field to the left of the selected field and moves all fields over. When you choose this command, Jazz displays a dialog box for specifying the attributes for the new field. This is the same dialog box Jazz displays for the Field Attributes... command, also on this menu.

Insert Report Line inserts a new, blank line above the selected cell in a report definition.

Add Record adds a new, blank record after the last record in the database. The added record becomes selected. You can have up to several thousand records in a database, depending on available memory.

If a report definition is the active window, this command is instead **Delete Report Line**. Delete Report Line erases the line that contains the selected cell from a report definition.

Add Field... adds a new, blank field after the last field in the database. Jazz displays a dialog box for specifying the attributes for the new field. This is the same dialog box Jazz displays for the Field Attributes... command, also on this menu. You can have up to 100 fields in a database, depending on available memory.

Open Cell puts the contents of the active cell in the entry box for editing. This command produces the same results as double-clicking the cell, except that a selection is preserved.

Field Attributes... changes the characteristics of the selected fields or defines the characteristics of a new field. The dialog box that appears is the same one you see when you create a new database or choose the Add Field... or Insert Field command from this menu.

You can enter a new name (up to 15 characters) or edit the existing name of this field. The name must begin with a letter and can be more than one word. If you do not name a field, Jazz assigns a default name of Field 1, Field 2, Field 3, and so forth.

- Do Not Check Entry Format: Jazz does not check the format of any data entered in this field.

- Check Entry Format: Jazz prevents you from entering data in this field if the data does not match the display format of the field. Formats that Jazz checks are date, time, numeric, and text.

- Use Formula: Jazz uses the formula you enter in the Formula space to compute the value of this field for each record.

- Locked: If checked, Jazz does not allow changes to the contents of this field. This option does not appear if you chose Use Formula, above, since Jazz must be able to change the contents of the field in order to enter the computed value of this field.

- Initial Value: Jazz automatically fills records with whatever you enter as the initial value for this field. Enter a field value that you want Jazz to repeat for each record in the database.

- Formula: (Appears instead of Initial Value when you choose Use Formula.) Enter the formula Jazz uses to compute the value of this field. The formula must begin with an equal sign (=) and can only consist of field names, text and numbers, and operators.

- Display Width: Specifies the field's width. To change it, enter a new width. Jazz remembers up to 254 characters in a field, even if you cannot see all of them in the field. The default field width is 10 characters.

If you are creating a new database, the Add Another Field button appears. Clicking this button adds the current field to the database and lets you define the next field.

If this field was also selected as a sort field (using Set Fields... on the Sort menu), the dialog box informs you of this.

If you choose Use Formula, enter a formula that Jazz uses to calculate the value of this field for each record. The formula can be used to establish a relationship between the calculated field and other fields in the database, or can be used to compute a numeric value for the calculated field. The formula must begin with an equal sign.

For example, if you are defining the field attributes for the Feb Totals field in the Regional Sales Offices database, you can construct a formula that computes monthly totals for each region, using other fields in the database. The formula = 4*Weekly Totals, entered in the Field Attributes... dialog box for the Feb Totals field, computes the February totals for each sales region using values in the Weekly Totals field. Jazz enters the results in the database in the Feb Totals field.

Field Format... changes the display format for numbers and text in the selected fields.

The dialog box shows the format of the selected field.

If you select a numeric format other than General, Jazz gives you the option of specifying the number of decimal places, up to 15. Clicking the up or down arrow in the dialog box cycles you through the number of decimal places. (Jazz stores numbers that have up to 15 decimal places.)

Display Format	Description	Examples
Fixed	Displays numbers with a fixed number of decimal places.	25.00 − 278.2 23.0245
Scientific	Uses the letter E to express numbers in powers of 10.	1.346E3 8.09E − 12 − 7.3E8
Currency	Displays $ followed by a number. Negative values appear in parentheses; commas separate thousands.	$6.98 ($36.00) $0.23 $89,473
Percent	Displays percentages.	24.7% − 0.06%
Comma	Displays numbers with commas to separate thousands. Negative numbers appear in parentheses.	89,898.00 (1,000.00)
General	Displays numbers as right-aligned. Very large or very small numbers are expressed in scientific format. General is the default for numbers.	10.3 6.03592E8
Date	Displays dates, in one of the following formats:	
	DD-MMM-YY: Day-Month-Year	23-FEB-85
	DD-MMM: Day-Month	23-FEB
	MMM-YY: Month-Year	FEB-85
	MM/DD/YY: Month/Day/Year	2/23/85

Display Format	Description	Examples
Time	Displays time, in AM/PM or 24 hour format:	
	HH:MM:SS AM/PM Hour:Minute:Second	10:03:39 PM
	HH:MM AM/PM Hour:Minute	5:17 PM

	HH:MM:SS, 24 Hour
	  Hour:Minute:Second
	  (24 hour)
		23:03:45

	HH:MM, 24 Hour Hour:Minute (24 hour)	14:45
Text	Specifies alignment for text or for numbers that you want formatted as text. By default, text is left-aligned and numbers are right-aligned.	
	Left: left-aligned	TAX
	Right: right-aligned	TAX
	Center: centered	TAX

Parse Settings... determines how text on the Clipboard is pasted into the database, so that the text appears in an appropriate form. Jazz uses parse settings if you paste text from another Macintosh program, or from a Jazz word processing document, into a Jazz database.

The dialog box lets you choose the characters that Jazz recognizes as column (field) or line (record) separators. The separators tell Jazz when to stop pasting text into a field or record and move to the next field or record. Each time Jazz recognizes a separator, it stops filling the current field or record and moves to the next one.

You can enter additional separators by clicking Character Code and entering a character code in the space provided. The character code must be a number chosen from the table of Macintosh Character Codes in Appendix D.

- Column Separators: Specifies one or more characters that Jazz recognizes as column (field) separators. The default column separator is the Tab character.

- Line Separators: Specifies one or more characters that Jazz recognizes as line (record) separators. The default line separator is the Carriage Return character.

- Ignore Characters: Specifies the characters that Jazz ignores when pasting data. When Jazz encounters one of these characters, it skips the character and moves to the next one.

- Use Column Widths: (Appears when the Column Separators option is chosen.) Specifies the width, in characters, of data pasted into each field. Jazz pastes text into the database according to the column widths as they appear on the Clipboard.

Clicking Reset clears the contents of the dialog box and reinstates the defaults.

If Jazz finds a character that you've defined as both a column separator and a line separator, Jazz treats it as a column separator.

Query menu

| ⬤ File Edit Window **Query** Sort Report Font Style |

Query
Show Definition

Select with Criteria ⌘Q
Drop Duplicates

Names...

Show Definition displays the active query in a window. If the Query window is already open, this command makes the Query window active. You use the active query to select matching records in the database. To close the Query window, click the window's close box.

The query remains active whether the Query window is open or closed. To make a query the active query, choose Names... from this menu.

Select with Criteria makes the Database window active (if it wasn't already active) and selects all the records in the database that match the active query. A query consists of criteria that Jazz uses to select all records from the database with matching fields. A check next to this command indicates that the current selection consists of all records that match the active query.

Drop Duplicates drops duplicate records from the selected records. Jazz deselects all duplicate records in the selection. The duplicate records are not deleted from the database.

Names... chooses or changes the active query and its associated definition.

Clicking New adds a new query name to the list.

Clicking Clear erases the criteria for the selected query, but saves the name of the query.

Clicking Discard removes the selected query from the list and removes its Query window.

Clicking OK enters your changes into the list. Clicking OK also makes the selected query the active query, so you can use it to select matching records in the database.

Clicking Undo undoes your last action, unless you already clicked OK.

Clicking Done enters your changes into the list and returns you to the database.

Jazz saves query definitions when you save the database.

Sort menu

Sort
Set Fields...
Sort

Set Fields... specifies how Jazz sorts all the records in the data-base. Jazz sorts according to the sort fields you specify in the dialog box.

You can use up to three sort fields. For each sort field, you choose Ascending (A, B, C...Z; 1, 2, 3,...) or Descending (...3, 2, 1; Z, Y, X...A) order.

You can keep adding entries to the dialog box by selecting a field, choosing this command, and then clicking Use Selected to enter the active selection in the dialog box. Clicking Reset clears the contents of the dialog box.

- First Sort Field: The name of the primary field to be used for sorting the records.

- Second Sort Field: The first tie-breaker field (optional). If two or more records have the same value in the first sort field, the values in the second sort field determine the order of the records.

- Third Sort Field: The second tie-breaker field (optional). If two or more records have the same value in the first and second sort fields, the values in the third sort field determine the order of the records.

Clicking Sort sorts all the records in the database. Clicking this button is the same as clicking OK and then choosing the Sort command from this menu.

Sort sorts all records in the database, using the sort fields specified with the Set Fields... command.

Report menu

Report
Show Definition

Preview...
Generate Document...
Print...

Names...

The Report menu creates a report from the selected records in a database. A report displays the information from those records in a tabular format. You first open a database, and then set up a report definition to specify the information you want included in the report and the way you want the report to look. You can then either print a copy of the report or save it in a document.

Show Definition opens a report definition, which displays all of the parts, or categories, you can have in a report. If the report definition is already open, this command makes the report definition the active window. To close the report definition, click the window's close box.

Space is left under each category, so that you can enter the information to define your report. The report definition contains the following categories: Page Header, Section Header, Record Detail Line, Section Summary, Page Footer, Report Summary, Break Field, and Page Size.

You can use the database report functions as well as any of the worksheet functions that use single values as arguments in the report definition. See Chapter 7 for a description of the Jazz functions.

- Page Header: The heading at the top of every page of the printed report. This heading can include the report title, the column headings, and the page number. A page header can be more than one line.

- Section Header: The heading at the top of each section, which is determined by the break field you specify in the definition.

- Record Detail Line: The field values you are including from an individual record. Each detail line reports information for one record from the database. Jazz includes the field value for each selected database record when you enter a field name preceded by an equal sign (=) in the record detail line. Jazz includes the formula value when you enter a formula using a field name in the record detail line. For example, the formula = FPREV + Sales Amt produces a running total of sales amounts. You type the field name or formula in the same column as its corresponding column heading.

- Section Summary: The statistical calculations for each report section. Sections are defined by the break field. You can use the Jazz database report functions to make calculations for the fields you want summarized. The database report functions can find averages, sums, maximum and mimimum values, standard deviation, variance, count field entries, and keep a running total of summary calculations.

- Page Footer: The notes at the bottom of each page. You can type text as a single entry or in separate cells. You can also use the FPAGE function in a separate cell to insert the current page number. A page footer can be more than one line.

- Report Summary: The statistical calculations for the entire report. You can use the database report functions to calculate the report summaries in the same way you use them for section summaries.

- Break Field: The field that you use to sort the database. Jazz scans a database, record by record, to create a report, using the field you specify as the break field to group the records in sections in the report. When Jazz gets to a record with a break field value that is different from the break field value in the previous record, it makes the calculations you specify in the section summary for all the records in that section. Jazz then begins a new section for the next group of records with the same break field value.

- Page Size: The number of printed lines per page. The default size changes depending on the font and paper size.

  You tell Jazz what to include in a report and how to format it through the report definition. First you type the information in the cells below the report categories. Then you use the Field Format... command on the Edit menu to format each cell individually. When Jazz finds a category in the report definition, it places the text, formula values, or field values you entered for that category in the report, in the format you gave it. When you format a report cell, the report definition does not reflect the format change. Jazz puts the changes in the actual report. If you do not want to use a category in a report, leave it blank.

  You must precede a field name with an equal sign if you want to show the field values for that field in the report. For example, if you type the field name Sales Amt, you see Sales Amt in the report. If you type = Sales Amt, you see that field's value for each record.

Preview... displays a copy of the report defined by the active report definition, just as it will look when you print it. You see one page at a time, and can page forward by clicking Next Page at the bottom of the dialog box. You can scroll up and down each page by using the scroll bar to the right of the window. You can return to your database by clicking Done.

Generate Document... names and saves a Macintosh text representation of the report in a document. You can later open it as a word processing document or read it into any application that uses the standard Macintosh text format.

Print... prints a copy of the report. The copy looks the same as the one you preview on the screen. You can use the Page Setup... command on the File menu to set the left page margin before you print.

Names... lets you perform operations on one or more report definitions. You can use, modify, or delete an existing definition, or open and name a new one.

All named report definitions appear in the Review Names definitions list. If you have not yet named a report definition, a default name appears in the list. This is the default name of the first report definition you create with Show Definition.

To create and name a new report definition, type the name you want to give the report definition in the space provided, and click New.

To make a named report definition active, click its name on the report definitions list.

To rename an active report definition, type the new name in the space provided.

To erase the contents of an active report definition, but save the definition under the same name, click Clear.

To delete an active report definition, click Discard.

To undo your last action, click Undo. For example, you select a named definition and delete it. If you click Undo, Jazz restores the definition.

To confirm your last action and remain in the dialog box, click OK.

To confirm your last action and close the dialog box, click Done.

Style menu

é File Edit Window Query Sort Report Font Style

Style
✓Plain Text
Bold
Italic
Underline
Outline
Shadow
Hide Grid
Hide Record Numbers

You can choose any available style for the entire database. The style you choose is checked in the menu. The default style is Plain Text, which cannot be mixed with other styles. You can combine the other styles, however, for a variety of effects.

Hide Grid removes the column and row lines from the database. When the grid is hidden, this command becomes **Show Grid**, which redisplays the column and row lines.

Hide Record Numbers removes the left border of record numbers from the database. When the record numbers are hidden, this command becomes **Show Record Numbers**, which redisplays the record numbers.

The Modify
Form Screen

Notation well

Anchor well

Reference box

Menu bar

Console

Anchor

Notation boxes

Size box

🍎　File　Edit　Window　｜　Field　Font　Style

Employee Database

Employee Database

Form 1

This form is used by Personnel to record informatio
Rolling Hills Park, Inc.

Enter employee's last name:　　Last Name

Enter employee's first name:　　First Name

Enter employee's street address, including
apartment number if necessary:

Enter city:　　　City

Enter state:　　State

The Form Reference

Jazz Form has two different menu bars: Use Form and Modify Form. You see the Use Form menu and screen when you add information to a database. You see the Modify Form menu and screen when you edit a form. The following section describes the Modify Form screen.

Menu bar displays the titles of the Modify Form menus.

Console contains the reference box, anchor well, and notation well.

Reference box shows the name of the database that the form is attached to.

Anchor well, when highlighted, indicates that you can place the anchor anywhere on the form.

Anchor indicates where Jazz places fields and accompanying notation boxes that are copied from the database onto the form.

Notation well, when highlighted, indicates that you can add notation boxes to the form.

Notation boxes contain information about the form fields. The information in a notation box does not affect the database. The active notation box contains a size box that you can use to resize the notation box. You can also drag the notation box anywhere on the form.

Size box lets you change the size of the active notation box or active field.

Fields contain database field names, which you cannot edit. You can drag the active field to any clear area on the form.
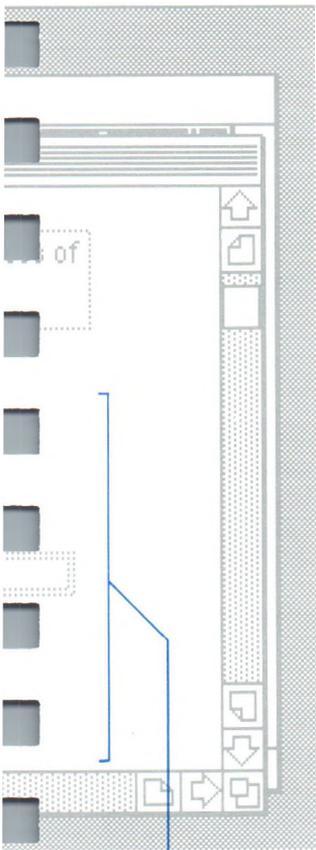
Fields

The Modify Form Menu Bar

Edit Menu
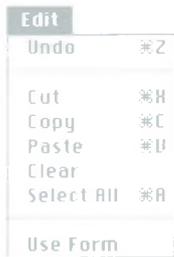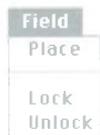
Edit

Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘U
Clear	
Select All	⌘A
Use Form	

The Apple, File, Window, Font, and Style menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

🍎 File **Edit** Window Field Font Style

Undo reverses your last action, such as clearing or cutting.

If Jazz can't undo your last action, this command appears dimmed as Can't Undo. If you disabled Undo, this command is **Undo Disabled**.

Cut removes selected text from the form and places it on the Clipboard.

Copy places a copy of selected text on the Clipboard. This command works the same as the Cut command, except that Jazz does not remove the selection from the form or alter the form in any way.

Paste places the contents of the Clipboard into the active notation box on the form.

Clear erases the selected notation box or field and its contents from the form. Jazz does not place the information on the Clipboard.

Select All selects every notation box and field on the form.

Use Form displays the Use Form menu bar, so you can add information to the database rather than edit the form.

Field Menu

Field

Place
Lock
Unlock

🍎 File Edit Window **Field** Font Style

Place, after you click the anchor on the form, copies the selected database field onto the form, placing it beneath the anchor.

Lock locks the selected field so you can view but not change the information it contains when you use the form. When you lock a field, the box that surrounds it in Use Form disappears. This command is dimmed if you don't have a field selected.

Unlock unlocks the selected field if it was locked, so you can add more information to it when you use the form. This command is dimmed if you don't have a field selected.

Style Menu

Style

✓Plain Text	⌘P
Bold	⌘B
Italic	⌘I
Underline	⌘U
Outline	⌘O
Shadow	⌘S
Align Fields	

You can choose any available style for the entire form, or choose different styles for each notation box or field. The style you choose is checked in the menu. The default style is Plain Text, which cannot be mixed with other styles. You can combine the other styles, however, for a variety of effects. The style you choose for a form does not affect the database.

Align Fields arranges notation boxes and fields in columns, after you have lined them up approximately.

Database

The Use Form Screen

Query icon

View All icon

View Matching icon

Active record box

Reference box

Menu bar

Console

File   Edit   Window   Query

? 🗗 🗗   Employee Database

1

Employee Database

Form 1

This form is used by Personnel to record information about e Rolling Hills Park, Inc.

Enter employee's last name: Seamans

Enter employee's first name: Heather

Enter employee's street address, including apartment number if necessary: 53 St. Botolph

Enter city: Boston

Enter state:

Record Navigator

Menu bar displays the titles of the Use Form menus.

Console displays information about the record you are working with. The console contains the Record Navigator, reference box, View Matching icon, View All icon, Query icon, and active record box.

Record Navigator lets you quickly locate and activate records. Clicking the black up arrow activates the first record in the selection; clicking the black down arrow activates the last record in the selection. Clicking the white up or down arrow activates the next or previous record in the selection.

Reference box shows the name of the database that is attached to the form.

Active record box displays the record number of the database record you are looking at in the form.

View Matching icon, when selected, indicates that you can only see records that match criteria you defined. Clicking this icon is the same as choosing View Matching Records from the Query menu.

View All icon, when selected, indicates that you can see all records one at a time. Clicking this icon is the same as choosing View All Records from the Query menu.

Query icon, when selected, shows the Form query. Clicking this icon is the same as choosing Define Criteria from the Query menu.

Fields contain the database field values. The active field is the field where you are currently entering or editing a field value. It contains the insertion point.
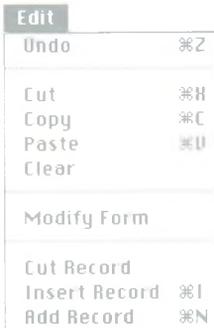
es of

Fields

The Use Form Menu Bar

The Apple, File, and Window menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

Edit Menu

Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘U
Clear	
Modify Form	
Cut Record	
Insert Record	⌘I
Add Record	⌘N

Undo reverses your last action, such as clearing or cutting.

If Jazz can't undo your last action, this command appears dimmed as Can't Undo. If you disabled Undo, this command is **Undo Disabled**.

Cut removes selected text in a field and places it on the Clipboard.

Copy places a copy of the selected text on the Clipboard. This command works the same as the Cut command, except that Jazz does not remove the selection from the form or alter the form in any way.

Paste places the contents of the Clipboard into the selected field on the form. If you have cut one or more records from the database, the command appears as Paste Record. Paste Record places the contents of the Clipboard into the database, starting with the active record.

Clear erases the field value in the selected field. Information that you clear is not put on the Clipboard.

Modify Form displays the Modify Form menu bar, so you can edit the form rather than add information to the database.

Cut Record removes the active record from the form and the database and places it on the Clipboard.

Insert Record inserts a new, blank record to the database above the active record and makes it the active record. All the old records move down one row to make space for the new record, and all records are renumbered.

Add Record adds a new, blank record after the last record in the database and makes it the active record.

Query Menu

Query	
View Matching Records	⌘O
View All Records	
No Duplicates	
Define Criteria	

View Matching Records shows only those records that match the criteria you defined using the Define Criteria command. You view the records one at a time.

View All Records shows all records in the database, one at a time.

No Duplicates removes duplicate records from the selection. The duplicate records are not deleted from the database. This command works only with selections made using the Define Criteria command on this menu.

Define Criteria lets you enter criteria that you can use to select records that match the criteria.
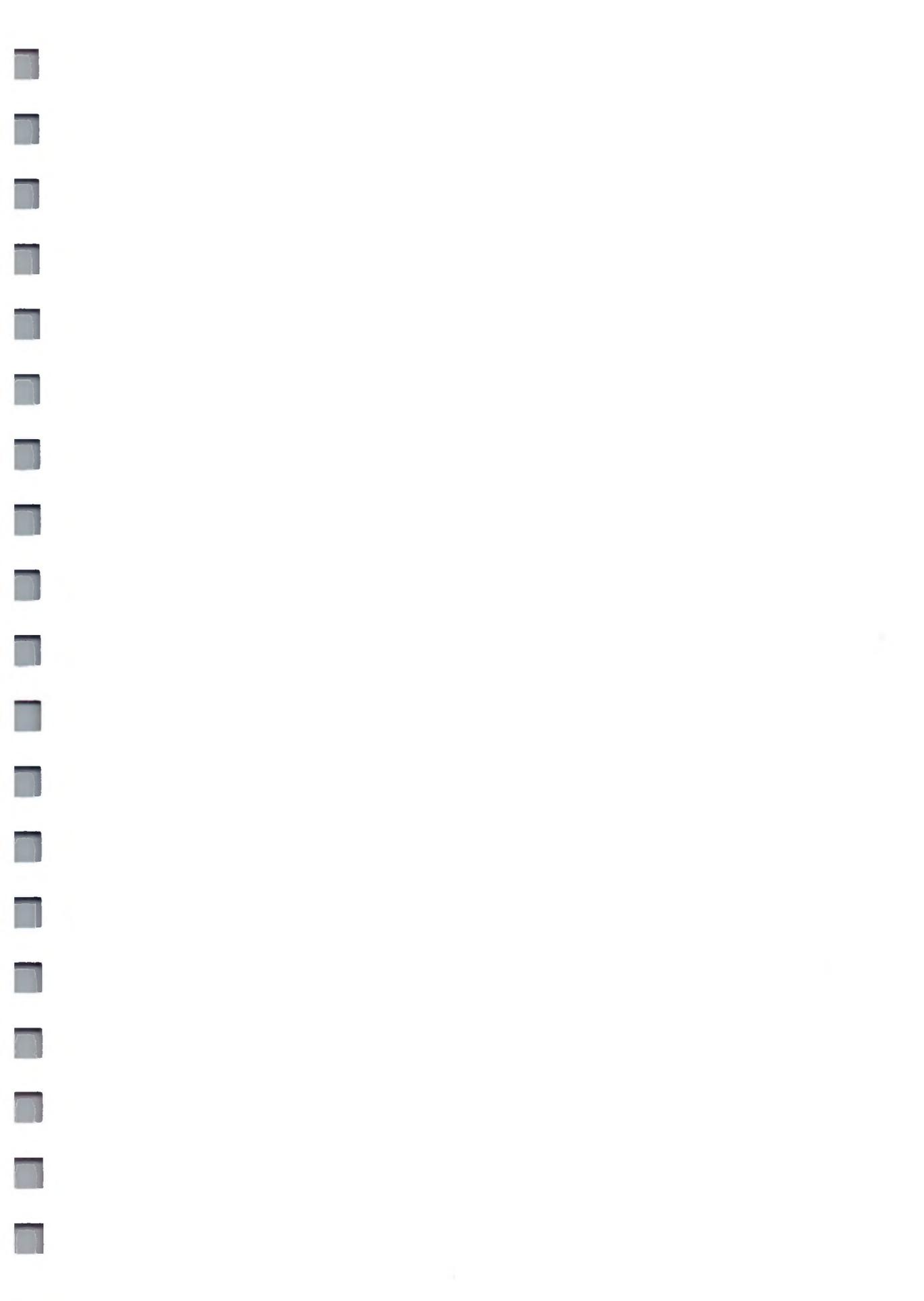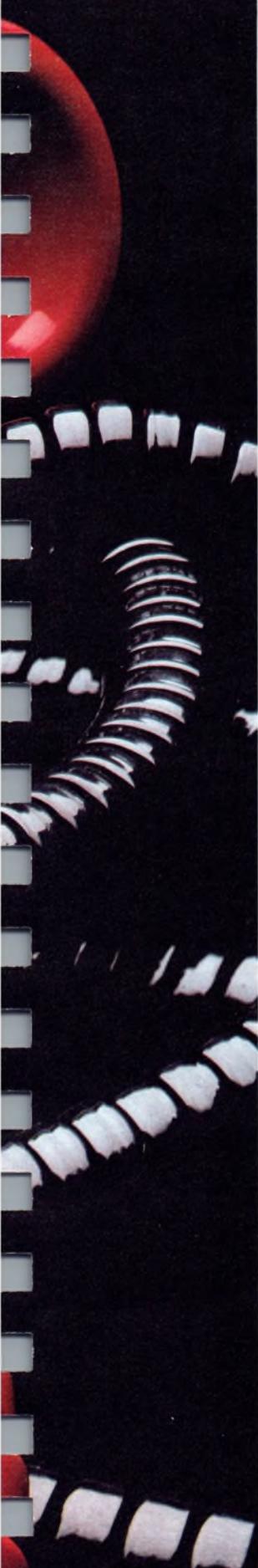
Chapter 6
Communications

Jazz Communications lets a Macintosh communicate with another computer, either directly or through telephone lines. By connecting your Macintosh to another computer, you can send and receive entire documents or portions of documents. For example, you can send a sales report you produced with Jazz Word Processing or receive documents from other computers. You can connect to time-sharing services, networks, and electronic bulletin boards to receive information such as stock prices. You can also use Jazz Communications to make your Macintosh emulate, or function as, a Digital Equipment Corporation (DEC) VT™ 100 or VT™ 52 terminal and connect to larger computer systems. This allows you to use many programs that run on the larger system and to send electronic mail.

To communicate with another computer or time-sharing service, you need to have:

- A modem. The modem, short for **mo**dulator/**dem**odulator, converts your computer's normal electrical signals into signals that can travel over telephone lines.

- A cable. The cable connects the Macintosh to the modem. If you are connecting two computers directly, rather than through a modem, you must use a different cable.

To use Jazz Communications, you must:

- Connect the modem to your Macintosh and to the telephone.

- Choose your communications settings.

- Establish a connection with the other computer.

- Send or receive the information.

How to Prepare Jazz for Communications

To communicate with another computer, you must first connect the modem to the Macintosh, preferably to the socket in the back labeled with a telephone icon. Refer to your modem owner's guide for details.

You must then choose your communications settings. These include such things as the speed at which you send data (baud rate) and the way in which the computer checks data for errors (parity). This section explains how to choose the settings so you can begin communicating with another computer.

There are three types of communications settings: terminal, connection, and modem. If you are communicating with time-sharing services, networks, or other large computer systems, you must match most of the other computer's settings. If you are communicating with a personal computer, such as a Macintosh, you can choose the settings yourself, as long as both computers use the same settings.

Choosing Terminal Settings

Jazz lets your Macintosh emulate different terminals when you communicate with other computer systems. A terminal usually consists of a monitor and a keyboard, and has limited processing abilities; information processing takes place in the other computer. Terminals handle and display information in different ways, and remote computers expect them to behave in a particular way.

You must prepare for communication by choosing the terminal settings you need to communicate with the other computer. After you choose all of the settings, you confirm your choices by clicking OK in the Terminal Settings dialog box. To use the default terminal settings, click OK without changing any of the settings.

1. **Create a communications document.**
   To create the document, choose New... from the File menu, click the Communications icon, and click New.

2. **Choose Terminal... from the Settings menu.**

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3. **Click the Terminal Mode you want.**
   VT 100 is usually a safe choice if you're unsure of the terminal type you want to emulate.

   If you are communicating with another personal computer, you can choose either setting as long as it matches the other computer's setting.

4. **Click the End of Line setting you need.**
   If, during a communications session, the cursor doesn't move to the beginning of the next line when you press Return, change the setting to the other option. CR/LF means carriage return and line feed. CR means carriage return alone.

5. **Click the number of Columns per Line you want to use.**
   The Macintosh displays either 80 or 132 characters per line when emulating a terminal. The most commonly used setting is 80 characters per line. You must scroll to see all of the text if you use 132 characters per line.

6. **Click a Font Size.**
   Characters are smaller in the 9-point font size than in the 12-point font size.

7. **Click Auto Wrap to turn it on.**
   When you are sending or receiving data, this tells the Macintosh to move any text that extends beyond the right margin to the next line. Otherwise, the text does not appear on the screen. (The number of characters per line, 80 or 132, defines the right margin.)

   If you want text you receive to wrap when it reaches the right margin, click the box to turn auto wrap on. Clicking the box when it is checked turns auto wrap off.

8. **Click Local Echo to turn it on.**
   If, during a communications session, the characters you type don't appear on your screen, turn local echo on. If the characters appear twice, turn it off. A check mark appears in the box when local echo is on. You can turn it off by clicking the box.

9. **Click Show Keypad to display the terminal keys in the console.**
   The terminal keys work like the VT 100 arrow keys and keypad.

10. **Click OK to accept the terminal settings.**

Choosing Connection Settings

To communicate with another computer, you must choose connection settings. Connection settings specify the port, baud rate, data bits, stop bits, parity, and flow control options. Except for the port connection, all the settings described in this section must match those of the computer with which you are communicating. If you do not know what settings the other computer uses, call the other computer system's operator or consult the system's manual for information.

1. Choose Connection... from the Settings menu.
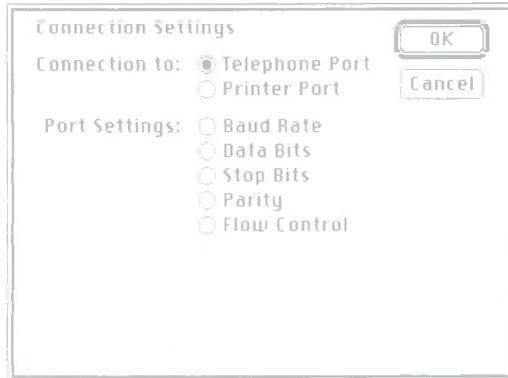
2. Click Telephone Port or Printer Port.
Choose the port to which you have connected your communications cable on the back of your Macintosh. Generally, you connect the cable to the telephone port. Use the printer port only if you have already connected something else, such as a hard disk, to the telephone port.

If a Communications document that uses Telephone Port is open, you must close it or change the setting to Printer Port before you can use Telephone Port in another Communications document.

3. Click Baud Rate, and then click the rate you need.
Baud rate is the speed at which you send and receive data. The available baud rates appear in the bottom of the Connection Settings dialog box after you click Baud Rate. Common rates are 300 and 1200, but you must use a baud rate that matches what the other computer is using. Modems have limitations on the baud rates they can support. Refer to your modem owner's guide to find out what baud rates you can use.

4. Click Data Bits, and then click 7 or 8 bits.
A bit is the smallest unit in which computers store and receive information. The number of data bits is the number of bits used for each character you are sending.

5. Click Stop Bits, and then click 1 or 2.
The number of stop bits is the number of bits that follows each character to signal its end.

6. Click Parity, and then choose None, Odd, or Even.
Parity determines what type of error checking, if any, Jazz uses to verify that each character you send matches what the other computer receives, or that each character you receive matches what the other computer sends.

7. Click Flow Control.
Flow control regulates the flow of information between your Macintosh and the other computer. If too much information is coming in at one time, flow control sends a stop message to the other computer. When the Macintosh is ready to receive more information, it sends a start message to tell the other computer to resume sending.

- Keep Output XON/XOFF checked to control the flow of data you send to another computer.

- Keep Input XON/XOFF checked to control the flow of data you receive from another computer.

To turn either of the flow control options off, click the box. The check mark disappears.

The numbers that appear are only in effect if flow control is on. They represent characters that tell the other computer to stop or resume sending data. If you are using flow control, keep the existing settings of 17 (stop) and 19 (resume) unless you know that the other computer requires different settings.

To change the settings, click the box and use the Backspace key to delete the numbers you want to change. Then type the new numbers.

8. **Click OK to accept the connection settings.**

Choosing Modem Settings

Modem settings specify the type of phone service you have and the type of modem you are using. You must also specify the phone number you want to call.

1. **Choose Modem... from the Settings menu.**

```
┌─────────────────────────────────────────────┐
│  Modem Settings                 ┌─────────┐  │
│                                 │    OK   │  │
│  Phone Type:   ◉ Tone           └─────────┘  │
│                ○ Pulse          ┌─────────┐  │
│                                 │  Cancel │  │
│  Modem Type:   ◉ Hayes™         └─────────┘  │
│                ○ Apple™                       │
│                ○ Other                        │
│                                               │
│  Phone Number:                                │
│  ┌─────────────────────────────────────────┐ │
│  │                                         │ │
│  └─────────────────────────────────────────┘ │
└─────────────────────────────────────────────┘
```
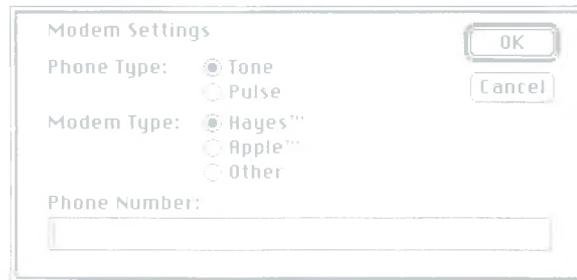
2. **Click Tone or Pulse, depending on the type of phone service you have.**
Choose Pulse for rotary dialing phones and for pushbutton phones that use pulse dialing. For most pushbutton phones, choose Tone.

3. **Click the type of modem you have.**

4. **Type the phone number you want to call.**
Remember to type 9 if your business phone requires it, and add a comma after the 9 to tell Jazz to pause for a moment to wait for an outside line. Jazz doesn't actually dial the number until you choose Dial from the Commands menu.

If you chose Other for the modem type, you must include the dialing command for the type of modems you are using. Refer to your modem's owner's guide for information on the dialing command you need to use.

5. **Click OK to accept the modem settings.**

Saving Communications Settings

If you call a particular computer often, you should save your communications settings. For example, if you call a time-sharing service frequently, you can save the settings for that service. When you're ready to call the service again, open the document that contains the settings you saved previously and proceed from there.

You can save communications settings in a document that you name, using Save or Save As... from the File menu. You save only the settings in this way, not the information that appears in the Communications window.

Using a new document name

After you choose the terminal, connection, and modem settings, you can save the settings under a new document name.

1. **Choose Save As... from the File menu.**

2. **Type a new document name or edit the current name.**

3. **Click Save.**

Using the current document name

After you choose the terminal, connection, and modem settings, you can save them under the current document name.

• **Choose Save from the File menu.**

How to Communicate with Another Computer

Jazz Communications lets you make calls to, and receive calls from, another computer. This establishes a connection between the two computers. Once you make a connection, you can actually begin to send and receive data.

Jazz lets you send any Macintosh document you've saved on a disk, or part of a document that is currently active. Similarly, you can receive entire documents on a disk or receive information into an open document.

Using Saved Communications Settings

If you have previously saved communications settings in a document, you can use them by opening the document that contains the settings.

1. **Choose Open... from the File menu.**

2. **Click the Communications icon.**

3. **Click the name of the document that contains the communications settings you want to use.**

4. **Click Open.**

Making and Answering a Call

Making and answering calls establishes a connection with another computer so that you can send and receive information.

Making a call

After you choose your communications settings, you must call the other computer to begin communicating with it. If your computer is directly connected to the other computer with a cable, you don't need to call it.

1. **Open a communications document or create a new one.**
   If you are using saved settings, open the document that contains those settings.

2. **Choose Dial from the Commands menu.**
   This tells the modem to dial the phone number you set. The modem at the other computer emits a high-pitched tone when the connection is established. You may then need to follow a log-on procedure for the computer you called. The other computer may send a message to indicate that the connection exists and to prompt you to log on. Once you complete any required log-on procedure, you can send and receive information.

Answering a call

When another computer calls your computer, a ring message appears on the screen if a communications document is active and you are using a Hayes, Apple, or other type of intelligent modem.

- **Choose Answer from the Commands menu.**
  You are now connected to the other computer and can send and receive information.

Automatic answering. If your modem has an AA (Auto-Answer) setting, you don't have to choose Answer from the Commands menu. The modem answers the call automatically.

Problems establishing a connection. If you have problems communicating with another computer, be sure that your settings match those of the other computer. You should also check that your cables are correctly connected.

Sending a Document

Jazz lets you send entire Macintosh documents you saved on a disk to another computer.

1. **Check that the other computer is ready to receive the document.**
   You may receive a message from the other computer saying that it is ready. If you don't, you can telephone the person you are communicating with to check that the other computer is ready to receive the document.

2. **Choose Set File... from the Send menu.**

```
Send a Document
┌─────────────────┐   ┌──────────┐   Data Disk...
│ Inventory      ⇧ │   │    OK    │
│ Sales          ▢ │   └──────────┘   ┌─────────┐
│ Stocks           │                  │  Eject  │
│                  │   ┌──────────┐   └─────────┘
│                  │   │  Cancel  │   ┌─────────┐
│                  │   └──────────┘   │  Drive  │
│                  │                  └─────────┘
│                  │
│                  │   ● To Jazz™
│                ⬇ │   ○ With XModem Protocol
└─────────────────┘   ○ Without Protocol
```
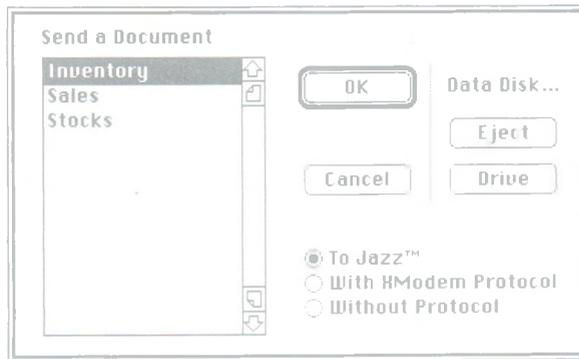
3. **Click To Jazz, With XModem Protocol, or Without Protocol.**
   The protocol you choose must match the protocol of the other computer.

   • To Jazz sends your document with a protocol that ensures reliable transmission. Jazz sends the entire document, including information such as the format, headers and footers, and fonts. Jazz also sends the document type, size, and name when you choose To Jazz. You must use this option whenever you are communicating with another Macintosh computer that is using Jazz. Other programs may not recognize this protocol.

   • With XModem Protocol also sends your document with a protocol that ensures reliable transmission, but it does not send the document type, size, or name. In addition, it may not send certain formatting information. Use this option with any other computer that uses XModem protocol.

   • Without Protocol sends only the text of your document, without information such as the format and fonts. When you choose this option, Jazz lists documents that contain only text.

4. Scroll through the list of documents and click one.

5. Click OK.

6. Choose Start from the Send menu.
The Sending dialog box appears while Jazz sends the document. When Jazz has sent the entire document, the dialog box disappears.

Keep in mind

Stopping the sending process. To stop sending data, or if Jazz is having a problem sending the data, click Cancel in the Sending dialog box. If Jazz cannot send the data, an alert message appears.

Sending Part of a Document

To send part of an open worksheet, database, or word processing document, you must first select the information you want to send.

Before you begin sending, check that your communications settings match those of the other computer and that the other computer is ready to receive the data.

1. Open the document that contains the information you want to send.
Choose Open... from the File menu to open the document.

2. Select a part of the document.

3. Click the Communications window.

4. Choose Set Selection from the Send menu.
To see the name of the selected document and the selected area in the Reference Board, choose Reference Board from the Window menu.

5. Choose Start from the Send menu.

Receiving Data in a Document on a Disk

When you receive data from another computer, you can save the data in a document on a disk.

1. Check that the other computer is ready to send the data.
You can telephone the person you are communicating with to check that the other computer is ready to send the document.

2. Choose Set File... from the Receive menu.

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3. Type a name for the document you will receive.

If you type a document name that already exists, Jazz asks if you want to replace the contents of the existing document. Click Yes to replace the contents of the existing document. If you click No, you must enter a different document name.

```
Receive a Document          Data Disk...
 Stocks
                                 Eject
   [   OK   ]      Cancel        Drive

 ● From Jazz™
 ○ With XModem Protocol
 ○ Without Protocol
```

4. Click From Jazz, With XModem Protocol, or Without Protocol.

The protocol you choose must match the protocol of the other computer.

5. Click OK.

6. Choose Start from the Receive menu.

If you choose From Jazz or With XModem Protocol, the Receiving dialog box appears on your screen while you are receiving the document. When you have received the entire document, the dialog box disappears.

Rcv On

If you choose Without Protocol, the RCV indicator in the console is on while you receive the document.

Keep in mind

Stopping the receiving process. If you choose From Jazz or With XModem Protocol, the receiving process ends automatically when you have received the entire document. To stop the receiving process before you have received the entire document, click Cancel in the Receiving dialog box. If you choose Without Protocol, you must choose Stop from the Receive menu to stop receiving data in the document.

Receiving Data in an Open Document

Jazz lets you receive data from another computer into an open worksheet, database, or word processing document. You must indicate the place in the document where you want the data to appear.

1. Open the document in which you want to receive the data.

2. Select the location where you want the data to appear.

If you are receiving data in a word processing document, click a location where you want the data to be inserted. If you select an area in a word processing document, the data you receive replaces the selection.

If you select a range in a worksheet that cannot accommodate all the data you are receiving, Jazz fills the range with as much data as fits. If you select a single cell in a worksheet, Jazz begins receiving in that cell and uses as much of the worksheet as is necessary to receive the incoming data. The new data replaces any existing data that was in the range into which you received information.

If you select cells or fields in a database, the incoming data replaces any existing data in the selected area. If the selected area cannot accommodate all the data, Jazz fills the area with as much data as can fit. If you select records in a database, Jazz inserts new records after the last selected record and pastes the incoming data in the inserted records.

3. **Click the Communications window.**
   Choose Reference Board from the Window menu to see the Reference Board, which shows the document name and the area you selected.

4. **Choose Set Selection from the Receive menu.**

5. **Check that the other computer is ready to send the data.**

6. **Choose Start from the Receive menu.**

7. **Choose Stop from the Receive menu when you finish receiving the data.**

Keep in mind

Graphing data from a communications session. To graph data you receive in a communications session, receive the data into a worksheet or database. Then graph the data just as you would graph any worksheet or database data. For instance, if you use the Communications application to call Dow Jones News/Retrieval® Service, you can receive stock quotations in a worksheet and graph the trends the data indicates.

Using parse settings. When you receive data into a worksheet or database, you may want to use Parse Settings... to ensure that incoming data appears in a meaningful form in the document. See The Communications Reference for information on using parse settings.

Hanging Up

To end a communications session, you may first have to log off from the computer you called, using the log-off procedures for that computer. You must then hang up to disconnect the Macintosh from the other computer.

• **Choose Hang Up from the Commands menu.**
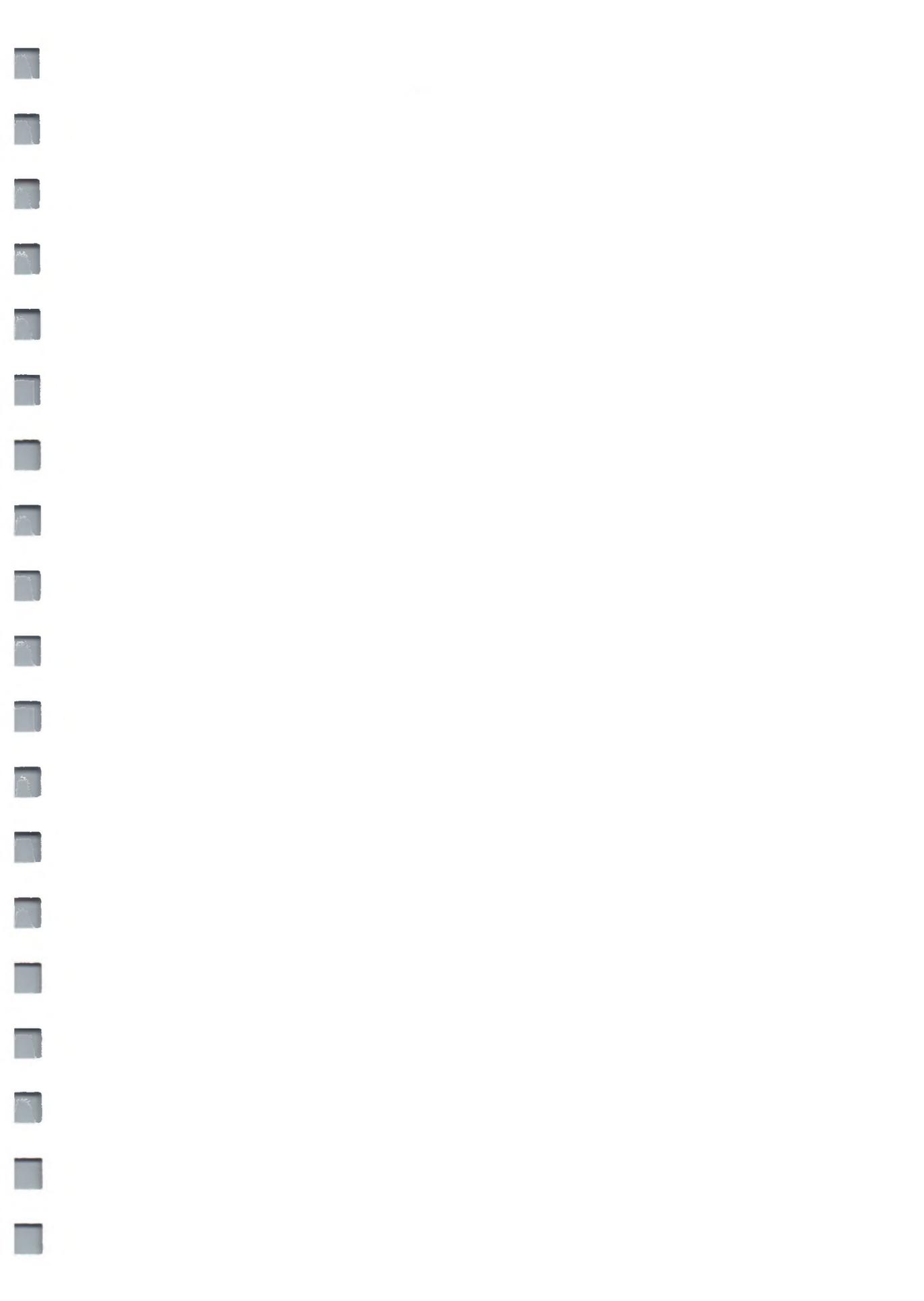
The Communications Screen

Terminal keys

Menu bar

Console

Communications window

RCV
indicator

CD indicator

ie

Rcv On   CD
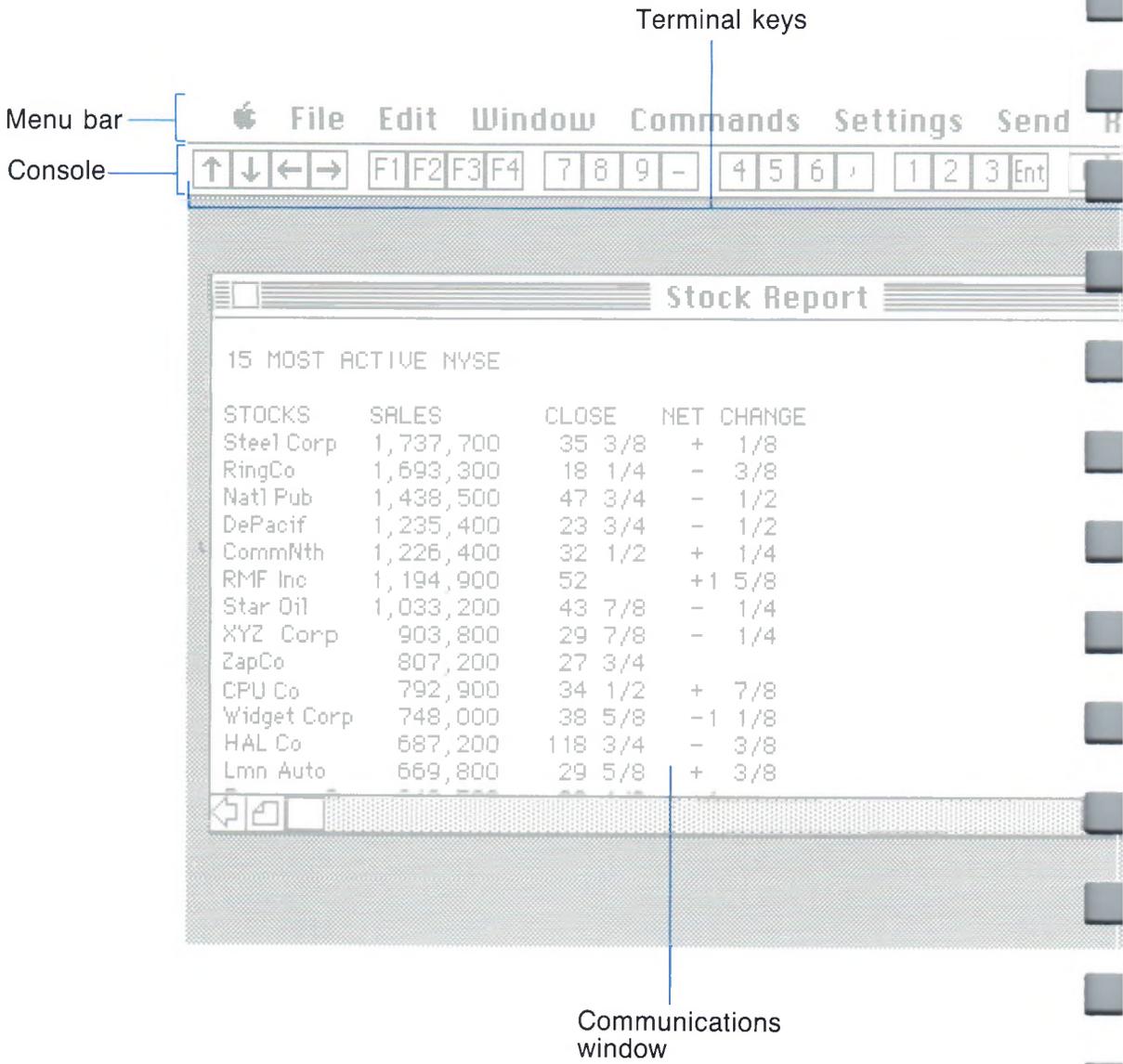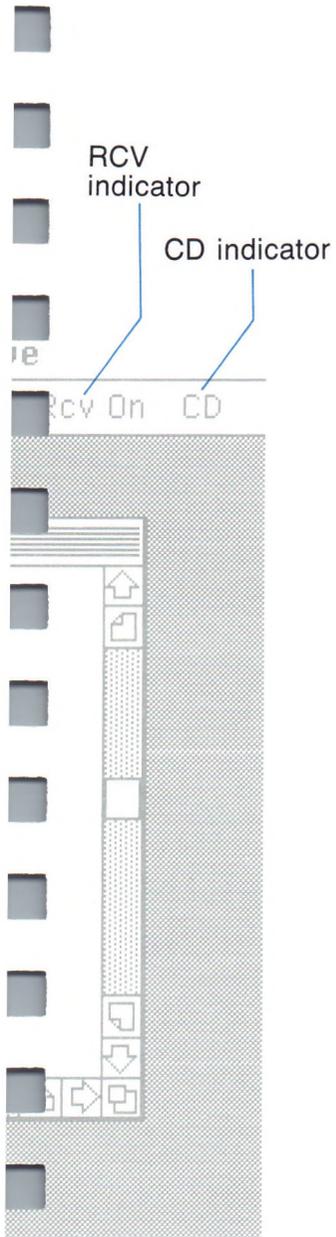
The Communications Reference

Menu bar displays the titles of all Communications menus.

Console displays indicators that provide status information when the Macintosh operates like a VT 100 terminal.

CD indicator indicates that your Macintosh has established communication with a remote computer. You must first make sure that the CD (Carrier Detect) switch on your modem is off. (For a Hayes or Apple modem, set this switch up.)

RCV indicator indicates that your Macintosh is currently receiving data in a document or a selection (after you choose the Start command on the Receive menu). The RCV indicator appears only if you are receiving data without using a protocol.

Terminal keys operate just like the VT 100 arrow keys and keypad. You click a key (or press the mouse button to repeat it). Alternatively, you can use the Macintosh numeric keypad to generate the equivalent VT 100 key. The terminal keys appear in the console when you choose the Terminal... command on the Settings menu and click the Show Keypad check box.

Communications window displays up to 24 lines and 80 columns (characters). You can enter or receive information up to 132 columns wide, but you can only see 80 columns at a time. You can scroll horizontally to see characters not currently visible on the screen. The Communications window also includes tab stops set at 8-character intervals.

Comm

VT 100 Keyboard Equivalents

Blue = Equivalent ASCII control character produced by holding down the Command (⌘) and Shift keys while you type this key

Numeric Keypad Equivalents

The optional Macintosh Numeric Keypad provides your Macintosh with all VT 100 arrow keys and keypad equivalents.

Blue = Equivalent VT 100 key produced by holding down the Shift key while you type this key

Black = Equivalent VT 100 key produced by typing this key

The Communications Menu Bar

The Apple, File, and Window menus contain commands that appear in all Jazz applications. For a description of these menus, see Chapter 1, The Standard Commands.

Edit menu

Edit

Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘U
Clear	
Select All	⌘A

`⌘ File Edit Window Commands Settings Send Receive`

Undo is not used in this application and is always dimmed.

Cut is not used in this application and is always dimmed.

Copy places a copy of up to one full screen (24 lines), which you select in the Communications window, on the Clipboard. You can Shift-click to shrink (or expand) the selection before copying it. The contents of the Communications window are not affected when you use this command.

Paste transmits to the other computer whatever text is on the Clipboard, beginning at the cursor location (assuming you have established communication and can send data).

Clear is not used in this application, and is always dimmed.

Select All selects the entire screen.

Commands menu

Commands
Dial	⌘D
Answer	
Hang Up	⌘H
Send Short Break	
Send Long Break	
Send Answerback	

Dial calls the phone number you specified using the Modem... command on the Settings menu. You use this command if you have a modem that can perform auto-dialing of your telephone.

Answer tells Jazz to answer an incoming call. You use this command if you have a modem that can answer calls on the telephone. If your modem is set to answer calls automatically, you don't have to use this command.

Hang Up ends the call and hangs up the phone.

Send Short Break transmits a short break signal to the remote computer. You should find out from the other computer if you need to send a short break signal.

Send Long Break transmits a long break signal to the remote computer. You should find out from the other computer if you need to send a long break signal.

This command is the same as Send Short Break, except that the duration of the break signal is longer.

Send Answerback transmits the message that you specified using the Set Answerback... command on the Settings menu, in response to a request from the other computer. If the other computer sends an automatic enquiry (ENQ) character (used as a request for a response), Jazz sends the answerback message automatically, and you do not have to choose this command.

Settings menu

Settings
Terminal...
Connection...
Modem...
Set Answerback...

Terminal... defines terminal settings for the Macintosh.

- Terminal Mode: The VT 100 option causes the Macintosh to operate like a Digital Equipment Corporation VT 100 terminal. The VT 52 option causes the Macintosh to operate like a Digital Equipment Corporation VT 52 terminal.

- End of Line: Controls how Jazz interprets the Return key. CR (Carriage Return) is the standard setting for a VT 100. If, when you press Return, the cursor moves to the beginning of the current line instead of moving to the beginning of the next line, you should switch the setting to CR/LF (Carriage Return/Linefeed).

- Columns per Line: Controls how many columns (characters) are received across the Communications window. An 80-column width provides the standard 24-line by 80-column display. A 132-column width provides a 24-line by 132-column display, but you must scroll the window to see all 132 columns.

- Font Size: Specifies the point size of characters in the Communications window.

- Auto Wrap: Tells the Macintosh to wrap to the next line any text that extends beyond the right margin. Otherwise, text that extends beyond the right margin won't be visible. Choose this option if you want text to be automatically wrapped.

- Local Echo: If checked, the Communications window echoes characters you type. You should set Local Echo to off if every character you type appears twice, and to on if you can't see what you type. If you see three characters for every character you type, your modem is probably also set to echo characters; so you should change the modem's switch setting.

- Show Keypad: If checked, the terminal keys are displayed in the console. The terminal keys operate just like the VT 100 arrow keys and keypad. If not checked, the terminal keys are hidden in the console.

Connection... defines the connection between the Macintosh and the other computer.

- Telephone Port: Specifies that your communications cable is plugged into the telephone port.

- Printer Port: Specifies that your communications cable is plugged into the printer port. You can use the printer port for communications if you have a hard disk that is connected to the telephone port. Using the printer port is not recommended for data transmission rates above 300 baud.

- Baud Rate: Specifies the speed at which data is exchanged between the Macintosh and the other computer.

- Data Bits: Specifies the length (in bits) of a character being transmitted. If you are planning to use the XModem or Jazz protocol to send or receive files, this option must be 8.

- Stop Bits: Specifies the number of additional bits that must follow each character to signal its end.

- Parity: Determines the type of error checking, if any, Jazz uses when it sends data. If you are planning to use the XModem or Jazz protocol to send or receive files, this option must be None.

- Flow Control: Synchronizes data transmission between the Macintosh and the other computer. Flow control can be on or off for outgoing data (output), incoming data (input), or both. Default character codes are set for XON (17) and XOFF (19). If you want to use different character codes, you can enter them in the spaces provided. Each code must be entered as a number, chosen from the list of Macintosh Character Codes in Appendix D. The character codes you enter must match those of the other computer.

You can use up to two Communications windows at the same time — one using the telephone port setting and the other using the printer port setting.

Modem... defines modem settings, such as your phone type and modem type.

- Phone Type: Specifies the type of telephone service you are using. Tone is for most push-button phones. Pulse is for a rotary-dial phone or for a push-button phone that uses pulse dialing.

- Modem Type: Specifies the type of modem you are using (Hayes, Apple, or Other).

- Phone Number: Specifies the telephone number that Jazz dials when you choose Dial from the Commands menu.

Some business phone services may require a pause to be inserted between certain digits to give the phone time to respond to the digits being dialed. Insert a comma (,) in the phone number to get a pause. For example, the phone number 9,3567293 gives a single pause for an outside line.

If you add a telephone credit card number to the number you are entering, you should type a number of pauses between the telephone access service number and the credit card number. You may have to experiment with the number of pause characters (commas) that you use. Try using five commas.

If you choose Other and are using a modem that is not capable of auto-dialing, you can include a dialing command for the modem when you enter the phone number.

Set Answerback... defines a brief message (up to 20 characters) that Jazz sends to the other computer when you choose Send Answerback from the Commands menu. (Jazz sends the answerback message automatically if it receives an ENQ request from the remote computer.) The answerback message can be any message, such as an identification or status message, that you send frequently in response to a request from the other computer.

File   Edit   Window   Commands   Settings   **Send**   Receive

Send menu

Send
Set File...
Set Selection
Start

Set File... specifies the document to send to another computer. You send the document by choosing the Start command from this menu.

The communications protocol you choose must match the protocol being used by the other computer.

- To Jazz: Jazz sends the entire file, including the text, format, fonts, sizes, styles, pictures, page breaks, headers, and footers. The document type, size, and name are also sent. You must use this protocol to send Jazz files to another Macintosh that is using Jazz to receive files. This is the only protocol you can use to send form, communications, and graphics documents.

- With XModem Protocol: With this protocol, Jazz does not send the document type; Jazz sends the document in an uninterpreted binary form. With word processing documents, Jazz only sends the text; it does not include format, fonts, sizes, styles, page breaks, headers, and footers. You can use this protocol to send entire files to computers that can accept files using the XModem protocol.

- Without Protocol: Jazz sends a text-only document. Use this protocol to send entire documents to computers that accept text-only documents. Clicking this option displays only text files in the dialog box.

An example of a text-only file is a word processing document that you saved by clicking Text Only in the Save As... dialog box. If you use the XModem protocol to send a Jazz word processing document, Jazz sends it as a text-only file.

Set Selection specifies a selection from the worksheet, database, or word processing document that you want to send. You send the data by choosing the Start command from this menu. Jazz sends only the text of the selection.

Start sends the entire document or selection. Jazz displays a dialog box with a message that it is sending the document or selection. You can click Cancel to stop sending in progress. When all the data has been sent, the dialog box disappears.

Receive
Set File...
Set Selection
Parse Settings...
Start

 File   Edit   Window   Commands   Settings   Send   **Receive**

Set File... specifies the name of the document that will receive the data. You receive the data by choosing the Start command from this menu.

The communications protocol you choose must match the protocol being used by the other computer.

- From Jazz: Jazz receives the entire file, including the text, format, fonts, sizes, styles, pictures, page breaks, headers, and footers. You must use this protocol to receive Jazz files from another Macintosh that is using Jazz to send files. Jazz preserves the name and type of the document as it was sent.

- With XModem Protocol: With this protocol, Jazz does not receive the document type; it receives the document in an uninterpreted binary form. With a word processing document, Jazz receives the file as a text-only document, without the format, fonts, sizes, styles, page breaks, headers, and footers. You can use this to receive entire files from computers that can send files using the XModem protocol. Use this protocol to receive a Symphony, 1-2-3, or SYLK document that you want to convert into a Jazz worksheet.

- Without Protocol: Jazz receives the file as text only. Choose this option to receive files from other computers that can send text-only files.

After receiving a Symphony, 1-2-3, or SYLK document, convert it into a Jazz worksheet using the Convert... command on the Apple menu.

If you use the From Jazz protocol and there is not enough space on the disk to receive the document, Jazz displays an alert message notifying you that the document cannot be received.

Set Selection tells Jazz to receive data in a selection in a worksheet, database, or word processing document. You receive the data in the selection by choosing the Start command from this menu.

Parse Settings... defines how data appears when Jazz receives it in a worksheet or database. You can choose or change these settings before you receive the data. Jazz saves these settings when you save your communications settings.

You use the Parse Settings... command to ensure that data appears in an appropriate form when you receive it in a Jazz document. The dialog box lets you choose the characters that Jazz recognizes as column and line separators. The separators tell Jazz when one group of characters (such as a word or number) ends and the next group of characters begins. Each time Jazz recognizes a separating character, it moves to the next group of characters being received.

You can enter additional separators by clicking Character Code and entering a character code in the space provided. The character code must be a number chosen from the table of Macintosh Character Codes in Appendix D.
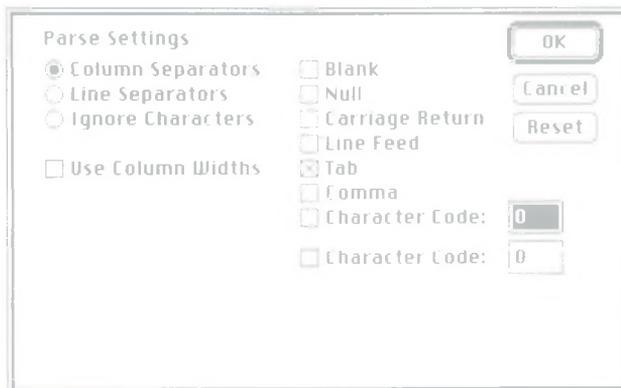
- Column Separators: Specifies one or more characters that Jazz recognizes as column (or word) separators. The default column separator is the Tab character.

- Line Separators: Specifies one or more characters that Jazz recognizes as line (or row) separators. The default line separator is the Carriage Return character.

- Ignore Characters: Specifies the characters that Jazz ignores when receiving data. When Jazz encounters one of these characters, it skips the character and moves to the next one.

- Use Column Widths: (Appears when the Column Separators option is chosen.) Specifies the width, in characters, of data received in each column of a worksheet, or in each field in a database. Jazz receives information in the document according to the width you specify for each column (up to eight columns).

Clicking Reset clears the contents of the dialog box and reinstates the defaults.

If Jazz finds a character that you've defined as both a column separator and a line separator, Jazz treats it as a column separator.

Start tells Jazz to begin receiving data. If you chose Without Protocol using the Set File... command on this menu, the RCV indicator appears in the console while Jazz is receiving data. Jazz displays the received data in the Communications window and also stores it in the selection or document you specified. To stop receiving data, choose **Stop** from the Receive menu. Jazz continues to display any incoming data in the Communications window, but no longer stores the data.

If you are using the From Jazz or XModem protocol, Jazz instead displays a dialog box with a message that it is receiving data. You can click Cancel to stop receiving data. After all the data has been received, the dialog box disappears.

Chapter 7
Functions

Jazz has 100 functions that, when used in formulas, perform specialized calculations. Some functions calculate numeric values, and other functions manipulate text. For example, you can use the SUM function to add a series of numbers. The formula = SUM(D2..D8) performs the same calculation as the formula = D2 + D3 + D4 + D5 + D6 + D7 + D8. You can use the LENGTH function to count the number of characters in a piece of text. The formula = LENGTH(A7) performs the same task as if you select cell A7 and count the number of characters it contains.

Whenever you write complex or repetitive formulas, check this chapter to see if Jazz has a function that can do the work for you.

Function Format

The general format of a function is:

function name(*argument1*,*argument2*,...)

In SUM(D2..D8), the function name is SUM and the argument is the range D2..D8. The function name tells Jazz which specialized calculation to perform. The function's argument provides the values that the function uses in its calculation. A function produces, or returns, a single value, dependent upon the arguments you give it to evaluate.

Arguments

Arguments are numeric or text values, expressions, cell or range references, or even other functions, that the function uses to return its value. The following table lists the types of arguments you can use and examples of ways to use them in functions.

Types of Arguments		Examples
Single numeric value	by number	INT(375.68)
	by address	INT(D6)
	by cell name	INT(total)
	by expression	INT(25.8 + 47.5/35.5)
	by function	INT(SUM(D2..D8))
	by combination	INT(MAX(D2..D8),total,35.2,G5)
Multiple numeric values	by numbers	AVG(25,33,67,84)
	by addresses	AVG(B6,G5,H8,J9)
	by range address	SUM(D2..D8)
	by range name	SUM(range2)
	by combination	SUM(range3,D2..D8,35.2,G5)
Single text value	by text entry	LENGTH("Penny Lane")
	by address	LENGTH(A7)

Rules for Using Functions in Formulas

- A function can only be used as part of a formula. For example, the SUM function can be used in the formula = SUM(D2..D8).

- When a function requires two or more arguments, separate them with commas; for example, AVG(25,33,67,84).

- When the argument type is text, use double quotes around actual text entries, but not around cell names or addresses. For example, if the text Penny Lane is in cell A7, you can write LENGTH("Penny Lane") or LENGTH(A7).

- The arguments that each function requires must be enclosed in a pair of parentheses. If you use a function as an argument, enclose its arguments in one pair of parentheses, and enclose the function and its arguments in another pair of parentheses. For example, the formula = INT(SUM(D2..D8) is not correct. The correct formula is = INT(SUM(D2..D8)). D2..D8 is the argument for the SUM function, and SUM(D2..D8) is the argument for the INT function.

- A few functions do not require arguments. Write them in formulas without any parentheses. For example, the RAND function returns a random number in the formula = RAND.

Types of Functions

Jazz provides the following types of functions:

Mathematical Functions include the general math functions ABS, CPYSGN, INT, MOD, RAND, ROUND, SQRT, and the engineering functions EXP, EXP1, EXP2, LN, LN1, LOG, PI, and SCALE.

Trigonometric Functions include the trigonometric functions SIN, COS, and TAN, and the arc functions ASIN, ACOS, ATAN, and ATAN2.

Logical Functions include TRUE, FALSE, IF, ISBLANK, ISERR, ISNA, ISNUMBER, ISREF, and ISSTRING.

Financial Functions calculate the FV (future value), PV (present value), NPV (net present value), PMT (payment), and IRR (internal rate of return).

Calendar Functions include the date functions DATE, DATEVALUE, DAY, MONTH, and YEAR, and the time functions TIME, TIMEVALUE, HOUR, MINUTE, and SECOND. The NOW function returns the present date and time.

Statistical Functions calculate the SUM (sum), AVG (average), STD (standard deviation), and VAR (variance) of a group of numeric values. MAX and MIN find the maximum or minimum numeric value. COUNT returns the number of non-blank cells found in a group.

Data Range Functions perform the same calculations as the statistical functions do, but on a specified column within a data range. They include the DSUM, DAVG, DSTD, DVAR, DMAX, DMIN, and DCOUNT functions.

Special Functions are a group of advanced tools that perform a variety of complex tasks. CHOOSE, HLOOKUP, VLOOKUP, INDEX, N, and S find and return a value in a list or range. COLS and ROWS count the number of columns and rows within a range. CELL and CELLPOINTER return information about the value in a specific cell. ERR and NA are used to specify cells whose values are dependent on other cells that contain the values ERR or NA.

Text Functions perform calculations with and manipulate text. CHAR, CLEAN, and CODE work with the Macintosh character codes. PROPER, UPPER, and LOWER change case. EXACT, FIND, LEFT, LENGTH, REPEAT, REPLACE, RIGHT, SUBSTR, and TRIM locate and move text and parts of text. FIXED converts a number to text and VALUE converts text to a number.

Database Report Functions are used in database report definitions. They perform calculations for a section of a report, a page of a report, or for an entire report. They include FAVG, FSUM, FSTD, FVAR, FMAX, FMIN, FPREV, FCOUNT, and FPAGE.

In this chapter, functions and their descriptions are listed in groups by type. Within each group, they appear alphabetically.

Mathematical Functions

Jazz mathematical functions perform a variety of operations on single numeric values. You can enter single numeric values as numbers, cell addresses, or arithmetic expressions. The math functions always return single values.

ABS(x) returns the absolute value, or positive form, of x.

Argument: x can be any numeric value.

Examples: = ABS(– 678) returns 678.
= ABS(678) returns 678.

CPYSGN$(to\_x, from\_y)$ returns the value of to_x with the sign of $from\_y$.

Arguments: to_x and $from\_y$ can be any numeric value.

Examples: = CPYSGN(86, – 74) returns – 86.
= CPYSGN(– 86,74) returns 86.

EXP(x) calculates $e^{\wedge}x$. The number e is 2.7182818.

Argument: x can be any numeric value.

Examples: = EXP(1) returns 2.7182818.
= EXP(2) returns 7.3890561.

EXP1(x) calculates $(e^{\wedge}x) - 1$.

Argument: x can be any numeric value.

Examples: = EXP1(2) returns 6.3890561.
= EXP1(18/9) returns 6.3890561.

EXP2(x) calculates $2^{\wedge}x$.

Argument: x can be any numeric value.

Examples: = EXP2(– 2) returns 0.25.
= EXP2(2) returns 4.
= EXP2(2*2) returns 16.

INT(*x*) returns the integer part of *x*. INT truncates the fractional part of *x*. In effect, INT rounds down for positive numbers and rounds up for negative numbers.

Argument: *x* can be any numeric value.

Examples: = INT(35.75) returns 35.
            = INT(– 35.75) returns – 35.
            = INT(FV(200,0.075/12,12*3)) returns 8046, rounded
                  down from 8046.2763.

LN(*x*) returns the natural logarithm, or log base *e*, of *x*.

Argument: *x* can be any numeric value greater than 0.

Examples: = LN(2) returns 0.6931471.
            = LN(4) returns 1.3862943.

LN1(*x*) returns the natural logarithm, or log base *e*, of (1 + *x*).

Argument: *x* can be any numeric value greater than – 1.

Examples: = LN1(2) returns 1.0986122.
            = LN1(4) returns 1.6094379.

LOG(*x*) returns the common logarithm, or log base 10, of *x*.

Argument: *x* can be any numeric value greater than 0.

Examples: = LOG(2) returns 0.3010299.
            = LOG(4) returns 0.6020599.

MOD(*x,base*) returns the remainder (modulo) of *(x/base)*. The result has the same sign as *x*.

Arguments: *x* can be any integer.
            base can be any integer except 0.

Examples: = MOD(15,6) returns 3, the remainder of 15/6.
            = MOD(– 15,6) returns – 3.
            = MOD(3*5,6) returns 3.
            = MOD(5,15) returns 5.
            = MOD(15,5) returns 0.

PI returns the value π (3.1415927), which is the ratio of a circumference of a circle to its diameter. You can use PI to convert degrees into radians for the trigonometric functions. Angle in radians = Angle in degrees * (PI/180).

Arguments: None.

Examples: = PI returns 3.1415927.
            = SIN(30*PI/180) returns 0.5, the sine of 30 degrees.
            = PI*4^2 returns 50.265482, or the area of a circle
                  whose radius is 4.

RAND generates random numbers between 0.0 and 1.0. Each time Jazz recalculates the worksheet, RAND generates a new random number.

Arguments: None.

Examples: = RAND could return .87320723.
= RAND*10 returns a number between 0.0 and 10.
= INT(RAND*10) returns integers between 0 and 10.

ROUND(*x*,*n_places*) returns the value of *x* rounded to *n_places*.

If *n_places* is positive, then *x* is rounded *n_places* to the right of the decimal point.

If *n_places* is zero, then *x* is rounded to an integer.

If *n_places* is negative, then *x* is rounded to the nearest multiple of 10 specified by *n_places*. For example, if *n_places* is −2, then *x* is rounded to the hundreds place. If *n_places* is −1, then *x* is rounded to the tens place.

Arguments: *x* can be any numeric value.
n_places can be any numeric value from −15 to +15, inclusive.

Examples: = ROUND(145.258,3) returns 145.258.
= ROUND(145.258,2) returns 145.26.
= ROUND(145.258,1) returns 145.3.
= ROUND(145.258,0) returns 145.
= ROUND(145.258,−1) returns 150.
= ROUND(145.258,−2) returns 100.

SCALE(*x*,*power*) calculates $x*2^{(INT(power))}$. The SCALE function converts *power* to an integer value before calculating 2^{power}.

Arguments: *x* can be any numeric value.
power can be any numeric value.

Examples: = SCALE(4,3) returns 32, or $4*(2^3)$.
= SCALE(−4,3) returns −32, or $−4*(2^3)$.

SQRT(*x*) returns the positive square root of *x*.

Argument: *x* can be any positive numeric value.

Examples: = SQRT(25) returns 5.
= SQRT(20 + 5) returns 5.

Trigonometric Functions

The Jazz trigonometric functions can be divided into two groups. The first group computes the basic trigonometric functions: the sine, cosine, and tangent. The second group computes the arc functions: the arcsine, arccosine, 2-quadrant arctangent, and 4-quadrant arctangent.

All angles that you enter for the trigonometric functions must be in radians. To convert from degrees to radians, multiply the number of degrees by (PI/180).

The arc functions return all angles in radians. To convert from radians to degrees, multiply the number of radians by (180/PI).

ACOS(x) returns the angle whose cosine is x. The result is always between 0 and π (Quadrant I or II).

Argument: x must be a value between − 1 and + 1, inclusive.

Examples: = ACOS(.5) returns 1.05 radians.
               = ACOS(.5)*180/PI returns 60 degrees.

ASIN(x) returns the angle whose sine is x. The result is always between − π/2 and π/2 (Quadrant IV or I).

Argument: x must be a value between − 1 and + 1, inclusive.

Examples: = ASIN(.5) returns 0.52 radians.
               = ASIN(.5)*180/PI returns 30 degrees.

ATAN(x) returns the angle whose tangent is x. The result is always between − π/2 and π/2 (Quadrant IV or I).

Argument: x can be any numeric value.

Examples: = ATAN(.5) returns 0.46 radians.
               = ATAN(.5)*180/PI returns 26.56 degrees.
               = ATAN(1) returns 0.79 radians.

ATAN2(x, y) returns the angle whose tangent is y/x. The result is returned for any quadrant, and ranges in value from − π to π, whereas ATAN(x) only returns values from − π/2 to π/2.

Arguments: x and y can be any numeric values. If x is positive, both arctangent functions return the same value. x and y cannot both equal 0.

Examples: = ATAN2(− 3,3) returns 2.36 radians (Quadrant II).
               = ATAN2(3, − 3) returns − 0.785 radians (Quadrant IV).

The following table lists the range of values of = ATAN2(x,y):

If x is:	and y is:	= ATAN2(x,y) is:
positive	positive	between 0 and π/2
negative	positive	between π/2 and π
negative	negative	between − π and − π/2
positive	negative	between − π/2 and 0

COS(x) returns the cosine of angle x. The result is always between − 1 and 1, inclusive.

Argument: x can be any numeric value, and is the size of the angle (in radians).

Examples: = COS(PI) returns − 1.
               = COS(60*PI/180) returns 0.5.

SIN(x) returns the sine of angle x. The result is always between -1 and 1, inclusive.

Argument: x can be any numeric value, and is the size of the angle (in radians).

Examples: = SIN(PI/2) returns 1.
= SIN(30*PI/180) returns 0.5.

TAN(x) returns the tangent of angle x.

Argument: x can be any numeric value, and is the size of the angle (in radians).

Examples: = TAN(PI/4) returns 1.
= TAN(30*PI/180) returns 0.58.

Logical Functions

The Jazz logical functions return values based upon the result of a conditional statement. A conditional statement evaluates a given condition, which is usually an equation comparing two numbers, functions, formulas, or text values. The result of the evaluation is either TRUE (1) or FALSE (0).

Generally, when a condition is found to be TRUE, Jazz takes one action. When a condition is found to be FALSE, Jazz takes a different action. For example, if Balance is a cell containing a numeric value, then the conditional statement IF(Balance > = 0,Balance,"Overdrawn") evaluates the equation Balance > = 0. It returns the numeric value in Balance when the balance is positive, and returns Overdrawn when the balance is negative.

FALSE is the value 0. FALSE, or 0, is returned when a condition is not true.

Arguments: None.

Examples: = FALSE = TRUE returns 0.
= "I Love Lucy" = "I Love New York" returns 0.
= A7 > A8 returns 0 if the value in A7 is not greater than the value in A8.

IF(*cond,t,f*) returns *t* when condition *cond* is TRUE. IF returns *f* when *cond* is FALSE.

Arguments: *cond* can be any expression or logical condition that evaluates to TRUE or FALSE.
t can be text or numeric.
f can be text or numeric.

Examples: = IF(9 > 8,C3,D3) returns the value in C3, because the condition 9 > 8 is TRUE.
= IF(Close > 35,"Sell",Close) returns Sell when the value in Close is greater than 35, and the value Close when it is less than or equal to 35.

ISBLANK(*cell*) returns 1 (TRUE) when *cell* is empty; otherwise, it returns 0 (FALSE).

Argument: *cell* is a cell name or address.

Examples: = ISBLANK(A5) returns 0 when cell A5 contains any text or numeric value.
= IF(ISBLANK(A5),"Skip",Total + A5) returns Skip when cell A5 is blank; otherwise, it adds the value in A5 to the value in Total.

ISERR(*cell*) returns 1 (TRUE) when *cell* contains the value ERR; otherwise, it returns 0 (FALSE).

Argument: *cell* is a cell name or address.

Examples: = ISERR(H3) returns 0 when the value in H3 is text, numeric, NA, REF, or blank.
= IF(ISERR(H3),"Error","OK") returns Error when cell H3 contains ERR; otherwise, it returns OK.

ISNA(*cell*) returns 1 (TRUE) when *cell* has the value NA; otherwise, it returns 0 (FALSE).

Argument: *cell* is a cell name or address.

Examples: = ISNA(G9) returns 0 when the value in G9 is text, numeric, ERR, REF, or blank.
= IF(ISNA(G9),"No number",G9 + 10) returns No number when G9 contains the value NA; otherwise, it returns the result of G9 + 10.

ISNUMBER(*cell*) returns 1 (TRUE) when *cell* has a numeric value; otherwise, it returns 0 (FALSE). Numeric values also include dates, times, currency, and percentage values.

Argument: *cell* is a cell name or address.

Examples: = ISNUMBER(J5) returns 0 when the value in J5 is text, ERR, NA, REF, or blank.
= IF(ISNUMBER(J5),J5 + J6,"Can't add") returns the result of J5 + J6 if J5 contains a numeric value; otherwise, it returns Can't add.

ISREF(*cell*) returns 1 (TRUE) when *cell* has the value REF; otherwise, it returns 0 (FALSE).

Argument: *cell* is a cell name or address.

Example: = ISREF(M9) returns 0 when the value in M9 is numeric, text, ERR, NA, or blank.
= IF(ISREF(M9),"Recalc","OK") returns Recalc when cell M9 contains REF; otherwise, it returns OK.

ISSTRING(*cell*) returns 1 (TRUE) when *cell* contains text; otherwise, it returns 0 (FALSE).

Argument: *cell* is a cell name or address.

Examples: = ISSTRING(B9) returns 0 when the value in B9 is numeric, ERR, NA, REF, or blank.
= IF(ISSTRING(B9),B9,"No") returns the text in B9 when B9 contains text; otherwise, it returns No.

TRUE is the value 1. TRUE, or 1, is returned when a condition is true.

Arguments: None.

Examples: = TRUE = TRUE returns 1.
= FALSE = FALSE returns 1 because 0 equals 0.
= 25 = 5*5 = 20 + 5 returns 1 because 25 equals (5*5) equals (20 + 5).

Financial Functions

The Jazz financial functions make calculations concerning loans, annuities, and cash flows that occur over a term, or period of time.

You can enter interest rates as either percents or decimal fractions. For example, you can type 15.5% either as 15.5% or as .155. Jazz automatically converts all percentages to decimal values for you.

Remember that the term and the interest rate must be expressed in the same time periods. For example, if you want to calculate a monthly payment, and the interest and term are given in years, then divide the yearly interest rate by 12 to find the monthly interest, and multiply the term by 12 to get the number of payment periods.

In the following examples, all monetary function results are returned in cells formatted as Currency, 2, and all percentage results are returned in cells formatted as Percent, 2.

FV(*pmt,int,term*) calculates the future value of a series of payments, each of amount *pmt*, earning periodic interest rate *int*, over the number of payment periods specified in *term*. Jazz assumes that the first payment takes place at the end of the first payment period. Jazz also assumes that the last payment is made at the end of the last period, and earns no interest.

Arguments: *pmt* is the amount of each payment.
int is the periodic interest rate.
term is the number of payment periods.

Example: = FV(200,7.5%/12,12*3) returns $8,046.28, or the future value of a series of $200 monthly payments, earning 7.5% interest annually, made over a three year period. The actual amount of money you invest is $7,200.

IRR(*guess,range*) calculates the internal rate of return for the *range* containing the cash flow values. Jazz bases the calculation on a series of approximations for the internal rate of return. Because this function could have more than one possible solution, you must enter a *guess* as the first argument to ensure that the function finds the correct solution. Make a reasonable estimate of the internal rate of return. If the resulting value doesn't seem reasonable, try another *guess*.

Arguments: *guess* is the percentage representing your guess of the internal rate of return.

           range is the cell range containing the cash flow amounts. Jazz considers negative numbers as cash outflows, and positive numbers as cash inflows.

Examples: = IRR(5%,B1..B13) returns 6.11% over a one-year term, if the initial payment is $1000 and the 12 periodic receipts are each $120. In range B1..B13, B1 contains the value – 1000, and B2..B13 each contain the value 120.

           = IRR(5%,C1..C13) returns 7.09% over a one-year term, if the initial payment is $1000 and the 12 periodic receipts are: $120, $124, $128, $132, $136, $130, $120, $124, $128, $132, $120, and $124.

NPV(*int,range*) calculates the present value of *range*, which contains a series of future cash flows, at periodic interest rate *int*. Jazz assumes that the cash flows occur at equal time intervals, and the first cash flow occurs at the end of the first payment period.

Arguments: *int* is the periodic interest rate.

           range is the range containing the cash flows.

Example: = NPV(10%,D1..D12) returns $340.69, if the assumed interest rate is 10% and D1..D12 contains 12 future cash flows, each of which is $50.

PMT(*prin,int,term*) calculates the amount needed per payment to pay off a loan of amount *prin*, at periodic interest rate *int*, over the number of payment periods specified in *term*.

Arguments: *prin* is the principal, or amount of the loan.

           int is the periodic interest rate of the loan.

           term is the number of payment periods.

Example: = PMT(1000,10%/12,12) returns $87.92 as the monthly payment needed to pay off a 12-month loan of $1000 at 10% interest.

PV(*pmt,int,term*) calculates the present value of a series of payments, each of amount *pmt*, collecting periodic interest rate *int*, to be made over the number of payment periods specified in *term*. Jazz assumes that the first payment takes place at the end of the first payment period. Jazz assumes that the last payment is made at the end of the last period, and earns no interest.

Arguments: *pmt* is the amount of each payment.
int is the periodic interest rate.
term is the number of payment periods.

Example: = PV(50,15%/12,12) returns $553.97, which is equivalent to putting $50 each month for a year into a bank account earning 15% annually.

Calendar Functions

The Jazz calendar functions use serial numbers to represent dates and times. Serial numbers can be integers (31340), fractions (.3545717), or mixed numbers (31340.3545717).

Each date between midnight December 31, 1903 and midnight February 6, 2040 corresponds to the integer part of a serial number, called the date number. Date numbers are the number of days since December 31, 1899. They range from 1460, for January 1, 1904 to 51170, for February 6, 2040. You can use date numbers in functions to get information about the year, month, and day of the month.

The fractional part of a serial number corresponds to a time of the day. This is called the time number. Time numbers range from 0.000, for midnight of the previous day, to 0.999, for just before midnight of the current day. You can use time numbers in functions to get information about the hour, minute, and second of a day.

Jazz can display date and time numbers in various date and time formats, but stores them internally as numbers. Because they are stored as numbers, you can use them in formulas. For example, the date 22-Oct-85 and the time 8:30:35 AM are stored as the serial numbers 31340 and .3545717. Jazz uses the integer part of a number for calculating dates and the fractional part for calculating times.

DATE(*yr,mon,day*) returns the date number for *yr,mon,day*.

Arguments: *yr* is an integer between 4 (1904) and 140 (2040), representing the year.
mon is an integer between 1 and 12, representing the month.
day is an integer between 1 and 31, representing the day of the month. The number must be appropriate to the given month. (It is not valid to use 30 for February.)

Examples: = DATE(85,10,22) returns 31340.
             = DATE(85,10,22) returns 22-Oct-85 in a cell formatted
                 as dd-mmm-yy.
             = DATE(85,10,22) returns 10/22/85 in a cell formatted
                 as mm/dd/yy.

DATEVALUE(*d_txt*) returns the date number for the text date
d_txt. This function performs the same calculation as the DATE
function, except it uses text instead of number values as its
argument.

Argument: *d_txt* must be a date, written as text, in one of the
                 Jazz date formats.

Examples: = DATEVALUE("22-Oct-85") returns 31340.
             = DATEVALUE("10/22/85") returns 31340.
             = DATEVALUE("Oct-85") returns 31319, for Oct 1,
                 1985.
             = DATEVALUE("22-Oct") returns the date number for
                 Oct 22 of the present year.

DAY(*d_num*) returns the day value (1 to 31) of date number
d_num.

Argument: *d_num* is an integer, or the integer part of a fixed
                 number, representing a date number.

Examples: Because = DATE(85,10,22) returns 31340, then
             = DAY(31340) returns 22, for the 22nd of the month.
             If date number 31340 is in a cell named datenum, then
             = DAY(datenum) also returns 22.

HOUR(*t_num*) returns the hour value (0 to 23) of time number
t_num.

Argument: *t_num* is a fraction, or fractional part of a number,
                 representing a time number.

Examples: Because = TIME(8,30,35) returns 0.3545717,
             then = HOUR(0.3545717) returns 8, for 8 AM.
             If time number 0.3545717 is in a cell named timenum,
             then = HOUR(timenum) also returns 8.
             = HOUR(1/4) returns 6, for 6 AM.
             = HOUR(3/4) returns 18, for 6 PM.
             = HOUR(1/7) returns 3, for 3 AM.
             = HOUR(31340.623287) returns 14, for 2 PM.

MINUTE(*t_num*) returns the minute value (0 to 59) of time number *t_num*.

Argument: *t_num* is a fraction, or fractional part of a number, representing a time number.

Examples: Because = TIME(8,30,35) returns 0.3545717, then = MINUTE(0.3545717) returns 30, for 30 minutes after the hour.
If time number 0.3545717 is in a cell named timenum, then = MINUTE(timenum) also returns 30.
= MINUTE(1/7) returns 25.

MONTH(*d_num*) returns the month value (1 to 12) of date number *d_num*.

Argument: *d_num* is an integer, or integer part of a number, representing a date number.

Examples: Because = DATE(85,10,22) returns 31340, then = MONTH(31340) returns 10, for October.
If date number 31340 is in a cell named datenum, then = MONTH(datenum) also returns 10.
= MONTH(31340.623287) returns 10, for October.

NOW returns the serial number for the present date and time. The integer part of the serial number is the date number, and the fractional part of the serial number is the time number. You can use it in calculations and with the DAY, MONTH, YEAR, HOUR, MINUTE, and SECOND functions. Jazz updates the serial number whenever you recalculate the worksheet.

Arguments: None.

Examples: If the present date is October 22, 1985, and the present time is 2:57:32 PM, then
= NOW returns 31340.623287,
= MONTH(NOW) returns 10, for October, and
= HOUR(NOW) returns 14, for 2 PM.

SECOND(*t_num*) returns the second value (0 to 59) of time number *t_num*.

Argument: *t_num* is a fraction, or fractional part of a number, representing a time number.

Examples: Because = TIME(8,30,35) returns 0.3545717, then = SECOND(0.3545717) returns 35, for 35 seconds.
If time number 0.3545717 is in a cell named timenum, then = SECOND(timenum) also returns 35.
= SECOND(1/7) returns 42.

TIME(*hr,min,sec*) returns the time number for *hr,min,sec*.

Arguments: *hr* is an integer from 0 to 23 representing the hours.
min is an integer from 0 to 59 representing the minutes.
sec is an integer from 0 to 59 representing the seconds.

Examples: = TIME(8,30,35) returns 0.3545717.
= TIME(8,30,35) returns 8:30:35 AM to a cell formatted as HH:MM:SS AM/PM.
= TIME(20,30,35) returns 0.845717.
= TIME(20,30,35) returns 8:30:35 PM to a cell formatted as HH:MM:SS AM/PM.

TIMEVALUE(*t_txt*) returns the time number of the text time *t_txt*. It performs the same calculation as the TIME function, except it uses text instead of numeric values as its argument.

Argument: *t_txt* is a time of the day, written as text, in one of the Jazz time formats.

Examples: = TIMEVALUE("8:30:35 AM") returns 0.3545717.
= TIMEVALUE("8:30 PM") returns 0.8541666.
= TIMEVALUE("20:30:35") returns 0.8545717.
= TIMEVALUE("20:30") returns 0.8541666.

YEAR(*d_num*) returns the year value (4 to 140) of date number *d_num*. Year value 4 is the year 1904, and 140 is the year 2040.

Argument: *d_num* is an integer, or integer part of a number, representing a date number.

Examples: Because = DATE(85,10,22) returns 31340, then
= YEAR(31340) returns 85, for the year 1985.
If 31340 is in a cell named datenum, then
= YEAR(datenum) also returns 85.
= YEAR(51170) returns 140, for the year 2040.

Statistical Functions

The Jazz statistical functions perform calculations on lists of values. A list contains one or more arguments. Each argument in the list can be a single numeric value or a range of numeric values. Numeric and text values can be used with the COUNT function.

All statistical functions ignore blank cells found in a list or range. All statistical functions other than the COUNT function ignore cells containing text values. For example, if you use the AVG function to average the numeric values in a range that spans 8 cells, and there is a blank cell and a cell containing text within that range, Jazz divides the sum by 6 to find the correct average.

All examples in this section are based on the Weekly Sales worksheet. All monetary function results are returned in cells formatted as Currency, 2.

	A	B	C	D	E	
1	DAY/DATE	BOOKS SOLD	DAILY SALES	WEEKLY TOTALS		
2	Mon(11-19)	38	$286.90	Total sales:	$3,462.10	
3	Tue(11-20)	53	$583.00	Avg sales amt:	$577.02	
4	Wed(11-21)	49	$428.75	Highest amt:	$1,044.00	
5	Thu(closed)			Lowest amt:	$286.90	
6	Fri(11-23)	51	$507.45	Days open:	6	
7	Sat(11-24)	87	$1,044.00	Total books sold:	346	
8	Sun(11-25)	68	$612.00	Avg sold daily:	58	
9				Variance:	249.22	
10				Std Dev:	15.79	
11						

AVG(*arg_list*) averages the numeric values in the *arg_list*.

Argument: *arg_list* must contain numeric values.

Examples: = AVG(C1..C8) returns $577.02, the average sales amount.
= AVG(B1..B8) returns 58, the average number of books sold.

COUNT(*arg_list*) counts the non-blank cells in *arg_list*.

Argument: *arg_list* can contain either numeric or text values.

Examples: = COUNT(C2..C8) returns 6, the number of days open.
= COUNT(C5) returns 0, because it is blank.
= COUNT(B1..C8) returns 14, ignoring blank cells.

MAX(*arg_list*) returns the maximum numeric value in *arg_list*.

Argument: *arg_list* must contain numeric values.

Examples: = MAX(C1..C8) returns $1044.00, the highest daily sales amount for the week.
= MAX(B1..B8) returns 87, the highest number of books sold in one day.

MIN(*arg_list*) returns the minimum numeric value in *arg_list*.

Argument: *arg_list* must contain numeric values.

Examples: = MIN(C1..C8) returns $286.90, the lowest daily sales amount for the week.
= MIN(B1..B8) returns 38, the lowest number of books sold in one day.

STD(*arg_list*) finds the standard deviation of the numeric values in *arg_list* by taking the square root of the variance. The formula used is = SQRT(VAR(*arg_list*)).

For many statistical calculations, you may want a sample standard deviation. You can compute this by using the following formula:

= SQRT(COUNT(*arg_list*)/(COUNT(*arg_list*) – 1))*STD(*arg_list*)

Argument: *arg_list* must contain numeric values.

Example: = STD(B1..B8) returns 15.79, the standard deviation for books sold that week.

SUM(*arg_list*) sums the numeric values in *arg_list*.

Argument: *arg_list* must contain numeric values.

Examples: = SUM(C1..C8) returns $3462.10, the total sales amount for the week.
= SUM(B1..B8) returns 346, the total number of books sold that week.

VAR(*arg_list*) finds the population variance of the numeric values in *arg_list* with the following formula:

$$\frac{n(\Sigma x^2) - (\Sigma x)^2}{n^2}$$

n is the number of arguments in *arg_list*, or = COUNT(*arg_list*). x is one argument in *arg_list*.

For many statistical calculations, you may want a sample variance. You can compute this by using the following formula:

= (COUNT(*arg_list*)/(COUNT(*arg_list*) – 1))*VAR(*arg_list*).

Argument: *arg_list* must contain numeric values.

Example: = VAR(B1..B8) returns 249.22, the variance for books sold that week.

Data Range Functions

The Jazz data range functions treat one range of the worksheet as a database and another range as a database query. The first range is the data range and the second is the criterion range. You can perform statistical calculations on a column of cells within the data range in rows selected by criteria you set up in the criterion range. Each function scans the input data range *inp* and selects the rows within that range that match the contents of your criterion range *crit*. Each function then counts over to the column number you have specified *col*, and calculates the cells in that column that are selected by your criteria. Remember that the first column in the input range is column 0 and the first row contains the names of each column.

In the Trip Expenses worksheet below, the input range is A1..E7. To the right of the input range are three criterion ranges, which can be set up anywhere on the worksheet outside of the input data range. A criterion range consists of one or more column titles from the input range and the criterion you want to meet from those columns. For example, the first criterion range consists of the column title City and the criterion Toronto. When Jazz makes calculations using this criterion range, it only works on rows that contain information about Toronto.

All examples of the data range functions are based on the Trip Expenses worksheet. All monetary function results are returned in cells formatted as Currency, 2.

Input range

Criterion ranges

DAVG(*inp,col,crit*) averages the numeric values in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
        col is the input range column number.
        crit is the criterion range.

Examples: = DAVG(A1..E7,4,G4..G5) returns $32.00, the average spent on food in Montreal.
           = DAVG(A1..E7,2,G4..G5) returns $8.22, the average spent on gas in Montreal.

DCOUNT(*inp,col,crit*) counts the non-blank cells in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
        col is the input range column number.
        crit is the criterion range.

Example: = DCOUNT(A1..E7,0,G1..G2) returns 2, the number of days spent in Toronto.

DMAX(*inp,col,crit*) finds the maximum numeric value in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
        col is the input range column number.
        crit is the criterion range.

Example: = DMAX(A1..E7,4,G7..G10) returns $35.00, the most spent in all three cities on food.

DMIN(*inp,col,crit*) finds the minimum numeric value in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
  col is the input range column number.
  crit is the criterion range.

Example: = DMIN(A1..E7,4,G7..G10) returns $24.75, the least spent in all three cities on food.

DSTD(*inp,col,crit*) computes the standard deviation of the numeric values in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
  col is the input range column number.
  crit is the criterion range.

Example: = DSTD(A1..E7,2,G7..G10) returns $6.88, the standard deviation of the amount spent in all three cities on gas.

DSUM(*inp,col,crit*) sums the numeric values in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
  col is the input range column number.
  crit is the criterion range.

Example: = DSUM(A1..E7,2,G4..G5) returns $24.65, the total amount spent on gas in Montreal.

DVAR(*inp,col,crit*) computes the variance of the numeric values in column *col* of input range *inp*, for the rows selected by criterion range *crit*.

Arguments: *inp* is the input range.
  col is the input range column number.
  crit is the criterion range.

Example: = DVAR(A1..E7,2,G7..G10) returns $47.43, the variance of the amount spent in all three cities on gas.

Special Functions

The Jazz special functions perform a variety of tasks. HLOOKUP, VLOOKUP, and INDEX look up values in a range. N and S tell whether a specified cell in a table or a range contains a numeric or text value. ROWS and COLS count the number of rows or columns in a range. CHOOSE returns a value from an argument list based on its position in the list. CELL and CELLPOINTER give information about the data contained in a specified cell. ERR and NA locate and mark cells whose formulas are dependent upon other cells containing the values ERR or NA.

In range lookups, the index row is row 0 and the index column is column 0. In list lookups, the first argument in the list is argument 0.

CELL(*attrib,cell*) returns the code that represents an *attrib*ute, such as the column-width or format, of *cell*.

Arguments: *attrib* must be one of the attributes listed in the table below.
cell is the cell you are testing.

The following table illustrates the cell property names and codes returned.

If *attrib* is:	The result is:
"address"	an address, such as B7
"row"	a row number (between 1 and 8192)
"col"	a column number (between 1 and 256)
"type"	b, if blank n, if a numeric value t, if a text value
"width"	the number of m's that fit into a cell in the current column width.
"format"	blank, if default format
	(nn is number of decimal places) fix nn, if fixed numeric sci nn, if scientific numeric cur nn, if currency per nn, if percent com nn, if numeric with commas
	gen, if general numeric bar, if bar graph for, if formula text
	tim 1, if HH:MM:SS AM/PM tim 2, if HH:MM AM/PM tim 3, if HH:MM:SS, 24 hr. tim 4, if HH:MM, 24 hr.
	dat 1, if DD-MMM-YY dat 2, if DD-MMM dat 3, if MMM-YY dat 4, if MM/DD/YY
	txt le, if left-aligned text txt ri, if right-aligned text txt ce, if centered text txt re, if repeated text

Examples: = CELL("type",D6) returns b if D6 is blank, n if it con-
tains a numeric value, or t if it contains a text value.
= CELL("format",D6) returns txt le if D6 is formatted as
text, left-aligned.
= CELL("format",H9) returns fix 3 if H9 is formatted as
a fixed number with 3 places to the right of the
decimal.

CELLPOINTER(*attrib*) returns the code representing an *attrib*ute
of the active cell. The *attrib*ute is updated when you recalculate.

Argument: *attrib* must be one of the attributes listed in the table
for the CELL function.

Examples: = CELLPOINTER("row") returns 28 if the active cell is
in row 28.
= CELLPOINTER("format") returns tim 1 if the active
cell contains a time formatted as HH:MM:SS
AM/PM.

CHOOSE(*n,arg0,arg1,...*) returns the *n*th argument in argument list
(arg0,arg1,...).

Arguments: *n* is the number that selects the argument from the
argument list.
arg0,arg1,... can be text, numbers, formulas, or cell
addresses.

Examples: = CHOOSE(0,"John","Paul","George","Ringo")
returns John because it is argument number 0.
= CHOOSE(3,1978,1979,1980,1981,1982) returns 1981
because it is argument number 3.

COLS(*range*) counts the number of columns in *range*. This func-
tion is helpful when used with named ranges.

Argument: *range* is the input range.

	A	B	C	D	E	F	G
1	Student	Score 1	Score 2	Score 3	Score 4	Score 5	Score 6
2	Almeida,J	88	83.5	92.5	89	87	92
3	Berman,R	91	89.5	83	93	85	91.5
4	Blake,M	84	87	94.5	92		
5	Corita,M	91		93.5	86	89	88

Test Scores

Examples: = COLS(Almeida) returns 6 because the range named
Almeida, B2..G2, contains 6 columns.
= COLS(Blake) returns 4, because the range named
Blake, B4..E4, contains 4 columns.
= COLS(scores) returns 6, because the range named
scores, B2..G5, contains 6 columns.

ERR returns the value ERR. Any formula that refers to a cell containing a value of ERR returns the value ERR. Therefore, this function prevents a chain of inaccurate calculations from continuing throughout a worksheet.

Arguments: None.

Examples: = IF(G6 = 0,ERR,MOD(G5,G6)) returns ERR if the value in G6 is 0; otherwise, it performs the MOD function.
= IF(Height < 10,ERR,Height) returns ERR if the cell named Height is less than 10; otherwise, it returns the value Height.

HLOOKUP(*sel*,*tbl_range*,*n_rows*) finds a value in a table by performing a horizontal lookup. HLOOKUP searches across the top, or index, row in *tbl_range* until it locates a value with selector *sel*, and stops at that cell. HLOOKUP stays in that column and counts *n_rows* below the index row and returns the value found in that cell. Jazz can find either a text value or a numeric value. The lookup process differs slightly for each data type.

Arguments: *sel* must be text for a text lookup (when the index row contains text). *sel* must be a numeric value for a numeric lookup (when the index row contains numbers).
tbl_range is the range of the lookup table, including the index row.
n_rows can be any positive integer, and is the number of rows to move below the index row.

Text Lookup: Jazz searches the index row for a cell with a text value that matches *sel* exactly. This search is case sensitive. For example, selector "Total" finds Total, but not total. When the matching value is found, Jazz moves *n_rows* below the index row in the same column, and returns the value found in that cell. If no text value matches *sel*, then Jazz selects the last value.

Index row ─────
Table range ─────

Student	Reading	Spelling	Lang Arts	Math	Soc Studies	Average
Bankhead,T	88	92.5	86	94	89.5	90.0
Burton, R	91	88.5	96	98.5	93.5	93.5
Christie, J	87.5	91	84	81	85.5	85.8

Quarterly Grades

Examples: = HLOOKUP("Lang Arts",A1..G4,3) returns 84.
= HLOOKUP("Soc Studies",A1..G4,3) returns 85.5.
= HLOOKUP("Lang Arts",A1..G4,1) returns 86.

Numeric Lookup: Jazz searches the index row in *tbl_range* until it finds a number in a cell that is larger than selector value *sel*. It then backs up one cell, so that it stops at the cell whose value is the highest number that is less than or equal to the value in *sel*. For example, if the values in the index row are 10, 20, 30, and 40, and the selector value is 33, Jazz searches until it reaches 40, and then backs up to 30 to do its vertical movement. It now moves *n_rows* below the index row in the same column and returns the value found in that cell. In order for a numeric lookup to work, the values in the index row must be in ascending order.

	A	B	C	D	E	F	G
		1955	1960	1965	1970	1975	1980
2	Kinder	83	95	81	68	54	63
3	First	85	106	110	96	92	95
4	Second	79	114	108	110	87	88
5	Third	88	115	120	105	95	84

Index row and *Table range* labels point to the School Population table.

Numeric
Examples: = HLOOKUP(1967,A1..G5,2) returns 110.
             = HLOOKUP(1967,A1..G5,3) returns 108.
             = HLOOKUP(1981,A1..G5,4) returns 84.

INDEX(*range,col,row*) returns the value of the cell located at the intersection of *col* and *row*, counting from the top left corner of *range*.

Arguments: *range* is the input range.
                col is the number of columns to count over from the first column (which is column 0).
                row is the number of rows to count down from the top row (which is row 0).

	A	B	C	D	E	F	G
1	Stock No.	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
2	1	66	69.25	71	70.5	72	74
3	2	15.75	14.5	14.5	13.75	14	14.25
4	3	28.5	28.33	31.75	32.5	38.5	37
5							

Stocks-Monthly

Examples: = INDEX(A1..G4,5,2) returns 14, Month 5's closing price for stock 2.
             = INDEX(A1..G4,5,3) returns 38.5, Month 5's closing price for stock 3.
             = INDEX(A1..G4,2,1) returns 69.25, Month 2's closing price for stock 1.

N(*range*) returns the value in the upper left corner cell in *range*. If the upper left cell in *range* contains a numeric value, N returns that number. If it is not a number, N returns the value 0.

Argument: *range* is the input range.

	A	B	C	D	E	F	G
1		1979	1980	1981	1982	1983	1984
2	Rent	$2,820	$2,400	$2,700	$3,600	$4,200	$4,800
3	Gas	$900	$840	$984	$1,008	$1,032	$1,056
4	Electric	$336	$240	$276	$312	$348	$396
5							

Examples: = N(B1) returns 1979.
= N(B1..G4) returns 1979.
= N(A1..G4) returns 0, because A1 is blank.

NA assigns the value NA (not available) to a cell, and to any cell whose formula is dependent upon the cell containing NA. This function acts as a place holder in the worksheet when you are unable to enter a value needed to complete a formula by displaying NA in all cells that depend on that value.

Arguments: None.

Examples: = NA returns NA to A5 if it is the cell in which you enter the formula.
= A6 + A5 returns NA because it is dependent on A5.
= A7 + A6 returns NA if A6 is dependent upon A5.

ROWS(*range*) returns the number of rows found in *range*. This function is helpful when used with named ranges.

Argument: *range* is the input range.

	A	B	C	D	E	F	G
1	Student	Score 1	Score 2	Score 3	Score 4	Score 5	Score 6
2	Almeida,J	88	83.5	92.5	89	87	92
3	Berman,R	91	89.5	83	93	85	91.5
4	Blake,M	84	87	94.5	92		
5	Corita,M	91		93.5	86	89	88

Examples: = ROWS(Score 1) returns 4, because the range named Score 1, B2..B5, contains 4 rows.
= ROWS(Score 2) returns 3, because the range named Score 2, C2..C4, contains 3 rows.
= ROWS(scores) returns 4 because the range named scores, B2..G5, contains 4 rows.

S(*range*) returns the value of the upper left corner cell in *range*. If the upper left cell in *range* is text, S returns that piece of text. If it is not text, S returns a blank.

Argument: *range* is the input range.

	A	B	C	D	E	F	G
		Yearly Expenses					
1		1979	1980	1981	1982	1983	1984
2	Rent	$2,820	$2,400	$2,700	$3,600	$4,200	$4,800
3	Gas	$900	$840	$984	$1,008	$1,032	$1,056
4	Electric	$336	$240	$276	$312	$348	$396
5							

Examples: = S(A1) returns a blank.
                    = S(A2..G4) returns Rent.
                    = S(B1..B4) returns a blank.

VLOOKUP(*sel, tbl_range, n_cols*) finds a value in a table by performing a vertical lookup, and is similar in principle to a horizontal lookup. VLOOKUP searches down the first, or index column in *tbl_range* until it locates a value with selector *sel*, and stops at that cell. VLOOKUP stays in that row and counts *n_cols* to the right of the index column and returns the value found in that cell. Jazz can find either a text value or a numeric value. The lookup process differs slightly for each data type.

Arguments: *sel* must be text for a text lookup (when the index column contains text). *sel* must be a numeric value for a numeric lookup (when the index column contains numbers).
            tbl_range is the range of the lookup table, including the index column.
            n_cols can be any positive integer, and is the number of columns to count to the right of the index column.

Text Lookup: Jazz searches the index column for the text entry that matches *sel* exactly. This search is case sensitive. For example, selector "Total" finds Total, but not total. When the matching value is found, Jazz moves *n_cols* to the right of the index column in the same row, and returns the value found in that cell. If no text value matches *sel*, then Jazz selects the last value.

	A	B	C	D	E	F
		Stock Mkt Update				
1	ID CODE	COMPANY NAME	STOCK EXCH	CLOSE	PREV CLOS	NET CHG
2	PPL	Purple Computer	Nasdaq ($)	24.625	24	0.625
3	BKB	Black's Bank	London (p)	527	517	10
4	CCM	Colorful Camera	NYSE ($)	72.125	72.875	-0.75
5	LLB	Lemon Laboratories	Amex ($)	27.875	27.125	0.75

Index column

Table range

Text
Examples: = VLOOKUP("PPL",A1..F5,1) returns Purple
                   Computer.
               = VLOOKUP("PPL",A1..F5,2) returns Nasdaq ($).
               = VLOOKUP("BKB",A1..F5,1) returns Black's Bank.
               = VLOOKUP("LLB",A1..F5,3) returns 27.875.

Numeric Lookup: Jazz searches the index column until it finds a
number in a cell that is larger than selector value *sel*. It then backs
up one cell, so that it stops at the cell whose value is the highest
number that is less than or equal to the value in *sel*. For example,
if the values in the index column are 10, 20, 30, and 40, and the
selector value is 33, Jazz searches until it reaches 40, and then
backs up to 30 to do its horizontal movement. It now moves
n_cols to the right of the index column in the same row, and
returns the value found in that cell. For a numeric lookup to work
correctly, the values in the index column must be in ascending
order. If no value in the range is larger than *sel*, then Jazz uses the
last value.

Index column

Table range

	A	B	C	D	E	F	G
1	Income	Status1	Status2	Status3	Status4		
2	$35,000	$9,219	$7,265	$11,315	$8,531		
3	$35,050	$9,241	$7,282	$11,339	$8,552		
4	$35,100	$9,263	$7,298	$11,364	$8,572		
5							

Tax Tables

Numeric
Examples: = VLOOKUP(35023,A1..E4,4) returns $8,531 in a cell
                   formatted as Currency, 0.
               = VLOOKUP(35070,A1..E4,3) returns $11,339 in a cell
                   formatted as Currency, 0.
               = VLOOKUP(35070,A1..E4,1) returns $9,241 in a cell
                   formatted as Currency, 0.

Text Functions

The Jazz text functions can count the number of characters in a
piece of text, find a string of characters within text, replace one
text entry with another, test whether two pieces of text are exactly
alike, and remove control characters and excess blank spaces. You
can also find the Macintosh character code equivalent for any
character. Text functions can be used in formulas when text values
are permitted.

Character positions in text begin at position 0. For example, in the
text Penny Lane, the P is at position 0m the first e is at 1, and the
first n is at 2. The blank is at position 5, and the last e is at 9.

When specifying a position number, use positive integers. If you
type 4.5 as a position number, Jazz interprets it as 4. If you type
– 4 as a position number, Jazz considers it an invalid entry.

CHAR(*code_num*) returns the character represented by the Macintosh character *code_num*. The Macintosh character code set is listed in Appendix D.

Argument: *code_num* can be any integer between 0 and 255, inclusive, and corresponds to one of the Macintosh character codes.

Examples: = CHAR(36) returns $.
              = CHAR(65) returns A.

CLEAN(*txt*) removes all control characters (Macintosh character codes between 0 and 31, inclusive) from *txt*.

Argument: *txt* is the text entry.

Example: = CLEAN("^L Monthly Rate<CR>") returns Monthly Rate.

CODE(*txt*) returns the Macintosh character code for the first character in *txt*.

Argument: *txt* is the text entry.

Examples: = CODE("A") returns 65, for uppercase A.
              = CODE("Again") returns 65, for uppercase A.
              = CODE("again") returns 97, for lowercase a.

EXACT(*txt1,txt2*) tests whether two pieces of text are exactly alike. Jazz returns 1 (TRUE) when they are the same and 0 (FALSE) when they are different.

Arguments: *txt1* is the first text entry.
            txt2 is the second text entry.

Examples: = EXACT("text","test") returns 0.
              = EXACT("TEXT","text") returns 0.
              = EXACT("text","text") returns 1.

FIND(*txt1,in_txt2,pos*) returns the position at which the first occurrence of *txt1* begins within *in_txt2*. Jazz begins searching at position *pos* in *in_txt2*. If the sequence is not found, FIND returns −1.

Arguments: *txt1* is the character sequence you want to find.
            in_txt2 is the text you are searching through.
            pos is the character position in *in_txt2* at which to begin searching for *txt1*.

Examples: = FIND("i","Where is it?",0) returns 6.
              = FIND("i","Where is it?",2) returns 6.
              = FIND("i","Where is it?",7) returns 9.

FIXED(*x, n_digits*) converts number *x* to text, in fixed format with *n_digits* to the right of the decimal point.

Arguments: *x* is the numeric value you are converting to text.
            n_digits is the number of digits to the right of the decimal point.

Examples: = FIXED(1.234,2) returns 1.23 as text.
            = FIXED(56.789,0) returns 57. as text.

LEFT(*txt, n_chrs*) returns the *n_chrs* in the left part of *txt*.

Arguments: *txt* is the text entry.
            n_chrs is the number of characters you want returned.

Example: = LEFT("This is text.",4) returns This.

LENGTH(*txt*) counts the number of characters, including spaces, in *txt*.

Argument: *txt* is the text entry.

Examples: = LENGTH("half note") returns 9.
            = LENGTH("halfpenny") returns 9.
            = LENGTH("half-mast") returns 9.

LOWER(*txt*) converts all letters in *txt* to lowercase.

Argument: *txt* is the text entry.

Examples: = LOWER("perCent") returns percent.
            = LOWER("FIXED Rate") returns fixed rate.

PROPER(*txt*) converts the letters in *txt* to uppercase and lower-case, with the initial letter of each word capitalized.

Argument: *txt* is the text entry.

Examples: = PROPER("dallas") returns Dallas.
            = PROPER("ft. worth") returns Ft. Worth.
            = PROPER("john, paul, george, and ringo") returns John, Paul, George, And Ringo.

REPEAT(*txt, n_times*) duplicates *txt* the number of times in *n_times*.

Arguments: *txt* is the text entry.
            n_times is the number of repetitions.

Examples: = REPEAT("Hubba",2) returns HubbaHubba.
            = REPEAT("Hello ",3) returns Hello Hello Hello .

REPLACE(*orig_txt,pos,n_chrs,new_txt*) removes *n_chrs* from *orig_txt* beginning at position *pos*, and then inserts *new_txt* starting at the same position. REPLACE can use the FIND function to locate the original text.

Arguments: *orig_txt* is the original text entry.
  pos is the position in *orig_txt* at which Jazz begins removing characters.
  n_chrs is the number of characters you remove.
  new_txt is the replacement text.

Examples: = REPLACE("mUsic",0,2,"Mu") returns Music.
  = REPLACE("I like punk rock.",7,4,"jazz and") returns I like jazz and rock.
  = REPLACE("pizazz",FIND("piz","pizazz",0),3,"j") returns jazz. FIND locates piz and returns its start position, 0. Then REPLACE removes the 3 characters beginning at position 0 and substitutes a j.

RIGHT(*txt,n_chrs*) returns the *n_chrs* in the right part of *txt*.

Arguments: *txt* is the text entry.
  n_chrs is the number of characters you want returned.

Examples: = RIGHT("This is a text entry",3) returns try.
  = RIGHT("This is a text entry",5) returns entry.

SUBSTR(*txt,pos,n_chrs*) returns the sequence of characters in *txt* starting at position *pos* that is *n_chrs* in length.

Arguments: *txt* is the text entry.
  pos is the position in *txt* where the character sequence begins.
  n_chrs is the number of characters you want returned.

Examples: = SUBSTR("database",0,4) returns data.
  = SUBSTR("database",2,3) returns tab.
  = SUBSTR("database",4,4) returns base.

TRIM(*txt*) removes all spaces that precede the first character and follow the last character in text *txt*. TRIM also replaces any consecutive spaces embedded inside the text with a single space.

Argument: *txt* is the text entry.

Examples: = TRIM("   St. Moritz ") returns St. Moritz.
  = TRIM(" St.   Moritz") returns St. Moritz.

UPPER(*txt*) converts all letters in *txt* to uppercase.

Argument: *txt* is the text entry.

Examples: = UPPER("dallas") returns DALLAS.
  = UPPER("ft. worth") returns FT. WORTH.
  = UPPER("John, Paul, George, and Ringo") returns JOHN, PAUL, GEORGE, AND RINGO.

VALUE(*txt*) converts *txt* that looks like a number into its actual numeric value. VALUE also converts a number in a particular format into its unformatted numeric value.

Argument: *txt* is the text entry.

Examples: = VALUE("123.45") returns the number 123.45.
            = VALUE(25%) returns .25.

Database Report Functions

The Jazz database report functions can only be used in database report definitions. The FAVG, FCOUNT, FMAX, FMIN, FSTD, FSUM, and FVAR functions perform statistical calculations in section and report summaries of database reports. The FPREV function keeps a running total for each record or section of a report. The FPAGE function inserts the current page number in a header or footer of a report. You specify the formulas for these functions in the report definition that you use to produce a report with a database.

Below is a sample database sorted by the grade field. The grade field is also the break field in your report definition. Enter calculations for each grade level under Section Summary in the report definition. Enter calculations concerning the entire school under Report Summary in the report definition. Enter calculations for one record under Record Detail Line in the report definition.

All examples of the database report functions are based on the School Averages database.

	grade	tchr	students	lang arts	math	soc st
1	4	Palatini	21	86.74	89.35	88.25
2	4	Rosen	23	89.23	83.76	86.35
3	4	Ozawa	20	84.55	89.65	92.45
4	4	McCarthy	22	83.95	89.66	82.47
5	5	Klemmer	19	85.46	83.68	88.92
6	5	Garcia	24	86.95	92.46	91.33
7	5	Hood	21	90.34	87.84	88.95
8	6	Anderson	24	94.35	85.48	88.75
9	6	Librandi	22	89.33	83.79	85.95
10	6	Zera	21	86.74	93.25	90.35
11	7	Sanchez	23	84.36	87.56	88.25
12	7	Krauss	22	89.23	83.55	89.95
13	7	Chen	24	83.27	86.94	91.25
14	8	Bryant	22	82.47	84.74	86.55
15	8	Ridlon	23	83.74	86.72	84.76
16	8	Crandall	21	81.76	85.73	83.43

School Averages

FAVG(*field*) averages the numeric values in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FAVG(math) returns the average math score for each grade.
Report Summary Example:	= FAVG(math) returns the average math score for the whole school.

FCOUNT(*field*) counts the nonblank entries in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FCOUNT(lang arts) returns the number of language arts scores for each grade.
Report Summary Example:	= FCOUNT(lang arts) returns the number of language arts scores for the school.

FMAX(*field*) finds the maximum numeric value in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FMAX(lang arts) returns the highest language arts score for each grade.
Report Summary Example:	= FMAX(lang arts) returns the highest language arts score in the school.

FMIN(*field*) finds the minimum numeric value in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FMIN(soc st) returns the lowest social studies score for each grade.
Report Summary Example:	= FMIN(soc st) returns the lowest social studies score in the school.

FPAGE returns the current page number of a report. FPAGE can be used in a page header or footer.

Arguments:	None.
Page Footer Example:	= FPAGE returns 4 if it is currently the fourth page of a report.

Functions

FPREV returns the previous value of a report definition cell.

Arguments:	None.
Record Detail Line Example:	= FPREV + students computes a cumulative total of the number of students in each successive class in the school.
Section Summary Example:	= FPREV + FSUM(students) computes a cumulative total of the number of students in each grade in the school.

FSTD(*field*) computes the standard deviation of the numeric values in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FSTD(math) returns the standard deviation of the math scores for each grade.
Report Summary Example:	= FSTD(math) returns the standard deviation of the math scores in the school.

FSUM(*field*) sums the numeric values in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FSUM(students) returns the total number of students in each grade.
Report Summary Example:	= FSUM(students) returns the total number of students in the school.

FVAR(*field*) computes the variance of the numeric values in *field* for the selected records.

Argument:	*field* is the field containing the data.
Section Summary Example:	= FVAR(math) returns the variance of the math scores in each grade.
Report Summary Example:	= FVAR(math) returns the variance of the math scores in the school.

Appendix A. Exchanging Data Between Jazz Documents

Jazz documents can exchange either static views or HotViews of data.

A static view is not linked to its originating document. For example, suppose you paste a Jazz graph into a word processing document. Any subsequent changes to the worksheet or database on which the graph is based are not reflected in the copy of the graph in the word processing document.

A HotView, in a word processing document, is linked to its originating document unless you freeze it. For example, suppose you include a HotView of a Jazz graph in a word processing document. Any subsequent changes to the graph or its associated worksheet or database will automatically be reflected in the HotView of the graph in the word processing document. Freezing a HotView breaks the link with the originating document. Cutting or copying a HotView to a document, other than a Jazz word processing document, also breaks the link with the originating document.

Exchanging Static Views

From:	Use Command:	To:	Use Command:
Worksheet *	Cut or Copy	Word Processing Database Communications Worksheet Form	Paste
Graph *	Copy	Word Processing	Paste
Word Processing	Cut or Copy	Word Processing Database Communications Form Worksheet	Paste
Database *	Cut or Copy	Word Processing Worksheet Database Communications	Paste
Form	Cut or Copy	Word Processing Worksheet Communications Form	Paste
Communications	Copy	Worksheet Word Processing Database Form Communications	Paste

* Word processing documents can also include HotViews of this data. See the following table.

Exchanging HotViews

From:	To:	Use Command:
Worksheet	Word Processing	Include Merge Field
Graph	Word Processing	Include
Database	Word Processing	Include Merge Field
Word Processing*	Word Processing	Cut or Copy and Paste

*Applies to HotViews in word processing documents.

Appendix B. Memory Management

Jazz takes up about 256K of Macintosh memory, allowing another 256K of memory for your work. You can see what proportion of the available memory you're using by choosing the About Jazz... command from the Apple menu. The first figure tells you how many kilobytes of memory are available for data; the second tells you what percentage of the total memory you are currently using. (The second figure depends not only on the amount of data you've entered, but also on which features of the program you are using.) You should use this information as a guideline, not as an absolute indicator. You can conserve memory by following some of the hints below.

- Close any windows you're not using.

- Use only one point size and style for the text. The Geneva font takes up the least memory.

- Use the point sizes that appear in outline on the Font menu, as they take up less memory than those that appear in bold.

- Choose Disable Undo from the Apple menu, which prevents you from undoing commands, but saves memory.

- Remove or freeze any unnecessary HotViews in your documents. HotViews use more memory than data that is cut or copied from one document and pasted in another.

- Reduce the size of the active area in a worksheet by eliminating blank rows or columns between blocks of data, and by resetting unused cells to the default format. (Formatted or protected cells are part of the active area, even if they don't contain data.) Use the Corner Navigator to determine the active area.

- Remove empty records in a database.

- Whenever possible, use a single query definition and a single report definition in a database.

- If you don't have enough memory to generate a database report, copy the relevant records to a new database and close the original database. Generate the report from the new database.

Appendix C. Internationalizing Jazz

International Systems

To start Jazz, put the local system disk in the internal drive. Then, put the Jazz Program Disk in the external drive and start Jazz as usual.

Jazz displays dates, times, numbers, and currency in formats appropriate to the local system disk you are using. It also uses the correct collating sequence (sorting order) for each country.

The Jazz Primer Disk comes with the US system files. Using the Finder, delete the US system folder from the Primer Disk, and then copy the system folder from the local system disk onto the Jazz Primer Disk. (Make sure you have a backup copy of the Primer Disk before you do this.)

International keyboards use symbols on some keys instead of the words that appear on US keyboards. The *Handbook* and *Primer* refer to keys by their names on the US keyboard. Use the following chart to see which keys you should press on the keyboard you are using.

In the Jazz Books:	On Your Keyboard:
Backspace	←
Caps Lock	⇩
Enter	⌤
Return	↵
Option	⌥
Shift	⇧
Tab	⇥

US System

There are two ways to produce international characters on US keyboards. The Key Caps command on the Apple menu lets you click characters that don't appear on your keyboard. You can also generate international characters with the Option key and various key combinations. Appendix D gives the key combinations for each character in the Macintosh character set.

Appendix D. Macintosh Character Codes

The first column of this table shows the Macintosh character codes and the third column shows the Macintosh standard character set. Some fonts do not display all the characters listed. If you press a combination of keys to produce a character that is not in the font you are using, Jazz displays an open square (□) in the document.

The second column lists character codes in the Lotus International Character Set (LICS) that correspond to the codes (and characters) that Jazz uses for files converted from Symphony. In some cases, more than one LICS code translates to the same Macintosh code. Any LICS character that has no equivalent in the Macintosh standard character set appears as a question mark (?) in the converted document. (A list of those codes appears at the end of this appendix.)

The fourth column of the table shows how to generate each character using the US Macintosh keyboard. (In some cases, there is more than one way to generate the same character.)

Macintosh code	LICS code	Character	On US keyboard, press
0	0	control @	
1	1	control A	
2	2	control B	
3	3	control C	
4	4	control D	
5	5	control E	
6	6	control F	
7	7	control G	
8	8	control H	
9	9	control I	
10	10	control J	
11	11	control K	
12	12	control L	
13	13	control M	
14	14	control N	
15	15	control O	
16	16	control P	
17	17	control Q	
18	18	control R	
19	19	control S	
20	20	control T	
21	21	control U	
22	22	control V	
23	23	control W	
24	24	control X	
25	25	control Y	
26	26	control Z	
27	27	escape	
28	28	FS	

Macintosh code	LICS code	Character	On US keyboard, press
29	29	GS	
30	30	RS	
31	31	US	
32	32	space	space
33	33	exclamation	!
34	34	double quote	"
35	35	pound sign	#
36	36	dollar sign	$
37	37	percent	%
38	38	ampersand	&
39	39	single quote	'
40	40	left parenthesis	(
41	41	right parenthesis	)
42	42	asterisk	*
43	43	plus	+
44	44	comma	,
45	45	hyphen	-
46	46	period	.
47	47	slash	/
48	48	zero	0
49	49	one	1
50	50	two	2
51	51	three	3
52	52	four	4
53	53	five	5
54	54	six	6
55	55	seven	7
56	56	eight	8
57	57	nine	9
58	58	colon	:
59	59	semicolon	;
60	60	less than	<
61	61	equal	=
62	62	greater than	>
63	63	question mark	?
64	64	at sign	@
65	65	A	A
66	66	B	B
67	67	C	C
68	68	D	D
69	69	E	E
70	70	F	F
71	71	G	G
72	72	H	H
73	73	I	I
74	74	J	J
75	75	K	K
76	76	L	L
77	77	M	M
78	78	N	N
79	79	O	O

Macintosh code	LICS code	Character	On US keyboard, press
80	80	P	P
81	81	Q	Q
82	82	R	R
83	83	S	S
84	84	T	T
85	85	U	U
86	86	V	V
87	87	W	W
88	88	X	X
89	89	Y	Y
90	90	Z	Z
91	91	left bracket	[
92	92	backward slash	\
93	93	right bracket	]
94	94,130,146	^ (circumflex)	^
95	95	underscore	_
96	96,128,144	` (grave accent)	`
97	97	a	a
98	98	b	b
99	99	c	c
100	100	d	d
101	101	e	e
102	102	f	f
103	103	g	g
104	104	h	h
105	105	i	i
106	106	j	j
107	107	k	k
108	108	l	l
109	109	m	m
110	110	n	n
111	111	o	o
112	112	p	p
113	113	q	q
114	114	r	r
115	115	s	s
116	116	t	t
117	117	u	u
118	118	v	v
119	119	w	w
120	120	x	x
121	121	y	y
122	122	z	z
123	123	left brace	{
124	124	vertical bar		
125	125	right brace	}
126	126,132,148	~ (tilde)	~
127	127	del	
128	196	Ä (A with umlaut)	Option-u A
129	197	Å (A with ring)	Shift-Option-A
130	199	Ç (C with cedilla)	Shift-Option-C

Macintosh code	LICS code	Character	On US keyboard, press
131	201	É (E with acute)	Option-e E
132	209	Ñ (N with tilde)	Option-n N
133	214	Ö (O with umlaut)	Option-u O
134	220	Ü (U with umlaut)	Option-u U
135	225	á (a with acute)	Option-e a
136	224	à (a with grave)	Option-` a
137	226	â (a with circumflex)	Option-i a
138	228	ä (a with umlaut)	Option-u a
139	227	ã (a with tilde)	Option-n a
140	229	å (a with ring)	Option-a
141	231	ç (c with cedilla)	Option-c
142	233	é (e with acute)	Option-e e
143	232	è (e with grave)	Option-` e
144	234	ê (e with circumflex)	Option-i e
145	235	ë (e with umlaut)	Option-u e
146	237	í (i with acute)	Option-e i
147	236	ì (i with grave)	Option-` i
148	238	î (i with circumflex)	Option-i i
149	239	ï (i with umlaut)	Option-u i
150	241	ñ (n with tilde)	Option-n n
151	243	ó (o with acute)	Option-e o
152	242	ò (o with grave)	Option-` o
153	244	ô (o with circumflex)	Option-i o
154	246	ö (o with umlaut)	Option-u o
155	245	õ (o with tilde)	Option-n o
156	250	ú (u with acute)	Option-e u
157	249	ù (u with grave)	Option-` u
158	251	û (u with circumflex)	Option-i u
159	252	ü (u with umlaut)	Option-u u
160		† (dagger)	Option-t
161	176	° (degree, ring accent)	Shift-Option-8
162	162	¢ (cent sign)	Option-4
163	163	£ (pound sign)	Option-3
164	167	§ (section mark)	Option-6
165	183	• (middle dot)	Option-8
166	182	¶ (paragraph)	Option-7
167	223	ß (German double s)	Option-s
168		® (registered)	Option-r
169	169	© (copyright)	Option-g
170	184	™ (trademark)	Option-2
171	129,145	´ (acute)	Option-e Option-e
172	131,147	¨ (umlaut)	Option-u Option-u
173		≠ (not equal)	Option-=
174	198	Æ (AE diphthong)	Shift-Option-'
175	216	Ø (O with slash)	Shift-Option-o
176		∞ (infinity)	Option-5
177	177	± (plus/minus sign)	Shift-Option-=
178	190	≤ (less than equal)	Option-,
179	174	≥ (greater than equal)	Option-.
180	165	¥ (Yen sign)	Option-y
181	181	μ (micron)	Option-m

Continued

Macintosh code	LICS code	Character	On US keyboard, press
182		∂ (partial differential)	Option-d
183		Σ (summation)	Option-w
184		Π (product)	Shift-Option-p
185	173	π (pi)	Option-p
186		∫ (integral)	Option-b
187	170	ª (feminine ordinal)	Option-9
188	186	º (masculine ordinal)	Option-0
189		Ω (capital omega)	Option-z
190	230	æ (ae diphthong)	Option-'
191	248	ø (o with slash)	Option-o
192	191	¿ (inverted question)	Shift-Option-/
193	161	¡ (inverted exclamation)	Option-1
194		¬ (logical not)	Option-l
195		√ (square root)	Option-v
196	160	ƒ (Dutch Guilder)	Option-f
197		≈ (approximately equal)	Option-x
198	172	Δ (delta)	Option-j
199	171	« (left double angle)	Option-\
200	187	» (angle quote right)	Shift-Option-\
201		... (ellipsis)	Option-;
202		(non-breaking space)	Option-space
203	192	À (A with grave)	Option-` A
204	195	Ã (A with tilde)	Option-n A
205	213	Õ (O with tilde)	Option-n O
206	215	Œ (OE diphthong)	Shift-Option-q
207	247	œ (oe diphthong)	Option-q
208		– (en dash)	Option- –
209		— (em dash)	Shift-Option- –
210		" (left double quote)	Option-[
211		" (right double quote)	Shift-Option-[
212		' (left single quote)	Option-]
213		' (right single quote)	Shift-Option-]
214	175	÷ (divide sign)	Option-/
215		◊ (diamond)	Shift-Option-v
216	253	ÿ (y with umlaut)	Option-u y
217	221	Ÿ (Y with umlaut)	Shift-Option-`
218		⁄ (diagonal fraction bar)	Shift-Option-1
219	168	¤ (general currency)	Shift-Option-2
220		‹ (left single angle quote)	Shift-Option-3
221		› (right single angle quote)	Shift-Option-4
222		fi (fi ligature)	Shift-Option-5
223		fl (fl ligature)	Shift-Option-6
224		‡ (double dagger)	Shift-Option-7
225		· (period centered vertically)	Shift-Option-9
226		‚ (low closing single quote)	Shift-Option-0
227	180	„ (low closing double quote)	Shift-Option-w
228		‰ (per thousand)	Shift-Option-e
229	194	Â (A with circumflex)	Shift-Option-r
230	202	Ê (E with circumflex)	Shift-Option-t
231	193	Á (A with acute)	Shift-Option-y
232	203	Ë (E with umlaut)	Shift-Option-u

Macintosh code	LICS code	Character	On US keyboard, press
233	200	È (E with grave)	Shift-Option-i
234	205	Í (I with acute)	Shift-Option-s
235	206	Î (I with circumflex)	Shift-Option-d
236	207	Ï (I with umlaut)	Shift-Option-f
237	204	Ì (I with grave)	Shift-Option-g
238	211	Ó (O with acute)	Shift-Option-h
239	212	Ô (O with circumflex)	Shift-Option-j
240		Apple logo	Shift-Option-k
241	210	Ò (O with grave)	Shift-Option-l
242	218	Ú (U with acute)	Shift-Option-;
243	219	Û (U with circumflex)	Shift-Option-z
244	217	Ù (U with grave)	Shift-Option-x
245	149	ı (lowercase dotless i)	Shift-Option-b
246		ˆ (circumflex accent)	Shift-Option-n
247		˜ (tilde accent)	Shift-Option-m
248		¯ (macron accent)	Shift-Option-,
249		˘ (breve accent)	Shift-Option-.
250		˙ (dot accent [above])	Option-h
251		° (ring accent)	Option-k
252		¸ (cedilla accent)	
253		˝ (double acute accent)	
254		˛ (nasalization sign)	
255		ˇ (Caron or hacek accent)	

The LICS codes listed below have no equivalent in the Macintosh standard character set. If you convert a Symphony file that contains any of these characters, they will appear as question marks (?) in the Macintosh document.

LICS code	Symphony description
133–143	(undefined)
150	ordinal indicator
151	begin attribute (display only)
152	end attribute (display only)
153	unknown character (display only)
154	hard space (display only)
155	merge character (display only)
156–159	(undefined)
164	low opening double quotes
166	pesetas sign
178	superscript 2
179	superscript 3
185	superscript 1
188	fraction one fourth
189	fraction one half
208	uppercase eth (Icelandic)
222	uppercase thorn (Icelandic)
240	lowercase eth (Icelandic)
254	lowercase thorn (Icelandic)
255	(undefined)

Glossary

absolute address
A worksheet cell address that always refers to the same cell, even if you copy a formula containing the address to another cell or range. Dollar signs precede the column letter and row number of an absolute cell address (for example, A1).

Absolute icon
The icon that appears when you click a cell to enter its address into a formula. Clicking this icon lets you change a cell reference in a formula from relative to absolute to mixed to relative.

active area
The rectangular area in a worksheet or database that extends from the first to the last cell you enter data in or format. The rectangle can be as small as one cell or as large as the entire worksheet.

active cell
The worksheet cell or database field, indicated by a highlight, that is affected by your next action. If you selected a worksheet or database range, the active cell has a white border.

active field box
The area in the Database console that displays the name of the field containing the active cell.

active record box
The area in the Database and Use Form consoles that displays the active record number.

active selection
The selected area in a document, indicated by a highlight.

Alignment icons
The icons in the Word Processing console that let you left-align, right-align, center, or fully justify the text in a document.

anchor well
The well in the Modify Form console that anchors the upper left corner of the notation box or the field in a form.

application
One of Jazz's five subsystems for manipulating data. The five applications are Worksheet, Graphics, Word Processing, Database, and Communications.

argument
A value or set of values that you provide for a function.

arithmetic formula
A mathematical expression in a worksheet or database that tells Jazz to calculate a numeric value by using arithmetic operators and/or functions (for example, $= A5/(12*5)$).

arrow well
A well in the Graphics console that you click to place an arrow on a graph. For example, you can use an arrow with text to annotate a graph.

axis label

A numeric or text entry in the Graphics application that you use to identify the data on a text axis or the values on a numeric axis.

bar graph

A graph that shows numeric data as a set of evenly spaced bars. Each bar is a value in a range you select from a worksheet or database.

baud rate

The speed at which data is transmitted or received during a communications session.

border

The area along the top and to the left of a worksheet or database that contains column labels and row labels, or field names and record numbers.

border line

The vertical line that separates columns from each other in a worksheet or database border. When you place the pointer on the border line, it changes to a double arrow so you can adjust the width of the column or field.

Calculate icon

An icon that you click to calculate a worksheet formula in the entry box and replace the formula with its value. This icon only appears when a formula is in the entry box.

Cancel icon

An icon in the Worksheet and Database consoles that appears as soon as you enter data in the entry box. The Cancel icon lets you erase the entry in the entry box.

CD indicator

The carrier detect indicator that appears in the Communications console when your Macintosh has established a communications link with another computer.

cell

The basic unit of the worksheet into which you enter data. In a database, the cell contains a field value.

cell address

The location of a worksheet cell, identified by a column label and a row number (for example, A5 or BC25).

cell entry

Data entered into a worksheet cell. A cell entry can be a number, text, or a formula.

Circular Reference icon

The icon that appears in the Worksheet console if a formula results in a circular reference. Clicking this icon selects a cell containing a formula that is part of the circular reference.

column

A vertical block of cells in a worksheet. A column is one cell wide and runs the length of a worksheet.

column border
The area at the top of a worksheet that contains the column labels (for example, A, B, or CA).

column labels
The letters A through IV at the top of each worksheet column. Each letter or letter combination identifies one column.

Communications application
The application that allows Jazz to communicate with another computer. You can send or receive messages and documents, emulate VT 100 or VT 52 terminals, and have access to information services, mainframe computers, and time-sharing services.

Communications console
The area in the Communications application that contains the RCV indicator, the CD indicator, and the terminal keys.

console
The area in each Jazz application below the menu bar. All consoles contain icons, wells, boxes, or indicators, but the function of each console varies from application to application.

contents box
In the Worksheet console, the area that displays the value in the active cell or the formula that produces the value in the active cell. In the Database console, the area that displays the contents of the active cell within the selected field or record.

Corner Navigator
The icon in the Worksheet console that you click to move to each corner in the selected range. If you hold down the Command key while clicking this icon, you move to each corner of the active area in the worksheet.

criteria
The information you enter in a database query that defines which records you want to search for in the database.

cursor
In the Communications application, the location where data you enter is displayed on the screen.

cursor well
The well in the Graphics console that you click to edit a notation or to make part of the graph active.

data
Information that you enter in Jazz documents. For example, data in a worksheet can be numbers, text, or formulas.

database
An organized collection of data consisting of records that are made up of fields (for example, name, address, or phone number). The fields are the basic units of a database.

Database application
The application that allows you to enter and organize data in fields and records. You can then use this application to sort and search for records and generate reports.

Database console
The area in the Database application that contains the active field box, the active record box, the contents box, the entry box, the Cancel icon, and the Record Navigator.

data bits
The units used to measure the size of a character transmitted during a communications session.

data points
The individual data values in a plotted range. On a line graph, data points are marked by symbols, and the symbols are connected by lines. On a bar graph, data points are marked by the lines across the top of a bar.

Decimal Tab icon
The icon in the Word Processing console that you click to set decimal tabs on the ruler. In a word processing document, a decimal tab aligns numbers on the decimal point or right-aligns text.

default
An initial setting that Jazz automatically uses unless you change it.

display format
In a worksheet or database, the way a numeric or text value appears in a cell, a range, or a field.

double arrow
The shape the pointer assumes in a worksheet or database when you place the pointer on a column border line. When the pointer is in the shape of a double arrow, you can drag it to change the column or field width.

End Navigator
The icon in the Worksheet console that you click to quickly select cells and expand or shrink the size of a selected range.

entry box
The box in the Worksheet and Database consoles where you enter new data or edit previously entered data.

field
A collection of similar information in a database. All values that you enter in a field appear in the same database column.

field value
The contents of a cell in a database.

flow control
The communications setting that regulates the flow of information a computer sends or receives during a communications session so that nothing is lost due to differences in transmission rate.

Form
The icon that you click to work with a database through a form. A form lets you modify or view the information in a database one record at a time.

Form consoles
In the Database application, there are two Form consoles. The Modify Form console contains the notation well, the anchor well, and the reference box. The Use Form console contains the View Matching icon, the View All icon, the Query icon, the active record box, the reference box, and the Record Navigator.

formula
A mathematical expression that defines the relationship between two or more cells in a worksheet or database. A Jazz formula can calculate numeric or text values.

frozen view
In a word processing document, data from another Jazz application that is no longer linked to its source. Unlike a HotView, a frozen view does not change if you change the source document. You can select, edit, cut, paste, and change the font or style of a frozen view. (You cannot, however, edit a frozen graph.)

function
A built-in formula, such as the SUM function, that automatically performs a certain calculation in a worksheet or database.

Graphics application
The application that lets you create, view, edit, save, and print graphs, using database or worksheet data.

Graphics console
The area in the Graphics application that contains the cursor well, the line well, the arrow well, the notation well, the Plot Selector, and the reference box.

HotView
In a word processing document, a dynamic view of data from another Jazz document (for example, a graph). Any changes in the original document are reflected in the HotView, unless you break the link between the source document and the HotView by freezing it.

insertion point
The location (indicated by a blinking vertical bar) where you can enter characters in any Jazz application.

legend
The patterns or symbols and the text used to define the symbols or patterns in a graph.

line graph
A graph that represents numeric data as a set of evenly spaced data points connected by a line. A line graph shows change over a period of time.

Line Space icons
The icons in the Word Processing console that you click to choose single-spacing (1), one-and-one-half-spacing (1.5), or double-spacing (2) between lines of text.

line well
The well in the Graphics console that you click to place a line on a graph. For example, you can use a line with text to annotate a graph.

logical formula
A formula that evaluates a condition by using a logical operator or logical function. For example, in the formula
$= IF(A7 > 0, A7 - A8, "Overdrawn")$, if the value in A7 is > 0, the value in A8 is subtracted from the value in A7; if the value in A7 is 0 or less, then the word Overdrawn appears in the cell.

long text entry
A text entry that is longer than the current column width and either extends into the next column (if the next cell is empty), or is cut short and followed by an ellipsis (if the next cell is filled).

mixed address
A worksheet cell address that is part absolute and part relative. A dollar sign preceding either the column letter or the row number indicates which part is absolute. For example, if a formula in B2 contains the address A$1, and you copy the formula to cell G8, the address becomes F$1.

modem
A device that enables computers to communicate with each other through conventional telephone lines.

notation boxes
The boxes created when you click the notation well in the Graphics and Modify Form consoles. You can use notation boxes for adding text to a graph or for writing instructions on a form.

notation well
The wells in the Graphics and Modify Form consoles that you click to place a notation box in a graph or on a form.

numeric axis
The reference line in a graph that you use to plot the numeric values for that graph.

operator
A symbol that you use in a worksheet or database formula to indicate the operation to be performed (for example, $+$, $-$, $*$, or $/$).

page box
The box in the scroll bar that you either click to scroll through a document by windows, or press to scroll through windows continuously.

parity
The communications setting that determines the type of error checking (if any) that Jazz uses when it transmits or receives a character during a communications session. The parity can be set to odd, even, or none, and both computers must have the same setting.

pie chart

A graph that compares parts to the whole. In a pie chart, each value in a range is a wedge of the pie. The size of each wedge corresponds to the percentage of the total each value represents.

plot

The part of the graph that represents a range you select from the worksheet or database (for example, a line on a line graph or a set of bars on a bar graph). Each range you select is a separate plot on the graph.

plot marker

The symbol that marks the plot you select in a graph with the Plot Selector.

Plot Selector

The icon in the Graphics console that you click to cycle through and select one of the plots on a graph so you can clear the plot or change its appearance.

Protect icon

The icon in the Worksheet console that only appears if you enforce the protection settings in the worksheet.

query

One or more criteria that Jazz uses when searching for records in a database.

Query icon

The icon in the Use Form console that you click to display a window in which you define the criteria for your query.

range

Any rectangular block of selected worksheet cells. The smallest range is a single cell, and the largest is the entire worksheet (for example, A2 or A2..B7). To create a graph, you use a range of worksheet entries.

range address

The location of a range in a worksheet. A range address consists of the address of the upper left cell and the address of the lower right cell separated by one or more periods (for example, A2..C4).

RCV indicator

The indicator in the Communications console that shows if you are currently receiving data in a document or a selection. The RCV indicator appears only when you are receiving data without using a protocol.

Recalculate icon

The icon that appears if you make a change in the worksheet that affects the value of any formula (and recalculation mode is set to Manual). Clicking this icon recalculates the worksheet.

record

A set of information in a database that contains a single value for each field. A record appears as a single row and each record has a record number that identifies it.

Record Navigator
The icon in the Database and Use Form consoles that you click to move to the first or last selected record by using the black arrows. You click the white arrows to move to the next or previous selected record.

Reference Board
The window that displays the name of the last Jazz document from which you made a selection. The Reference Board also displays the range address for a worksheet selection, or the first field name for a database selection.

reference box
The area in the Graphics and Word Processing consoles that displays the name of the source document for a plot or a selected HotView. The area in the Modify Form and Use Form consoles that displays the database associated with the form.

relative address
A worksheet cell address in a formula that is always relative to the cell containing the formula. If you copy a formula with a relative address, the address changes to reflect its new position in relation to the formula. For example, if a formula in cell B2 contains the relative address A1 and you copy the formula to cell G8, the address becomes F7.

row
A horizontal block of cells across a worksheet. A row is one cell deep and runs the width of the worksheet.

row border
The area to the left of a worksheet that contains the row labels (for example, 1, 2, or 57).

row labels
The numbers, ranging from 1 to 8192, that identify each worksheet row.

selection box
The area in the Worksheet console that displays the address or name of the selected cell or range. You can also type an address in a selection box to locate that address in the worksheet.

size box
The box in the lower right corner of the active window or notation box that you drag to change the size of the window or notation box. In a notation box, the size box appears as a small black square.

stacked bar graph
A graph that compares totals as well as individual values. Each part of each stacked bar represents a value in one of the ranges you are graphing.

static view
In any Jazz application, the data that you cut, copy, or paste using the Clipboard. Unlike a HotView, a static view is no longer linked to its source document and does not change when the original data changes.

stop bits
Additional bits that follow each character in a communications session to signal the character's end.

stretch box
The box at the end of an arrow or line in a graph, which you drag to change the size of the arrow or line.

symbols
The characters that mark each data point on the plot of a line graph or scatter graph.

Tab icon
The icon in the Word Processing console that you click to set tabs on the ruler.

terminal keys
The keys on the Communications console that are equivalents for the keys on the VT 100 keypad.

text axis
The reference line in a graph to which you add axis labels that identify the data you are graphing.

text display format
The way text appears in a worksheet cell or database field.

text formula
A formula that uses or refers to a text value in a worksheet or database. For example, if A1 contains "data" and B1 contains "base," then the value of A1&B1 is database.

value
A number or the result of a formula.

View All icon
The icon in the Use Form console that you click to view all records in the database.

View Matching icon
The icon in the Use Form console that you click to view records in the database that match the criteria in your query.

what-if table
In the Worksheet application, there are two what-if tables. A 1-way table shows the changes to one or more formulas when you place different values in one cell. A 2-way table shows the changes to one formula when you place different values in two cells.

window
The area of the screen through which you can view a portion of a document.

Word Processing application
The application that allows you to create, edit, and format documents. Using a HotView, you can also include dynamic views of information from other documents in a word processing document.

Word Processing console
The area in the Word Processing application that contains the Line Space icons, the Alignment icons, the Tab icon, the Decimal Tab icon, and the reference box.

worksheet
An electronic spreadsheet organized into columns and rows.

Worksheet application
The Jazz application that allows you to enter numbers and text into an electronic worksheet so you can perform calculations with that data.

Worksheet console
The area in the Worksheet application that contains the selection box, the contents box, the entry box, and various icons.

Index

Reader Comment Form

Once you are familiar with the *Primer* and the *Handbook*, please answer the following questions.

Which applications did you learn to use from the *Primer*?
- ☐ Worksheet
- ☐ Graphics
- ☐ Word Processing
- ☐ Database
- ☐ Communications

Which applications did you learn to use from the *Handbook*?
- ☐ Worksheet
- ☐ Graphics
- ☐ Word Processing
- ☐ Database
- ☐ Communications

When do you use the *Primer*?
☐ For learning about Jazz   ☐ As a reference   ☐ _____

When do you use the *Handbook*?
☐ For learning about Jazz   ☐ As a reference   ☐ _____

Do you use one book more than the other?
☐ *Primer* more than the *Handbook*   ☐ *Handbook* more than the *Primer*
☐ Use them equally

Please comment on the quality and the number of illustrations and examples in the *Primer* and the *Handbook*.

_____

_____

Is there any information that you needed and were unable to find in the books? If yes, please describe.

_____

_____

What errors, if any, did you find in the books?

Book Title	Page No.	Error

How would you describe yourself?
- ☐ First-time computer user
- ☐ User of one other software package
- ☐ User of several software packages
- ☐ User of one other integrated software package
- ☐ _____

How often do you plan to use Jazz?
☐ 1 hour a week   ☐ 1 hour a day   ☐ 2 or more hours a day
☐ _____

Name _____

Title _____ Company _____

Address _____

City _____ State _____ Zip _____

Telephone _____ Date _____

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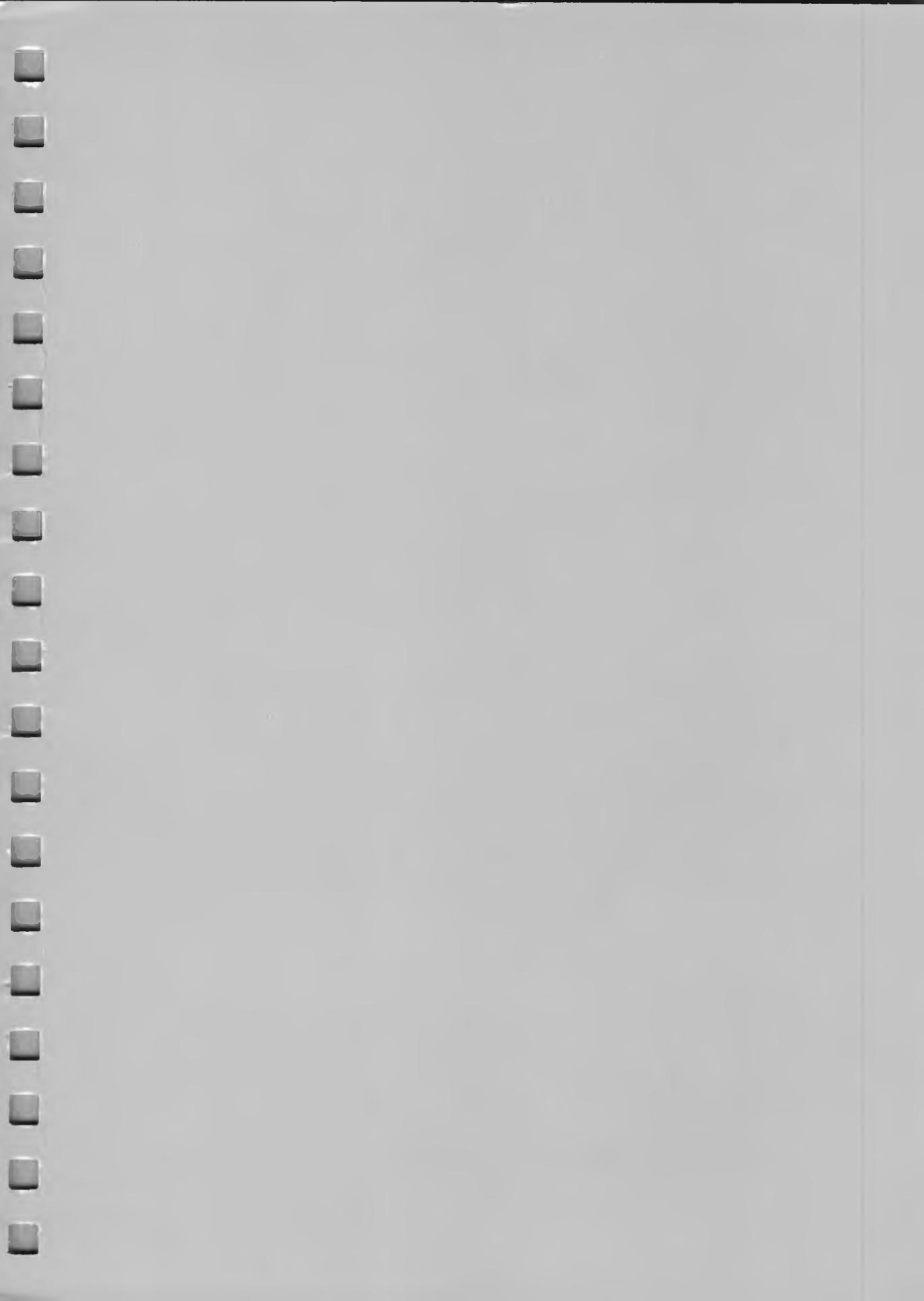FIRST CLASS   PERMIT NO. 1359   CAMBRIDGE, MA

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