The first fully-integrated productivity package for the Macintosh™.

Ensemble™

User Manual

HAYDEN SOFTWARE

Developed by Controle X, Inc.

Ensemble™

The first fully integrated productivity package for the Macintosh™

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HAYDEN SOFTWARE COMPANY, INC.
600 Suffolk Street
Lowell, MA 01854

800-343-1218
617-937-0200

35034-00

Table of Contents

PART I: GETTING STARTED WITH ENSEMBLE

Welcome to Macintosh with Hayden Ensemble!

Part I

Getting Started with Ensemble

What is Ensemble?

Ensemble is an integrated productivity tool that combines data base management, report and form generation capabilities, word processing, calculations, business graphics, the ability to link multiple files and compatibility with MacPaint and MacWrite.

A Few Highlights of Ensemble

Ensemble provides dozens of features that you combine to present and manipulate data to suit your needs.

- You can integrate text, numbers and graphics. For example, you can prepare a text, insert a graph created with Ensemble, paste in a logo created by MacPaint, and finally ''dress up'' your report with the collection of MacPaint-like graphic elements;
- You can work with up to 3 files at a time and establish a data flow by creating calculations using information from any of the 3 files;
- You can specify calculations that include conditional selections (if, then, else), as well as arithmetic, logical and relational operations;
- You can instruct Ensemble to automatically update an entire file with, for example, a new price;
- You can send your data to any of 10 graphs by merely clicking your mouse; a time line and correlation table are included.

Ensemble and Macintosh

Ensemble uses the standard Macintosh tools, including pull-down menus, icons, windows, dialog boxes, and activities such as dragging, clicking, double clicking, and selecting. (For more information about Macintosh tools and activities, refer to the **Macintosh User Guide**.)

Equipment Requirements

To use Ensemble you need the following equipment:

- Macintosh with 128K or 512K RAM
- An Imagewriter printer with paper and ribbons
- Extra 3.5″ blank disks
- An external disk drive is recommended for ease of use, but is not necessary to the proper operation of the program.

What the Ensemble Package Includes

In the box you should find the following material in addition to this User Manual:

- A disk entitled Guided Tour of Ensemble
- The Ensemble Master Program Disk
- A disk entitled Ensemble Examples
- An Examples brochure describing the examples on the Ensemble Examples disk
- A warranty card

Warranty

In order to give you complete service and support, we would like to have your warranty card on file. Take a couple of minutes to complete the warranty card that came in your Ensemble package and return the card to us as soon as possible.

The Guided Tour Disk

Before you begin this User Manual, it will be helpful to first look at the Guided Tour Disk. Take the Guided Tour disk from the package and insert it, label side up, into your Macintosh disk drive.

After the disk window appears, double click the Guided Tour icon. This will take you to the beginning of the Guided Tour. Here you can choose whether you want to see the Automatic Demonstration of Ensemble's features, or the User-Aided Demonstration, where you get some hands-on practice.

If you have never seen Ensemble "in action" before, we recommend that you watch the Automatic Demonstration first. Then if you wish, repeat the demonstration in User-Aided mode.

> NOTE: The Guided Tour on the disk and the Tutorial in Chapter 1 of this User Manual are not intended to be used together. After you finish with the Guided Tour disk, put it away, and begin using the User Manual with your Ensemble Master Program Disk.

The Ensemble Examples Disk and Brochure

The Examples disk and brochure include more advanced applications of your Ensemble program. These applications emphasize the integrated use of all the Ensemble features. We suggest that you use these after you have had some experience with the basic features of the program included in the User Manual.

About this Manual

This manual is divided into four parts, as follows.

Part I consists of introductory material and includes a tutorial in Chapter 1 that shows you how to use many of Ensemble's main features and provides a narrative overview of Ensemble in Chapter 2. Some of us prefer to start with a hands-on tutorial that guides us through examples of using the main features without providing the intricacies. If you are in this group, then you might first want to use the tutorial in Chapter 1. However, some of us prefer to look at the complete picture before sitting down at the keyboard to experiment. If this sounds like you, then begin with the overview of Ensemble in Chapter 2.

Part II, consisting of Chapters 3, 4, and 5, describes how to use Ensemble to create and manage your information files. **Part III,** which consists of Chapters 6, 7, 8, and 9, adds to the knowledge you acquired in the first two parts by describing the creation of lists, graphs, reports, labels, and mailings. Finally, **Part IV** includes several appendices of tables.

Making a Backup Copy of the Ensemble Master Program Disk

The Ensemble program comes with only one Master Program Disk. Therefore, we strongly recommend that you make a backup copy of this disk and ONLY use the Master Program Disk when a dialog box appears with the request to insert the original disk.

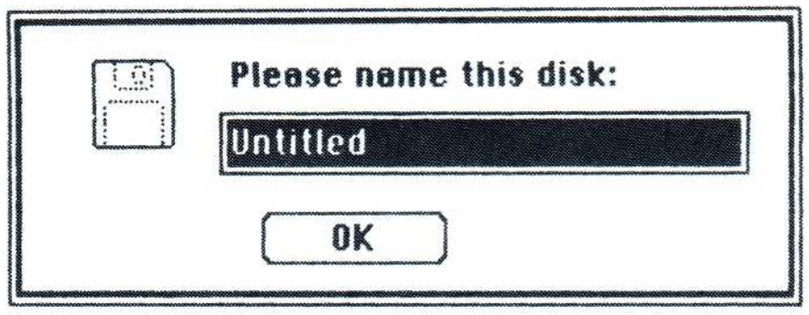
Once the Macintosh is set up, you can make a backup copy of the Ensemble Master Program Disk. First, make sure that the Master Program Disk is locked, to prevent you from inadvertently writing on it. Slide the small tab toward the edge of the disk.

- Insert the original Ensemble Master Program Disk into the Macintosh internal drive. Its icon appears with the word Hayden under it.
- Insert a blank disk into the external drive. If you do not have an external drive, eject the Ensemble Master Program Disk and insert the blank disk into the internal drive.

A dialog box appears.

- Initialize the blank disk by clicking the INITIALIZE button.

When the disk is initialized, the following dialog box appears.

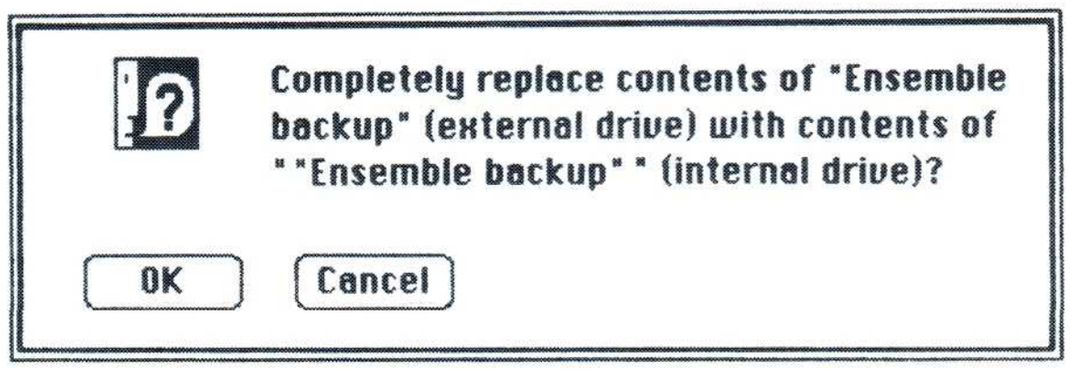


- Type the name of the disk.
- Click the OK button.

When the dialog box disappears, you can continue the copy procedure. If you do not have an external drive, eject the newly initialized disk and insert the Ensemble Master Program Disk.

- Drag the icon of the Ensemble Master Program Disk (the Hayden icon) and place it on top of the icon of the blank disk.

The following dialog box appears if you have an external drive.



If you do not have an external drive, the words ''(external drive)'' are replaced by ''(not in any drive).''

- Click the OK button.

If you do not have an external drive, follow the prompts to switch disks.

When the Macintosh completes the copy process, select and EJECT the Ensemble Master Program Disk. Store it and all other disks and diskettes away from heat, direct sunlight, and magnetic objects.

To backup the Program Disk on a hard disk drive, consult your hard disk drive owner's manual.

We now invite you to proceed with either the Tutorial in Chapter 1 or the Overview of Ensemble in Chapter 2.

Chapter 1

Using Ensemble — A Tutorial

This first chapter is a tutorial to get you started and show you many of the features of Ensemble. The tour guides you through the following activities.

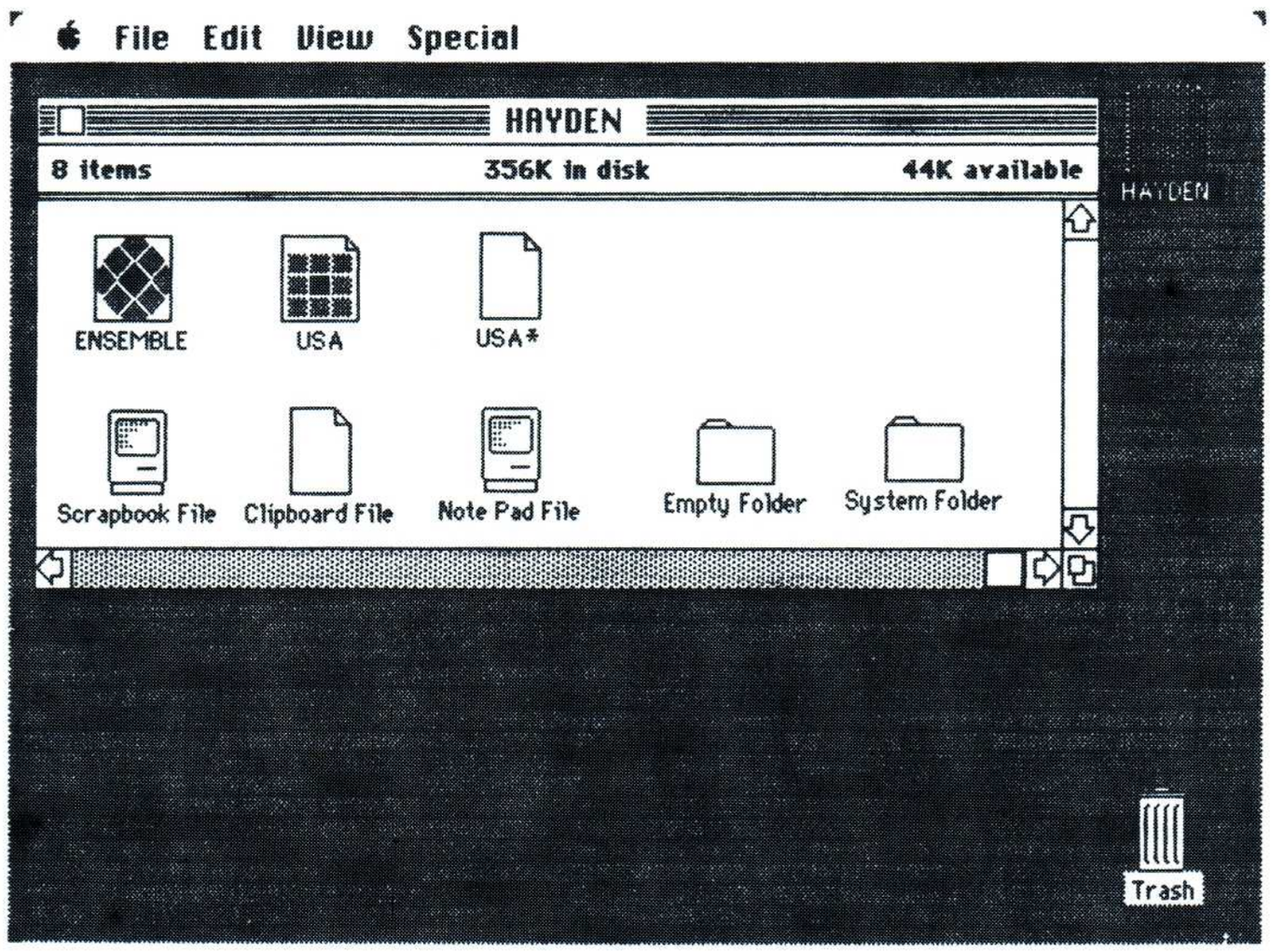
- Creating a Work Disk
- Opening Ensemble
- Designing a Form
- Adding a Record
- Searching for a Record
- Printing a Record
- Creating a Graph
- Building Computations into a Form

Creating a Work Disk

Because you will modify the USA file and USA* data file as you use the tutorial in this chapter, it is a good idea to copy these two files from the Hayden Master Program Disk to one that you will use as a work disk.

- Double click the Ensemble disk icon.

The disk window opens and you can see the contents of the disk: icons that represent Ensemble, a sample file named USA, and a sample data file called USA*.



- Insert a new disk and follow the instructions for initializing the disk.
- Select the USA file and USA* data file.
- Drag the darkened icons (USA or USA*) to and place them on top of the icon of the blank disk.

When the Macintosh completes the copy process, select and EJECT the original Hayden Master Program Disk. Insert the Ensemble backup disk. Follow the instructions in the dialog boxes. Then store the Hayden Master Program Disk away from magnetic objects.

Now you will learn how to use many of Ensemble's major features by working through the tutorial, but first you must open Ensemble.

Opening Ensemble

Opening the Ensemble program is much like opening any program that you might run on Macintosh.

To open Ensemble:

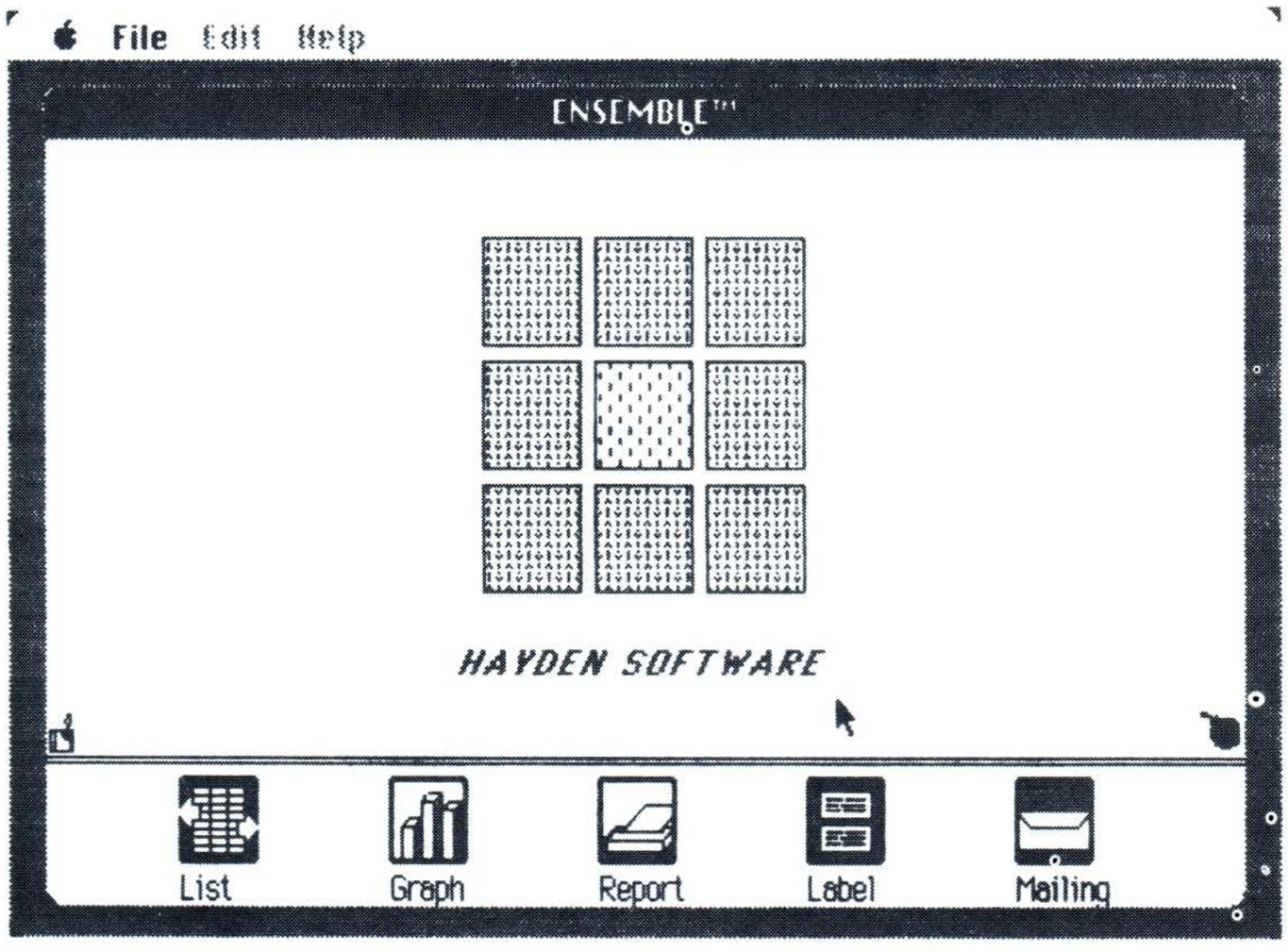
- If it is not already open, open the window of the Ensemble disk by double clicking the Hayden disk icon.

The disk window opens and shows the USA file, the USA* data file, and the Ensemble program icon.

> NOTE: Each file has a corresponding data file indicated with an asterisk. For example, the **form** for entering data about USA is stored in the USA file, as you will learn in this tutorial. However, the actual data itself is stored in the USA* file. For now, merely note that there is a difference between the two.

- Double click the Ensemble program icon.

The Ensemble desktop appears with three menus, five icons, and the program logo.



Designing a Form

Just as you create a new file when using MacWrite or MacPaint, you also create a new file when using Ensemble. However, with Ensemble you must also design the layout of the file, that is, the structure that you use to organize the items of information you ultimately enter into the file. Simply stated, this layout is called a form and can look like a paper form that you might fill out. This means you can design a form that looks just like a paper form you currently use and make your data entry tasks that much easier.

In this first example, you will create a simple form for an address book with areas for information you fill in and areas for the description or name of those areas. You will also place a title at the top of the form and a comment at the bottom of the form. The idea in this first example is to give you a chance to use some of Ensemble's tools and see first-hand how the program works. In later examples in this tutorial chapter, you will use the USA file, create and work with a graph, and then build a computation into the USA file.

In this example, designing a form for an address book includes the following activities:

- Creating a new file
- Choosing the location of the title of the form
- Entering the title
- Choosing the location of a field name
- Entering a field name
- Choosing the location of a field
- Describing the characteristics of a field
- Completing the remainder of the field names and fields
- Choosing the location of and entering constant information
- Adding lines to separate the fields from the constant information
- Saving the file
- Quitting Ensemble

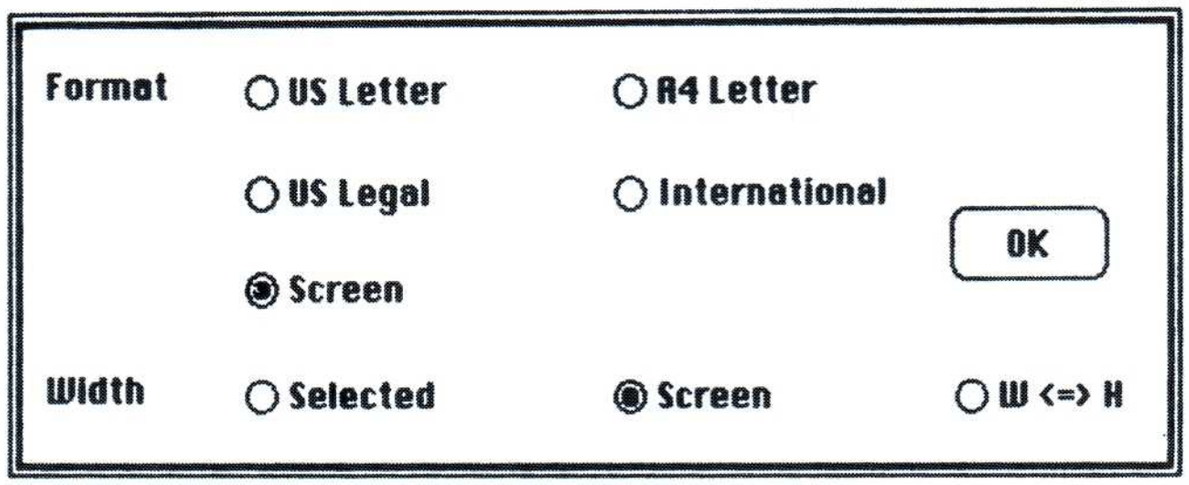
Creating a New File

A new file is created from the Ensemble desktop. Since the desktop is already displayed, you can follow these steps to create a new file.

To create a new file:

- Select NEW from the FILE menu **OR** press the ⌘-n keys.

A dialog box appears for you to choose the length and width of the printed page [FORMAT] and the width of the form on the screen [WIDTH].



NOTE: Ensemble gives you only one opportunity to select the page and form size. (You will learn more about how to do this in Chapter 3.) You can, however, go back to the desktop and start over.

When deciding the size [WIDTH] of the form consider the following:

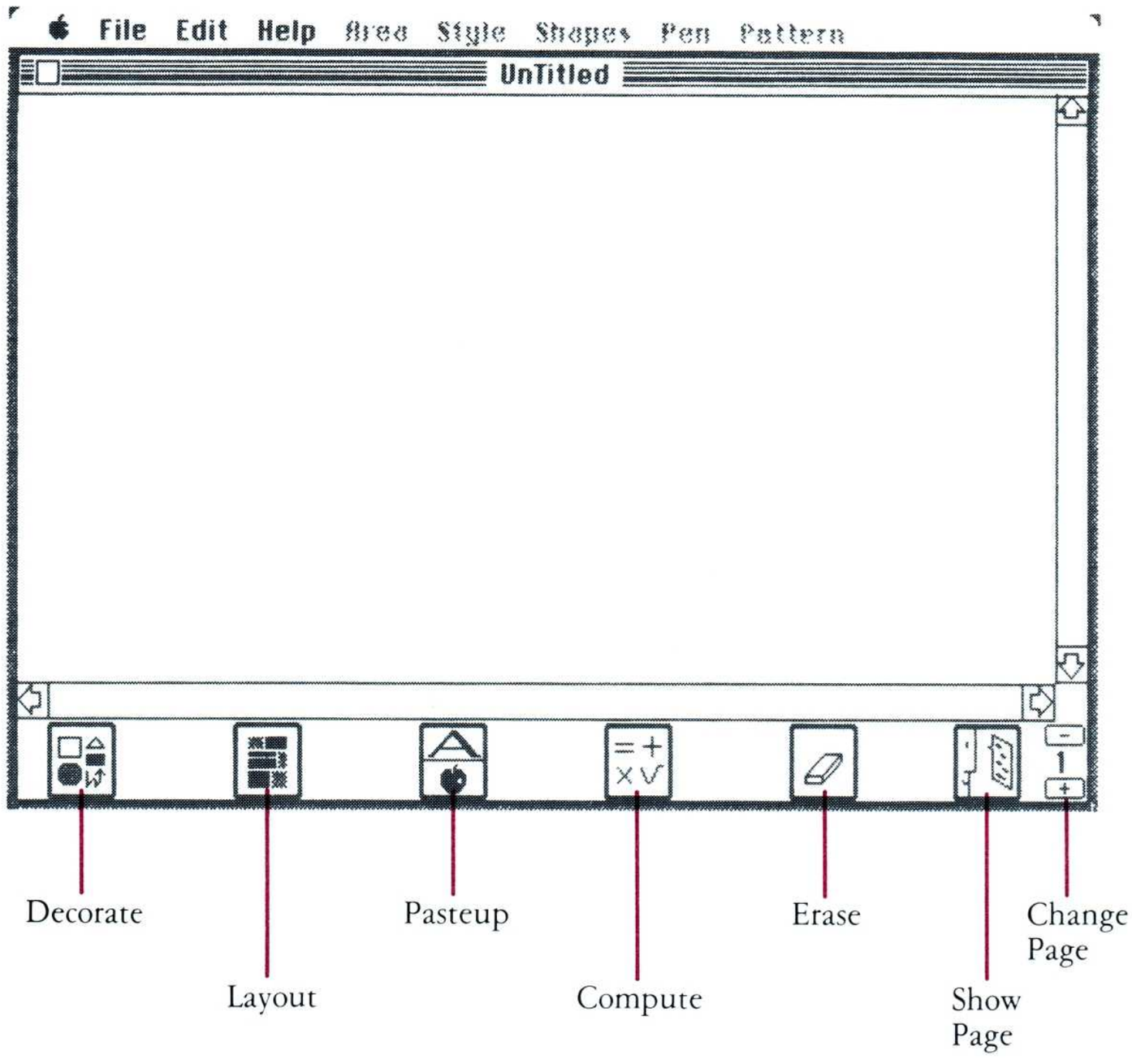
- Three records with a screen-sized form can be printed on one 8 1/2 × 11-inch sheet of paper.
- One record with a page-sized form can be printed on one 8 1/2 × 11-inch sheet of paper.
- All of a screen-sized form appears on the screen, so you cannot use the vertical or horizontal scroll bars, arrows, or boxes.
- Since only part of a page-sized form can appear on the screen, you can use the vertical and horizontal scroll bars, arrows, and boxes.

For this address book example:

Make sure that SCREEN is selected for both FORMAT and WIDTH. If it is not, click the circle next to SCREEN in both places.

- Click OK.

The DESIGN window appears with eight menu titles on the menu bar and seven icons along the bottom.



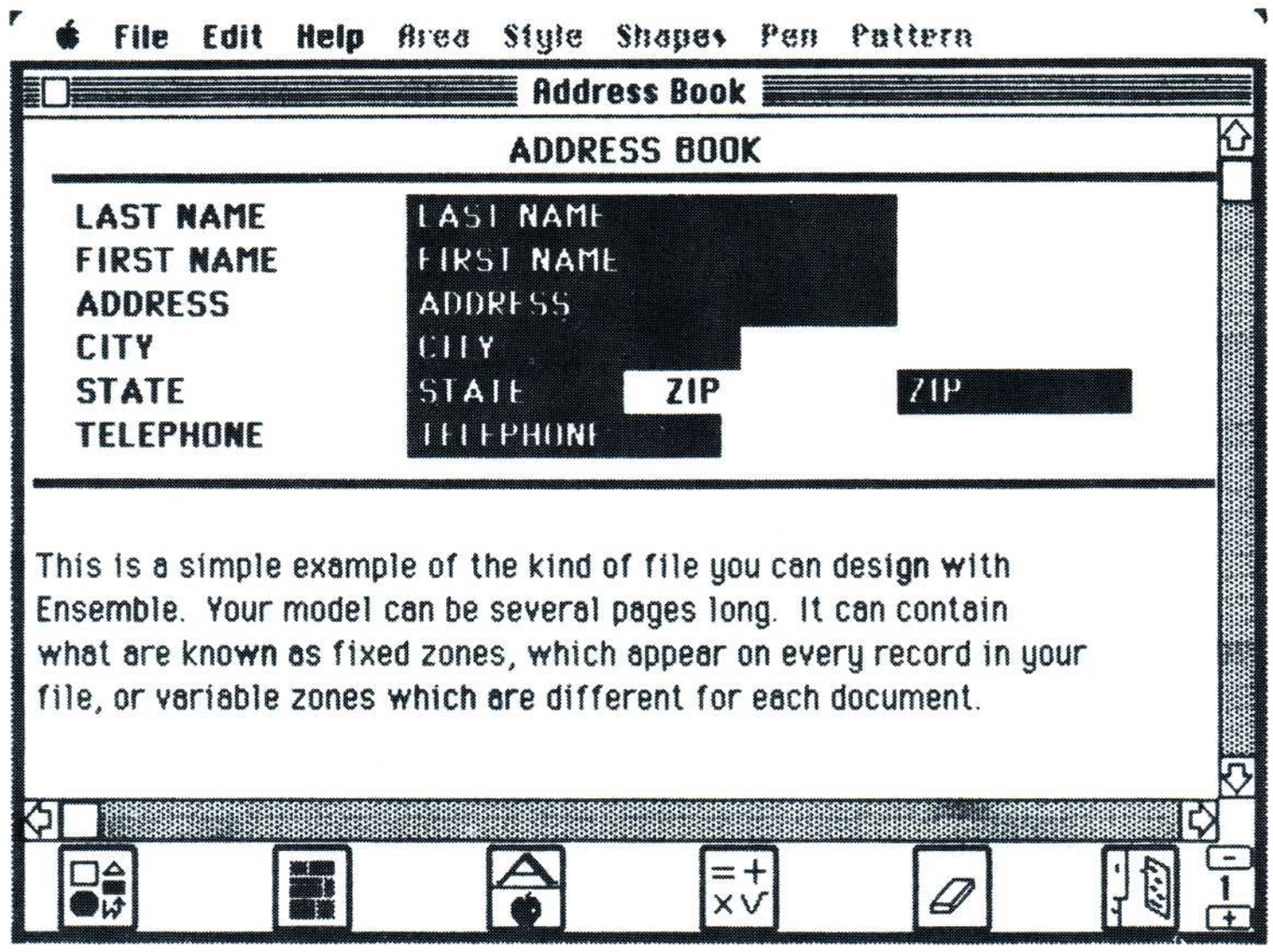
Each icon is a tool for creating, editing, and viewing the form, as follows.

DECORATE	To decorate a form.
LAYOUT	To create areas for titles, comments, field names, and fields.
PASTEUP	To type titles, comments, and field names or paste pictures from the CLIPBOARD or SCRAPBOOK.
COMPUTE	To open the COMPUTATION window for specifying formulas that Ensemble calculates.
ERASE	To erase decorations or areas for titles, comments, field names, and fields.
SHOW PAGE	To view a reduced version of a form as it would appear on a full page.
CHANGE PAGE	To display the previous or next page of a form, if there is one. Click + to display the next page. Click – to display the previous page. Double click – to display page 1 from anywhere in the form.

The menus are used in conjunction with the DECORATE, LAYOUT, and PASTEUP icons, as follows:

- After clicking the DECORATE icon, you can select decorations from the SHAPES, PEN, and PATTERN menus
- After clicking the LAYOUT icon, you can select the type of area from the AREA menu
- After clicking the PASTEUP icon, you can select one or more text styles from the STYLE menu

The next sections explain how to use the DECORATE, LAYOUT, and PASTE-UP icons and the AREA, STYLE, and SHAPES menus to create a form for the address book. Use this figure to guide you through the example.



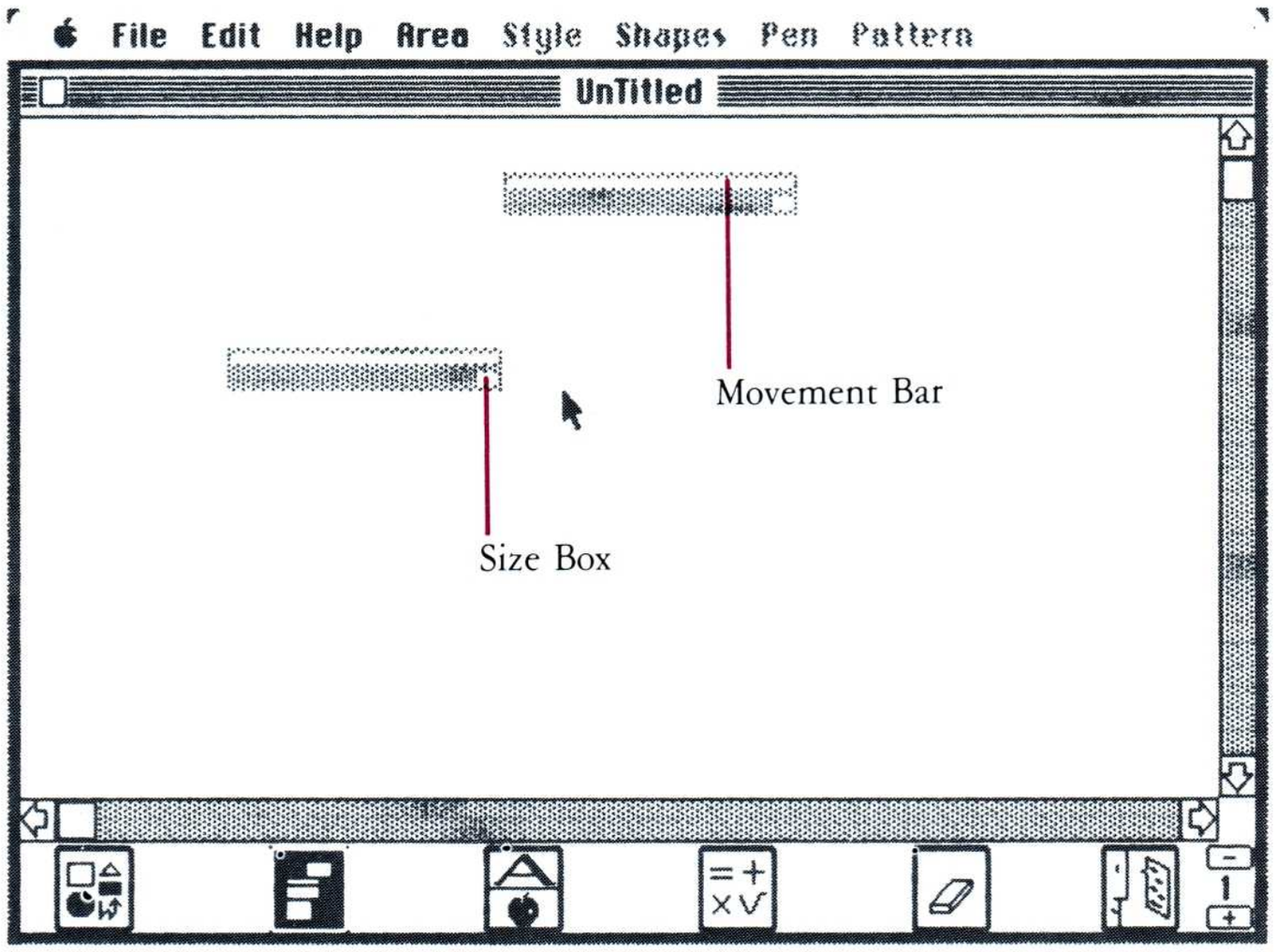
Choosing the Location of the Form Title

Titling a form is optional, but for this example you will create an area for a title, type the title, and then adjust the position of the area so it is centered in the DESIGN window. First, choose the location.

To choose the location:

- Click the LAYOUT icon.
- Select TITLE from the AREA menu, if it doesn't have an equal sign next to it.
- Move the pointer toward the top of the screen, slightly to the left of and under the word Untitled.
- Drag the pointer until it is slightly to the right of the word Untitled.

A gray rectangle with a movement bar and size box appears to indicate the width of the title.



Entering the Form Title

For this example, the title of the form, ADDRESS BOOK, is in bold.

To enter the form title:

- Click inside the gray part of the rectangle.

An insertion point appears where the rectangle began.

- Select BOLD from the STYLE menu.
- Type: ADDRESS BOOK.
- As necessary to fix typographical errors, press the BACKSPACE key to delete characters and then retype.

> NOTE: If the entire title does not appear on the screen, you do not need to retype it. Instead, you can expand the rectangle by clicking the LAYOUT icon and using the **size box.**

To use the size box:

- Put the tip of the arrow in the size box.
- Drag the size box right to expand the rectangle, or left to shorten it. You can also reposition the gray rectangle if the title is not quite centered by clicking the LAYOUT icon and using the **movement bar.**

To use the movement bar:

- Put the tip of the arrow in the movement bar.
- Drag the rectangle to the new position.

> NOTE: As you will see, you can also select TITLE to add a field name.

Choosing the Location of a Field Name

Choosing the location of a field name is similar to choosing the location of the title.

To choose the location of a field name:

- Click the LAYOUT icon.
- Select TITLE from the AREA menu, if it is not already selected.
- Position the pointer inside the left edge of the screen about a quarter of an inch below the title.
- Create another gray rectangle by dragging the pointer to the right about an inch.

Entering the Field Name

Enter the field name as follows:

- Click inside the rectangle.
- Type: LAST NAME.

Note that the field name appears bold because you did not select another choice from the STYLE menu.

- Change the size and position of the rectangle if needed, using the size box and movement bar.

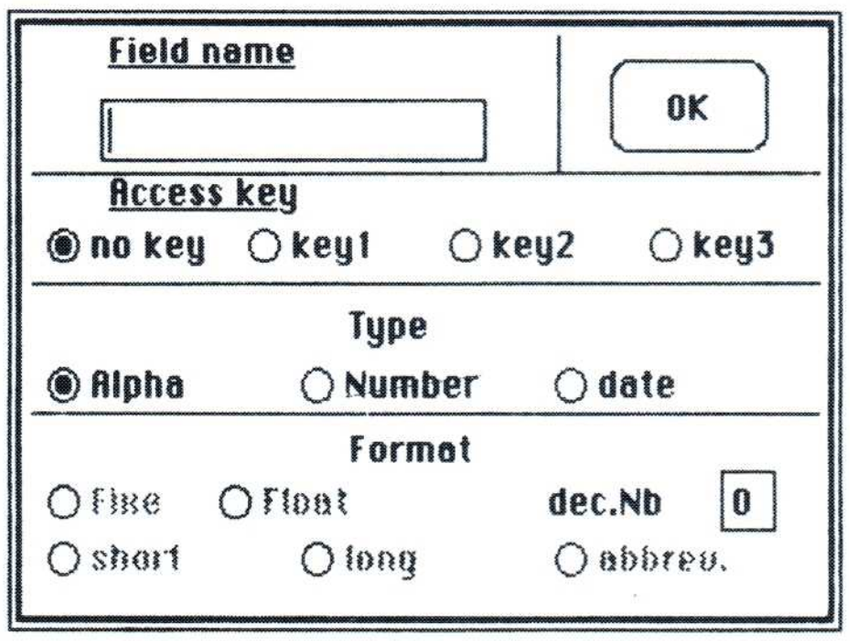
Choosing the Location of a Field

Choosing the location of a field is similar to choosing the location of the title or the field name, except instead of selecting TITLE from the AREA menu, you select FIELD.

To choose the location of a field:

- Click the LAYOUT icon.
- Select FIELD from the AREA menu.
- Position the pointer to the right of the LAST NAME field.
- Create a black rectangle by dragging the pointer to the right about four inches.

A dialog box for defining the characteristics of the field appears.



NOTE: The characteristics dialog box appears ONLY for a FIELD, not a TEXT FIELD or a PICTURE FIELD. You will be asked to assign only a name to a TEXT FIELD or a PICTURE FIELD.

Describing the Characteristics of a FIELD

Each FIELD has four characteristics. For this example, complete the information as described in this table.

FIELD NAME	The name of the field. The correct name is already there: LAST NAME.
ACCESS KEY	The number of the search key, if any. No search key is used in this example so click the NO KEY circle if not already filled. (Access keys are explained more fully in **Notes about FIELD Characteristics** in Chapter 3.)
TYPE	Alphanumeric, numeric, or date. In this example, the field is an alphanumeric field, so make sure the ALPHANUMERIC circle is filled.
FORMAT	You can designate a FORMAT only when the FIELD is numeric or date. In this example, the FIELD is alphanumeric so no action is required.

- When you have finished making selections, click OK.

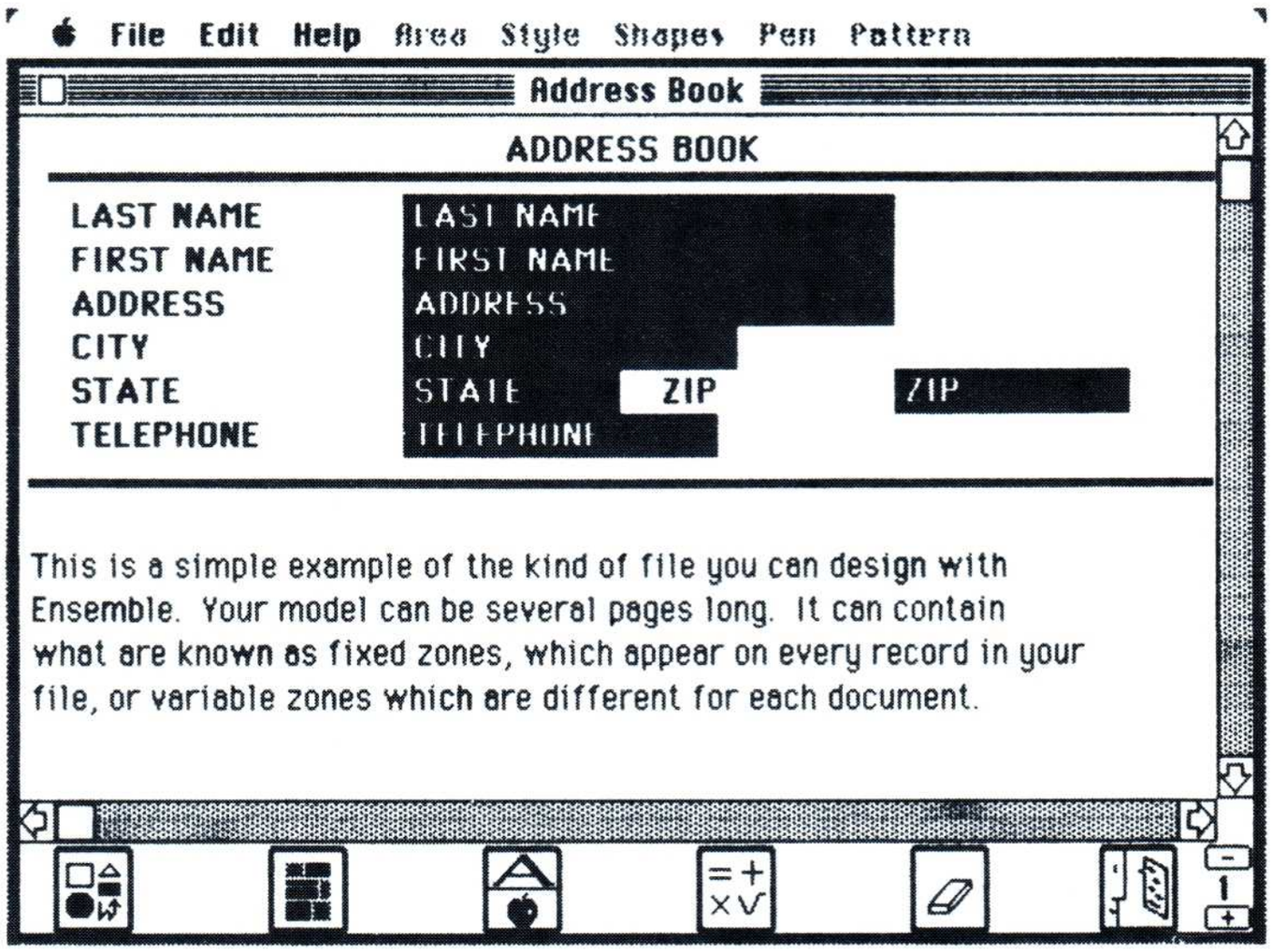
The characteristics box disappears.

- Note that the LAYOUT icon is still selected.

Completing the Remainder of the Field Names and Fields

You now know how to enter TITLEs and FIELDs. Use that knowledge to position and enter TITLEs and FIELDs for FIRST NAME, ADDRESS, CITY, STATE, ZIP CODE, and TELEPHONE as shown here. For the purposes of this example, all fields are alphanumeric.

> HINT: Use standard Macintosh editing procedures to edit text. To delete a FIELD, click the ERASE icon, position the black corner of the ERASER on the decoration or rectangle that you want to erase. Click to erase permanently.



NOTE: Before you position, or resize rectangles, you must click the LAYOUT icon if the outline is not darkened. Before you enter text, click the gray portion of the TITLE field **OR** click the PASTEUP icon and then the TITLE field.

The text at the bottom of the form is constant information that appears on each record in the file. (See below)

Choosing the Location of and Entering Constant Information

Information that appears the same on each record is constant. Ensemble has three types of constants, TITLE, STATIC TEXT, and STATIC PICTURE. For this example, you are using STATIC TEXT. A TITLE is a maximum of one line, while STATIC TEXT can be two or more lines.

Choosing the location of constant information of more than one line is similar to choosing the location of the title, a field name, or a field, except instead of selecting TITLE or FIELD from the AREA menu, you select STATIC TEXT.

To choose the location of the static area text:

- Click the LAYOUT icon, if not already selected.
- Select STATIC TEXT from the AREA menu.
- Position the pointer toward the bottom of the screen, inside the left edge.
- Create another gray rectangle by dragging the pointer downward and to the right across the screen.
- Click inside the rectangle.
- Type the information shown at the bottom of the form.

You have now done everything except draw the lines that separate the fields from the rest of the form.

Adding Lines Above and Below the Address

- Click the DECORATE icon.
- Select the second width from the PEN menu.
- Select the + (cross hatch) from the SHAPES menu.
- Drag the pointer across the screen between the last field and the constant information. Draw another line between Address Book and Last Name.

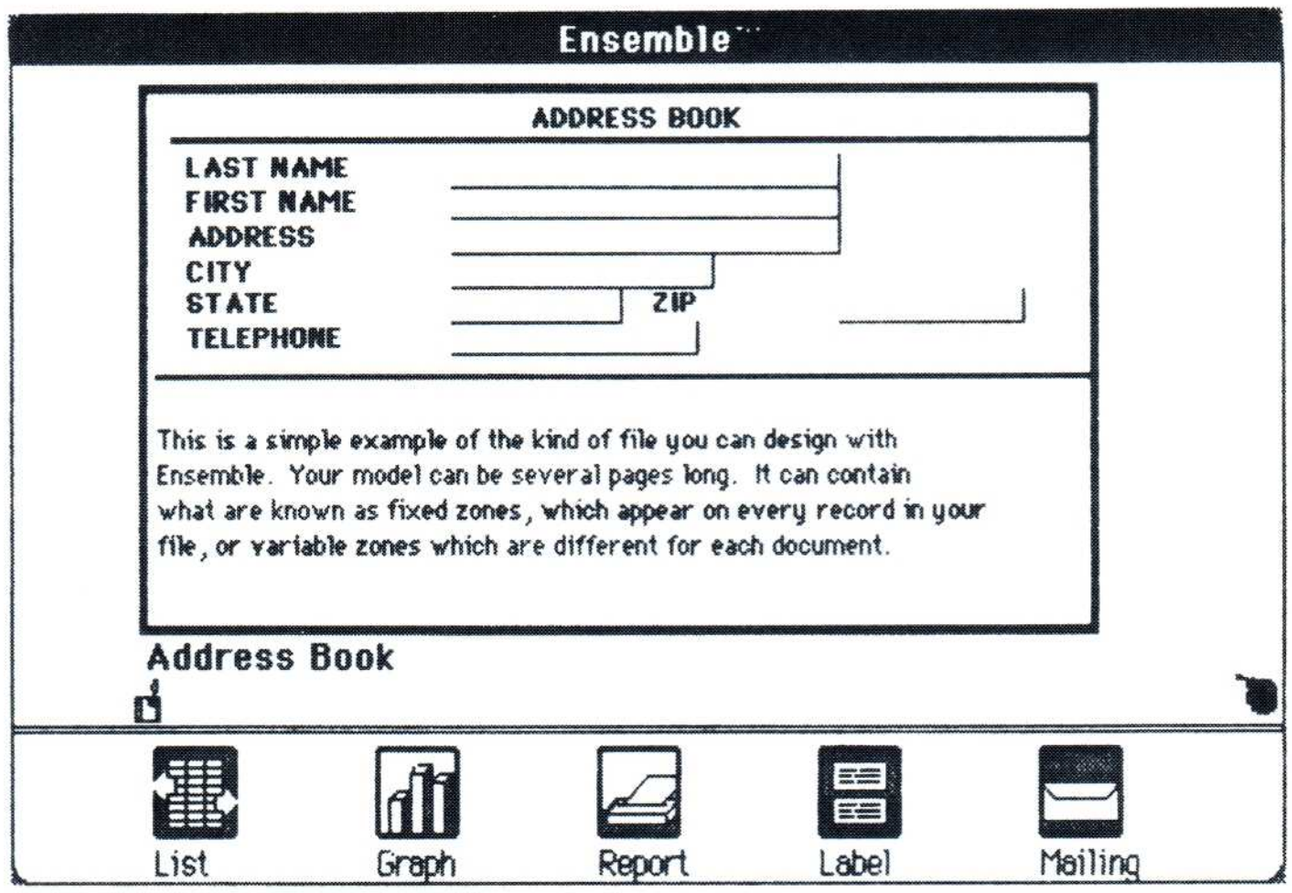
Congratulations! You have just completed your first Ensemble form. Now you should save it, as follows.

Saving the File

To save a form, you save the file in which you created it; a simple procedure similar to saving a file created with MacWrite or MacPaint. However, there are some differences. To save an Ensemble file, first return to the Ensemble desktop:

- Click the CLOSE BOX.

The Ensemble desktop appears on the screen.



- Select SAVE from the FILE menu **OR,** press the ⌘-s keys.

The SAVE dialog box appears.

- Type: Address Book.
- Click the drive button until the name of the correct drive appears.

On any Macintosh you have the option of ejecting a disk by clicking EJECT and inserting another disk. On a two-drive Macintosh you can choose the internal or external drive. With a hard disk drive you get the additional choice of saving on the hard disk.

For this example, save to the Ensemble work disk.

- Click SAVE.

Ensemble saves the file to the disk and displays the desktop with the program logo.

Quitting Ensemble

This is a good point to take a break. However, before you do, you should take the following steps:

- QUIT Ensemble by selecting QUIT from the FILE menu **OR** pressing the ⌘-q keys.
- Close the disk window by clicking the CLOSE BOX.

IMPORTANT NOTE: Do not turn off the Macintosh before EJECTing the Ensemble disk. You could damage your files.

- EJECT the Ensemble disk by selecting EJECT from the FILE menu or pressing the ⌘-e keys.

Using a File

Once you have created and saved a file you can use it immediately, or put it away and use it later. In this example, you will use the USA file and a data file with agricultural statistics for 8 states already on your Ensemble program disk to do the following activities:

- Open the USA file
- Add a record
- Save the record
- Search for one record
- Print a record
- Search for a series of records
- Create a graph

The illustrations included in the USA file will help you see some of Ensemble's graphics capabilities.

Opening the USA File

As you have seen earlier in this chapter, you use the Ensemble desktop to create a new file and a form. As you are about to see, you also use the Ensemble desktop to open a previously saved file.

If you ejected the program disk and turned off the Macintosh, turn it on again. Insert the Hayden program disk and double click the Hayden disk icon.

NOTE: Use your backup copy of the program disk and ONLY use the Hayden Master Program Disk as requested by a dialog box. If you have not yet created a backup copy of the program disk, see the backup procedure in the introductory material called **Getting Started with Ensemble** at the beginning of this manual.

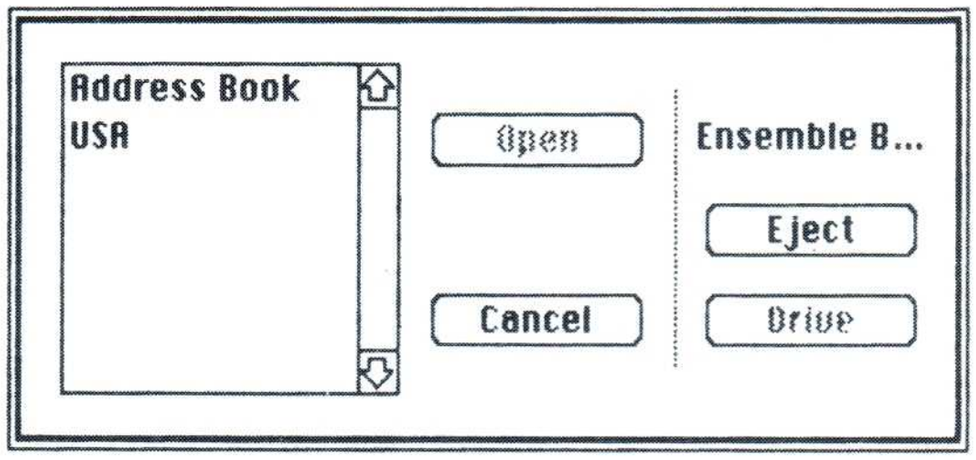
- When the disk window is open, double click the Ensemble program icon.

As soon as the Ensemble desktop appears you can open the USA file.

To open a file:

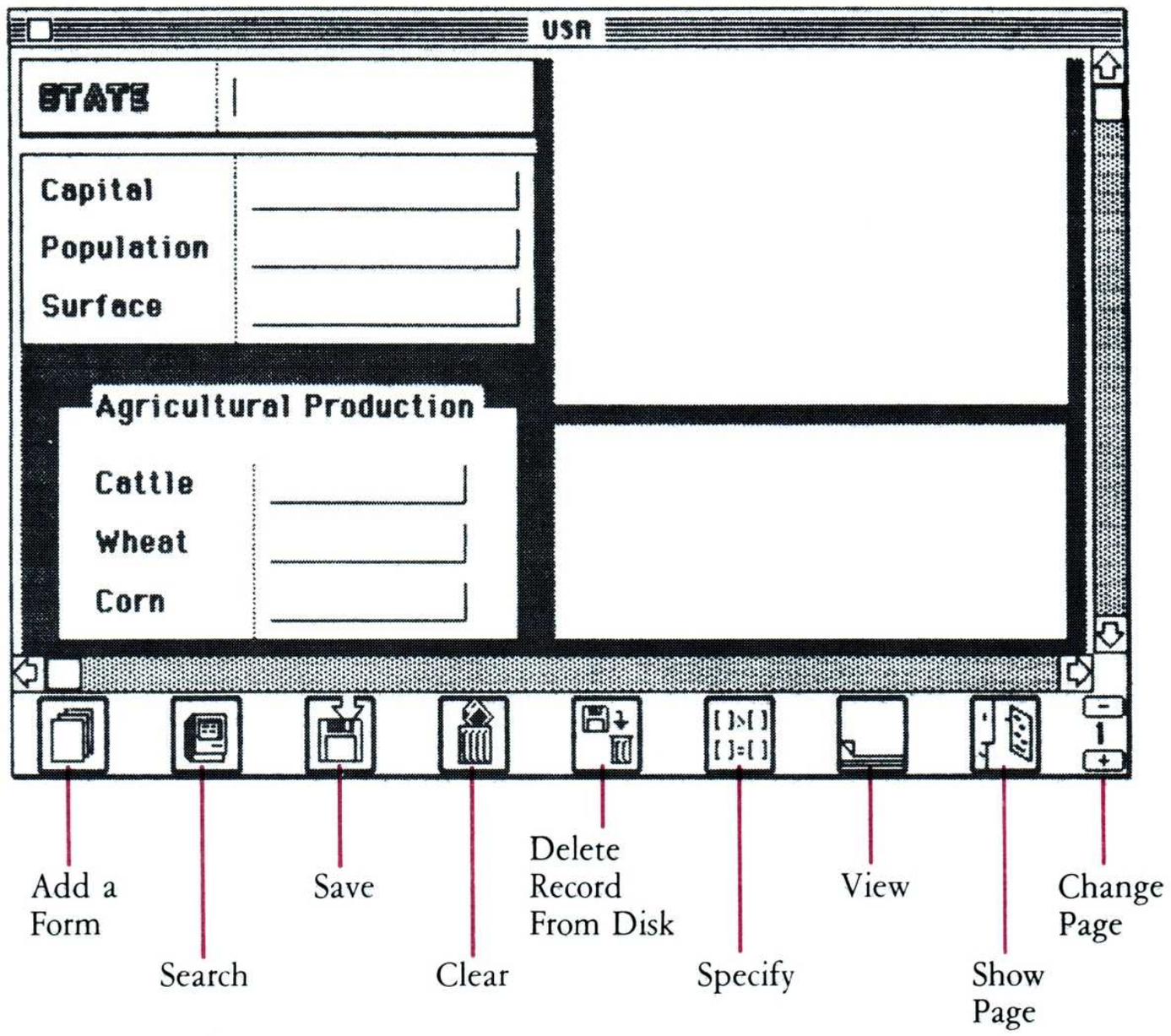
- Select OPEN from the FILE menu OR press the ⌘-o keys.

A dialog box appears with a list of files. If you or someone else has used the program, the list of files may differ from this one. Click drive if necessary.



- For this example, click USA and click OPEN, **OR** double-click USA to OPEN the **USA** file.

The ENTRY window appears with nine icons, as described below. The cursor is blinking at the first field in the form.



Each of the icons is a tool for managing records, as follows.

ADD A RECORD	To add a new record.
SEARCH	To search by one, two, or three keys.
SAVE	To save a record to the disk.
CLEAR THE RECORD FROM SCREEN	To clear the record from the screen, but leave it on the disk.
ERASE RECORD FROM SCREEN AND DISK	To clear the record from the screen **AND** delete it from the disk.
SPECIFY	To open the SPECIFICATION window to specify criteria for a search or a sort or create a list, graph, or report table.
PERFORM	To initiate and then view the results of a search, sort, list, graph, report, or computation specified in the SPECIFICATION window.
SHOW PAGE	To view a reduced version of the page. This is especially useful when your form is larger than the screen.
CHANGE PAGE	To display the next or previous page. Click + to see the next page. Click – to see the previous page.

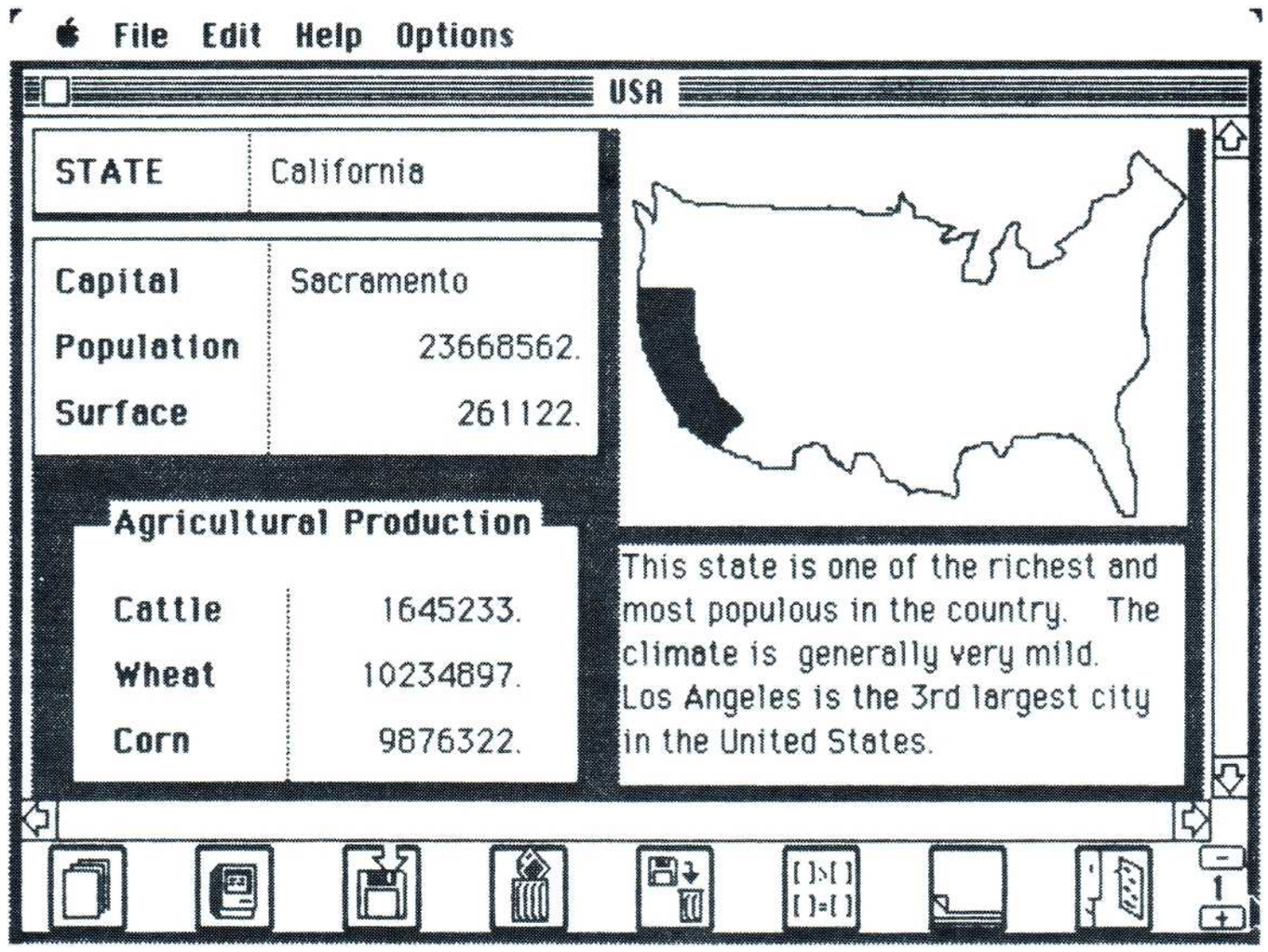
Adding Records to the File

In this example, you add a record with information about California, including the capital, population, tons of certain crops produced annually, and a map of the United States with California darkened.

To add information:

- Type: California.
- Press the ENTER key to move the cursor to the CAPITAL field.
- Type: Sacramento.

Add the remaining text as shown in the remaining 6 text fields in the completed record below.



To add a picture:

- Copy the map from the SCRAPBOOK.
- Click the blank picture field to the right of the STATE field.
- Select PASTE from the EDIT menu, **OR** press the ⌘-v keys.

Saving a Record

After adding a record, you must save or erase it before continuing. In this example, you save the record with information about California.

> NOTE: If you try to enter a new record before saving or erasing, the save or erase dialog box appears to remind you.

To save a record:

- Click the SAVE icon, the third icon from the left **OR** select SAVE THE RECORD from the FILE menu **OR** press ⌘-s.

The SAVE icon darkens. When the form is blank, the save process is complete.

Searching for a Record

There are several ways to find a record; one is called QUICK ACCESS. The USA form was created for you with two access keys. In this example, you will use the QUICK ACCESS feature to find the record for Hawaii, as follows.

To search for one record:

- Click the SEARCH icon.

The SEARCH dialog box appears with the two fields that were defined as keys in the field characteristics box when the USA form was created.

- Next to STATE, type: Hawaii.
- Click SEARCH **OR** press the RETURN key **OR** press the ENTER key.

Ensemble finds and displays the record for Hawaii. Experiment as you wish to find the records for Arizona, Arkansas, Colorado, Delaware, Alabama, Alaska, and California. You might even want to try finding a state not in the file to see Ensemble's reaction.

The next segment explains how to print the record. First, close the ENTRY window.

To close the ENTRY window:

- Click the CLOSE BOX.

Although you have closed the ENTRY window, the file itself remains open. You know that this or any file is open when you see a picture of its form on the Ensemble desktop.

Printing a Record

The print feature available from the Ensemble desktop prints the record that appeared in the ENTRY window before you closed it. Before continuing, check that the printer is correctly connected and the ribbon and paper are correctly positioned. Refer to your printer manual as needed.

- Select PRINT from the FILE menu.

The PRINT dialog box appears. For this example,

- Click TALL ADJUSTED.
- Click OK.

Another dialog box appears.

- Click the desired quality.
- Type the number of copies you want, and click the circle next to the type of paper you are using.
- Click OK.

The record prints on the paper as you indicated, then appears on the desktop.

Searching for a Series of Records

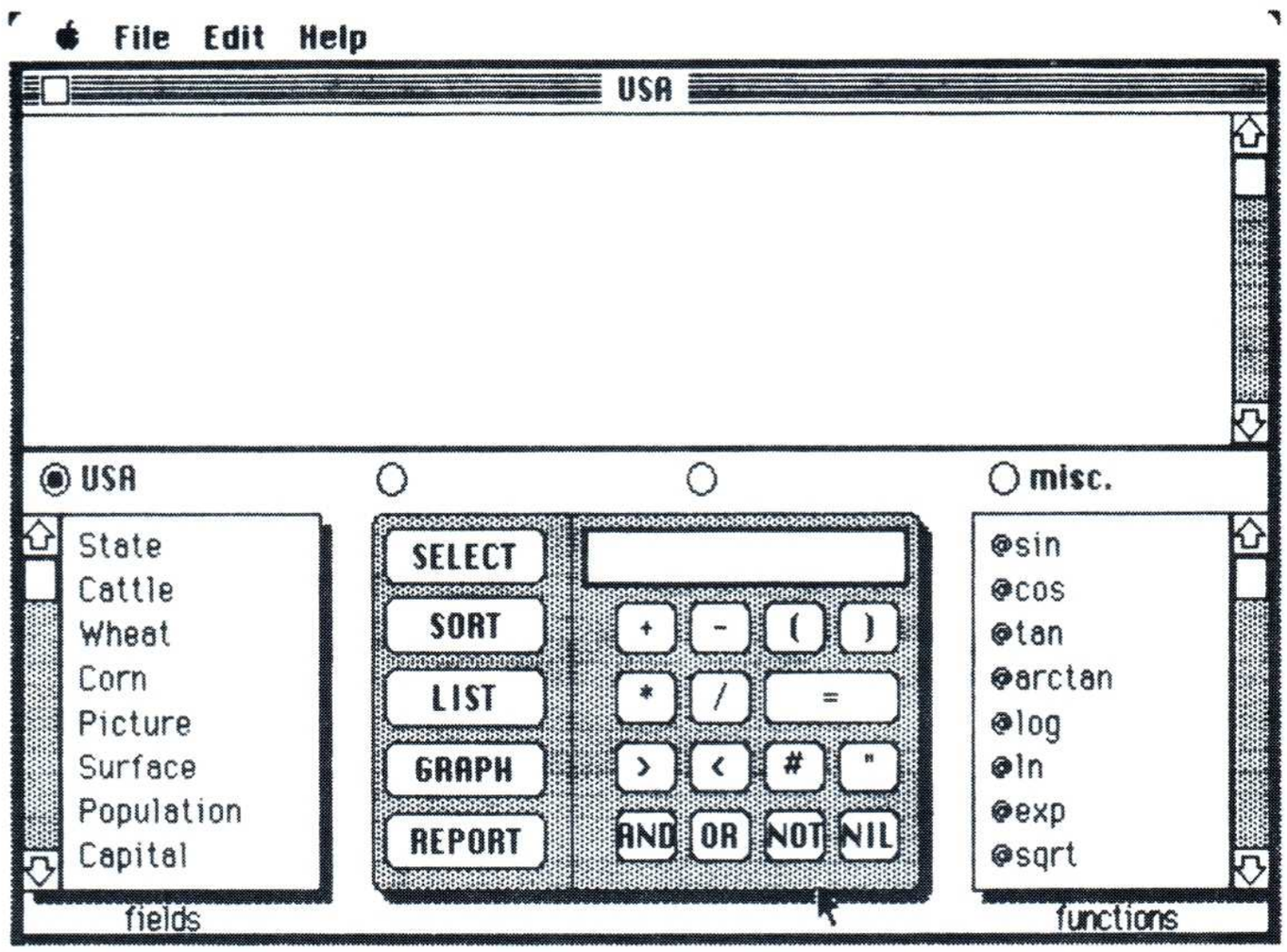
Besides searching for a single record, you can also search for one or more records that fall within a range of criteria. For this example, you will look for all the states on file with wheat production less than 10,000 tons and population less than 3 million people and display them in increasing order of wheat production.

The search for a series of records consists of two parts: specifying the selection and sort instructions in the SPECIFICATION window, and clicking the PERFORM icon.

To specify selection instructions:

- First display the ENTRY window of the USA file by double clicking anywhere in the USA form on the desktop.
- When the ENTRY window appears click the SPECIFY icon — the fourth icon from the right.

The SPECIFICATION window appears with a list of fields, operations, and functions for specifying criteria. As you choose them, the specifications will appear in the large blank area at the top of the screen.



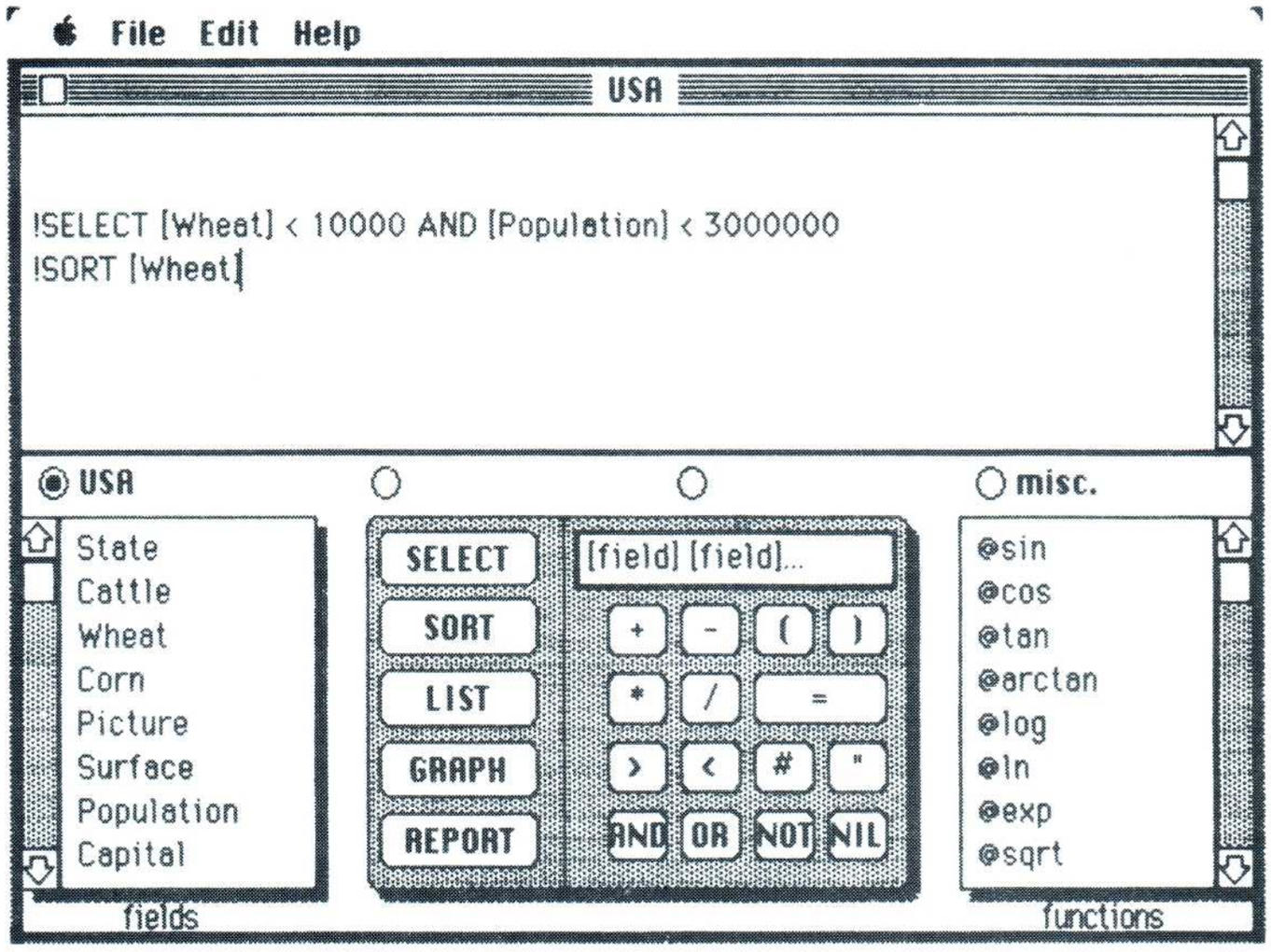
- Click SELECT.
- Click the WHEAT field.
- Click the **less than** (<) sign.
- Without spaces or commas type: 10000.
- Click AND.
- Click the POPULATION field.
- Click the **less than** (<) sign.
- Without spaces or commas type: 3000000.

The selection criterion is complete. Now enter the sort instructions.

To specify the sort instructions:

- Click SORT.
- Click the WHEAT field.

The completed selection and sort instructions appear as shown here.



You now leave the SPECIFICATION window.

- Click the CLOSE BOX.

The form returns to the screen. The records do not automatically appear. One more step is required:

- Click the PERFORM icon.

Ensemble searches according to the specifications. When a record appears you can modify it and save it or click the PERFORM icon again to see the next record that meets the specification.

- Continue clicking the PERFORM icon to view all the records that match the criteria. When you see a blank record, the search is completed.

You are now done using the USA file. Continue for information about creating a graph table and then a graph.

- Click the CLOSE BOX. The Ensemble desktop returns to the screen.
- Select CLEAR from the file menu to "put away" the USA file and to return the Ensemble logo to the screen.

Creating a Graph Table

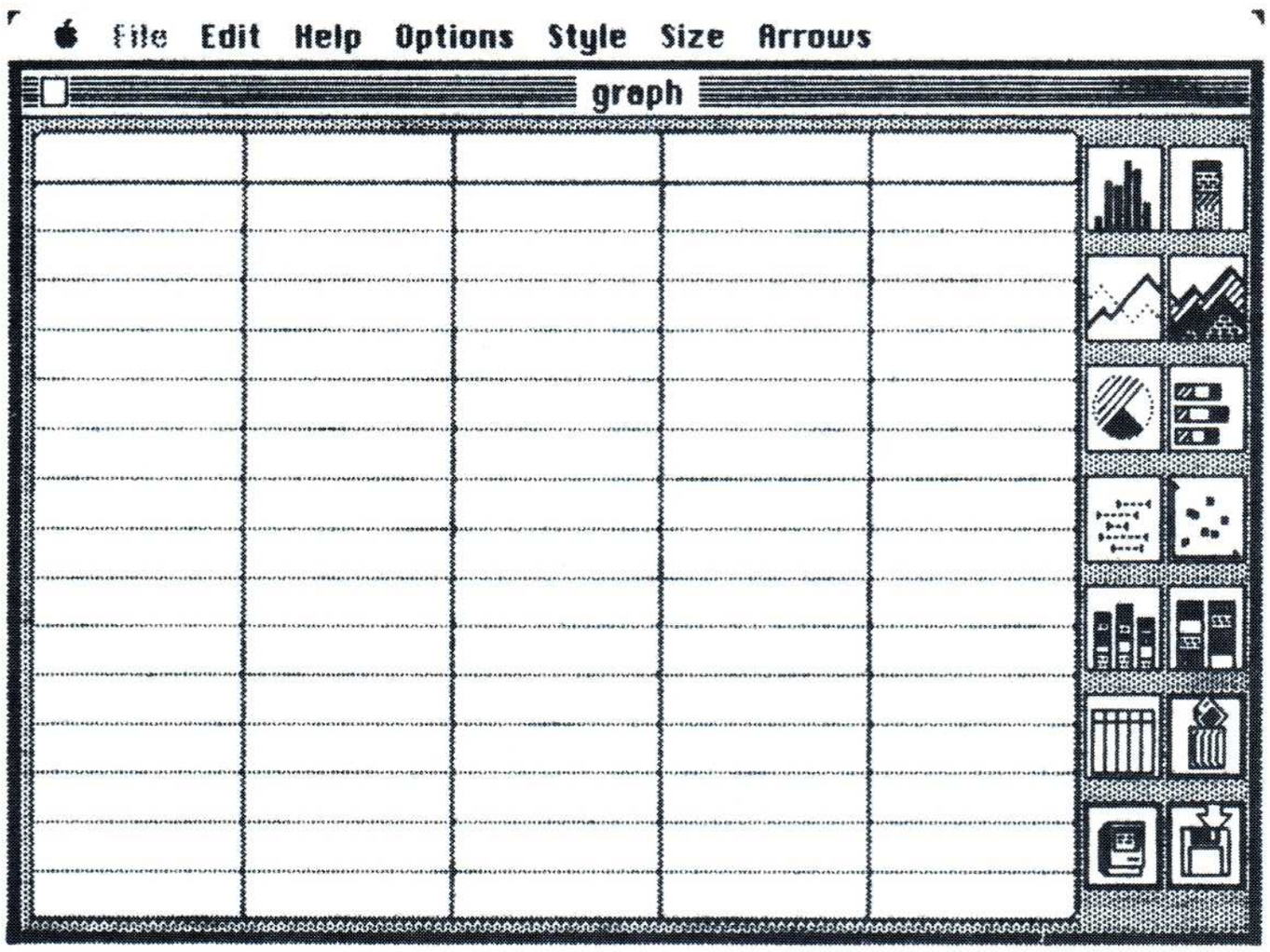
Graphs are created by specifying criteria in the SPECIFICATION window of a file or by entering data into the table in the GRAPH window. In this example, you will create a graph that shows the sales for the North, West, South, and East regions for the years 1982, 1983, and 1984 by entering the information into the table in the GRAPH window. (For information about creating a graph by specifying criteria in a file, see Chapter 7.)

To start, make sure the Ensemble desktop is on the screen.

To create a graph in the GRAPH window:

- Double click the GRAPH icon.

The GRAPH window appears with a matrix of 5 columns by 16 rows, and 14 icons appear at the right. Each box at the intersection of a column and a row is called a cell.



In this example, use the top row for entering the graph title and legends, as follows:

- Click the first cell in the first column.
- Type: **Sales.**
- Press the TAB key.

Notice that the title is centered in the column as the insertion point moves one column to the right.

- Type: **North.**
- Press the TAB key.
- Type **West** and press the TAB key.
- Type **South** and press the TAB key.
- Type **East** and press the RETURN key.

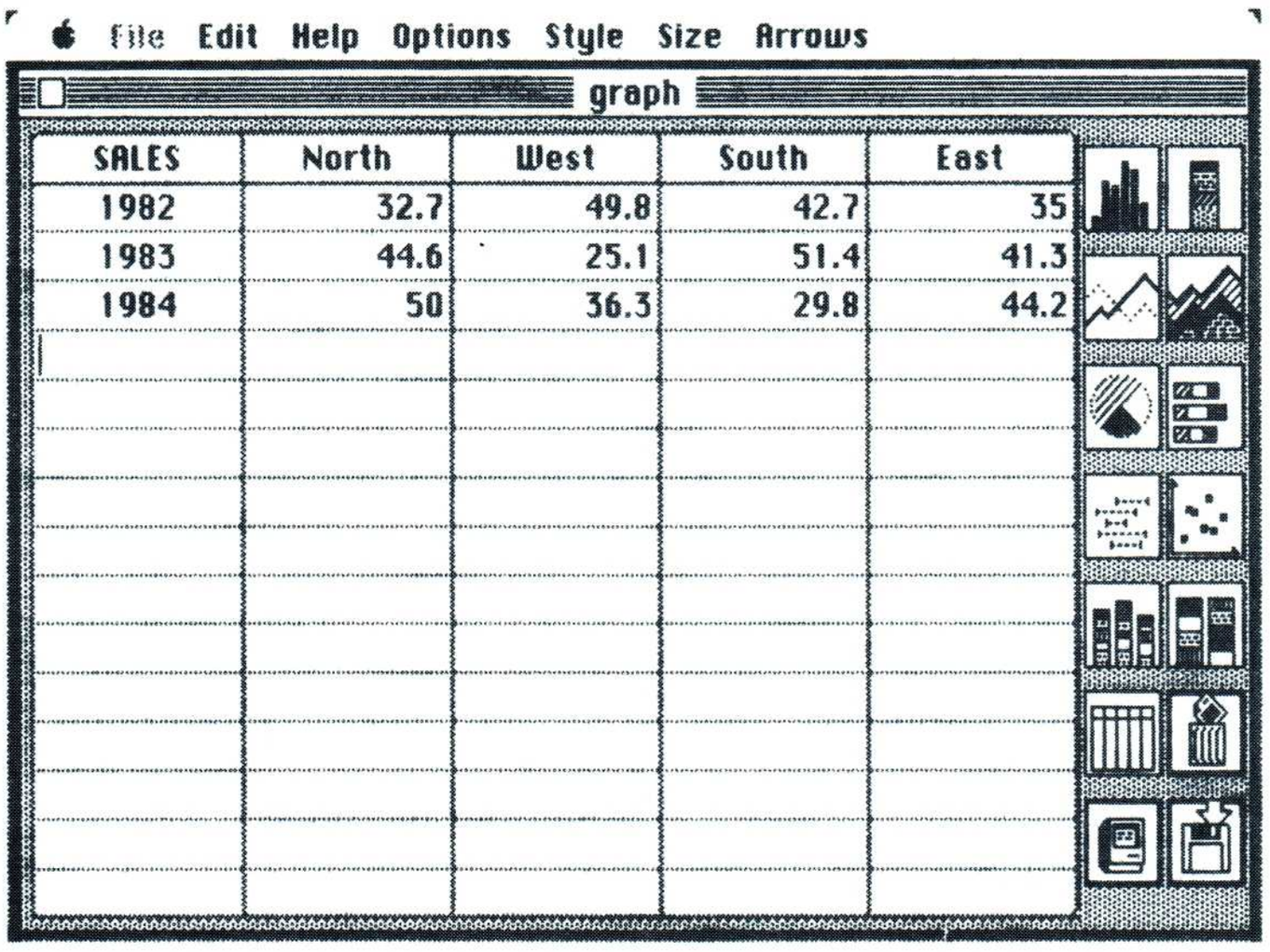
The insertion point moves to the second cell in the first column. Now enter the X coordinate, as follows:

- Type **1982** and press the RETURN key.

Notice that the row caption also becomes centered.

- Type **1983** and press the RETURN key.
- Type **1984** and press the RETURN key.

You have completed the title, legend, and description of the horizontal axis. Now click the cell under **North** and type the information as shown below.



HINT: To move the cursor to the cell in the next column, press TAB. To move the cursor to the cell in the first column of the next row, press RETURN.

Whenever you create a graph table that you intend to keep for later use, you should save it, as described in the following section.

Saving a Graph Table

A graph table is the information that Ensemble translates into a graph and is saved in the same manner as a Form.

To save a graph table:

- Click the SAVE icon in the lower right corner of the screen.

A SAVE dialog box appears.

- Type: **Sales.**
- Click SAVE.

Ensemble saves the table and clears the information from the screen. To instruct Ensemble to assemble the information in the graph table into a graph, you will need to display the graph table again.

Opening a Graph Table

Any graph table that you have saved can be displayed. This is performed at the GRAPH window.

To open a graph table:

- Click the SEARCH icon.

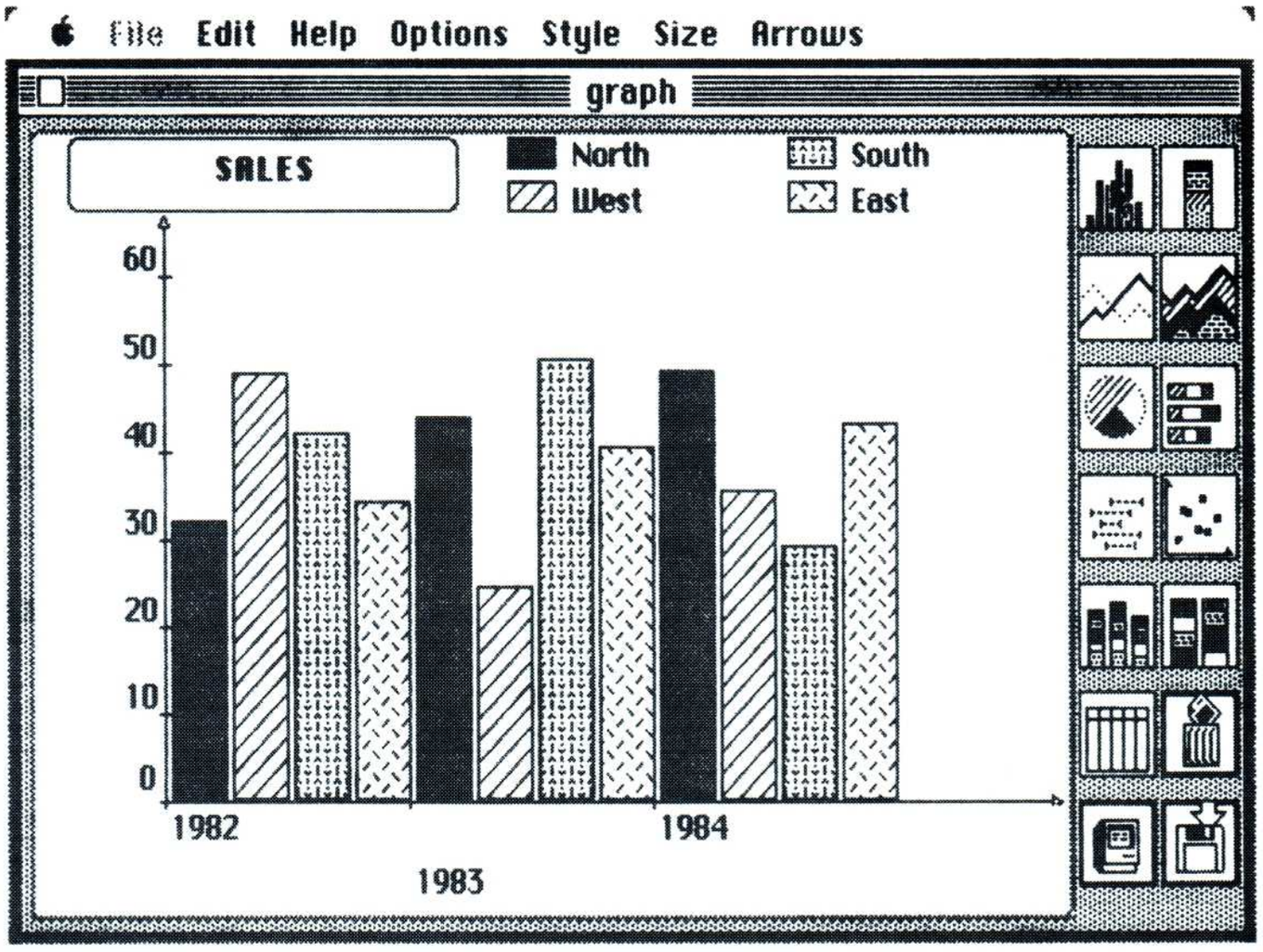
A dialog box with a list of table appears. Click drive if necessary.

- Use the scroll bar or scroll box to display Sales, as necessary.
- Double click Sales **OR** click Sales and click OPEN.

Viewing a Graph

You can view a graph of a table just created or previously created. In this example, you will view the sales graph.

- To view a standard bar chart, click the first icon.



Different types of graphs. The first ten icons represent different types of graphs. Select WITH THE ICONS... from the HELP menu to remind you which is which. You can then view the information in the graph table in another form, as follows:

- Click one of the other nine graph icons.

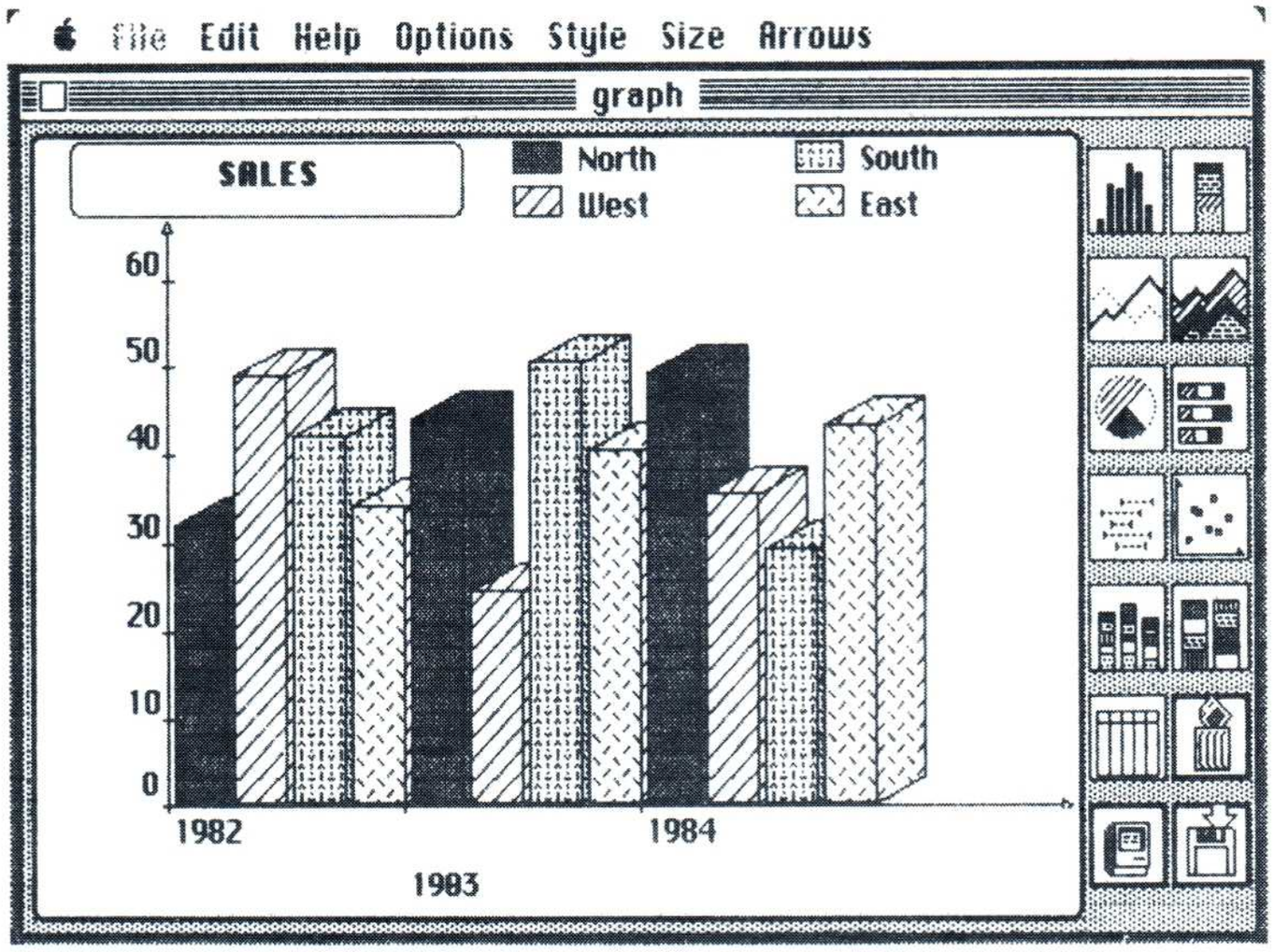
The graph is recreated in the new format.

As you try each format keep in mind that some formats, such as schedule and scatter charts, require specially formatted tables. For details, see Chapter 7.

Changing from 2-D to 3-D. You can use the OPTIONS menu to change the view of the graph from a two-dimensional to three-dimensional display.

- Select 3D from the OPTIONS menu.
- Click the standard bar chart icon again.

A three-dimensional version appears.



Hiding the Title. Use the OPTIONS menu to hide the title of the graph, as follows.

- Select TITLE from the OPTIONS menu. This will remove the check next to it.
- Click the standard bar chart icon.

A three-dimensional version without a title appears.

Other Changes. You can also hide or show the legend, axis, grid, horizontal scale, vertical scale, and values. If the selection on the OPTIONS menu is checked, it appears on the graph. (One exception is that values are not available on the pie chart.) To hide the option, select it from the OPTIONS menu.

Emphasizing Important Areas of a Graph

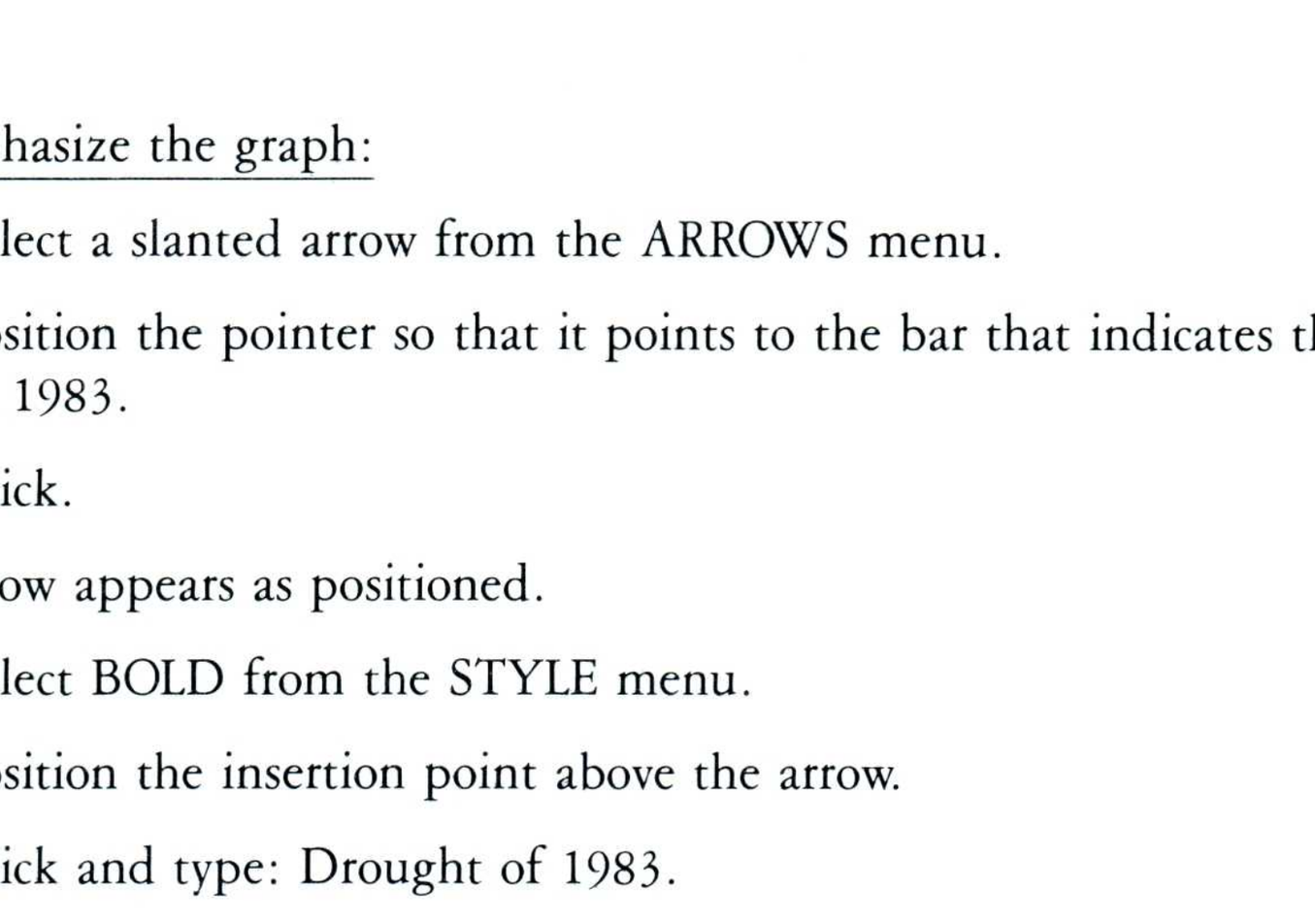
You can easily emphasize important features of your graph. In this example, you can use the ARROW and STYLE menus to emphasize that drought is the reason for drop in sales in the West in 1983 on the two-dimensional bar chart. Select 2D from the OPTIONS menu and click the standard bar chart icon.

To emphasize the graph:

- Select a slanted arrow from the ARROWS menu.
- Position the pointer so that it points to the bar that indicates the West in 1983.
- Click.

The arrow appears as positioned.

- Select BOLD from the STYLE menu.
- Position the insertion point above the arrow.
- Click and type: Drought of 1983.



Experiment with other changes, then display the graph table by clicking the TABLE icon so you can learn about techniques for editing a graph table.

Editing a Graph Table

You can edit the information in a graph table in a variety of ways. You can change the value of a cell, erase a row or column of information, or erase the entire table.

NOTE: You cannot UNDO edits so make sure you are certain about the changes you want to make before doing them.

To edit a graph table:

- Change the information in a cell by clicking it and then typing another value.

- Erase the row with information about 1984 by clicking the CLEAR icon and then clicking 1984.
- Erase the column with information about the East by clicking the CLEAR icon and then clicking East.

NOTE: To save the edited version click the SAVE icon.

- Erase the entire contents of the table by double clicking the CLEAR icon.

Experiment with other changes as you like, then close the GRAPH window by clicking the CLOSE BOX. After that, continue on to the next section of the tutorial.

Building Computations into a Form

One of the most useful features of Ensemble is its ability to include calculations in a form to define the value of one field as the result of operations upon the value of one or more other fields. In this example, you build a computation in the USA form that computes the density of each state by dividing population by surface area. Accomplish this by

- Opening the **USA** file and selecting the DESIGN option
- Creating space for another field name and field
- Adding a field name and a field for DENSITY
- Using the COMPUTATION window to specify the computation
- Saving the changed Form
- Viewing the results of the calculation

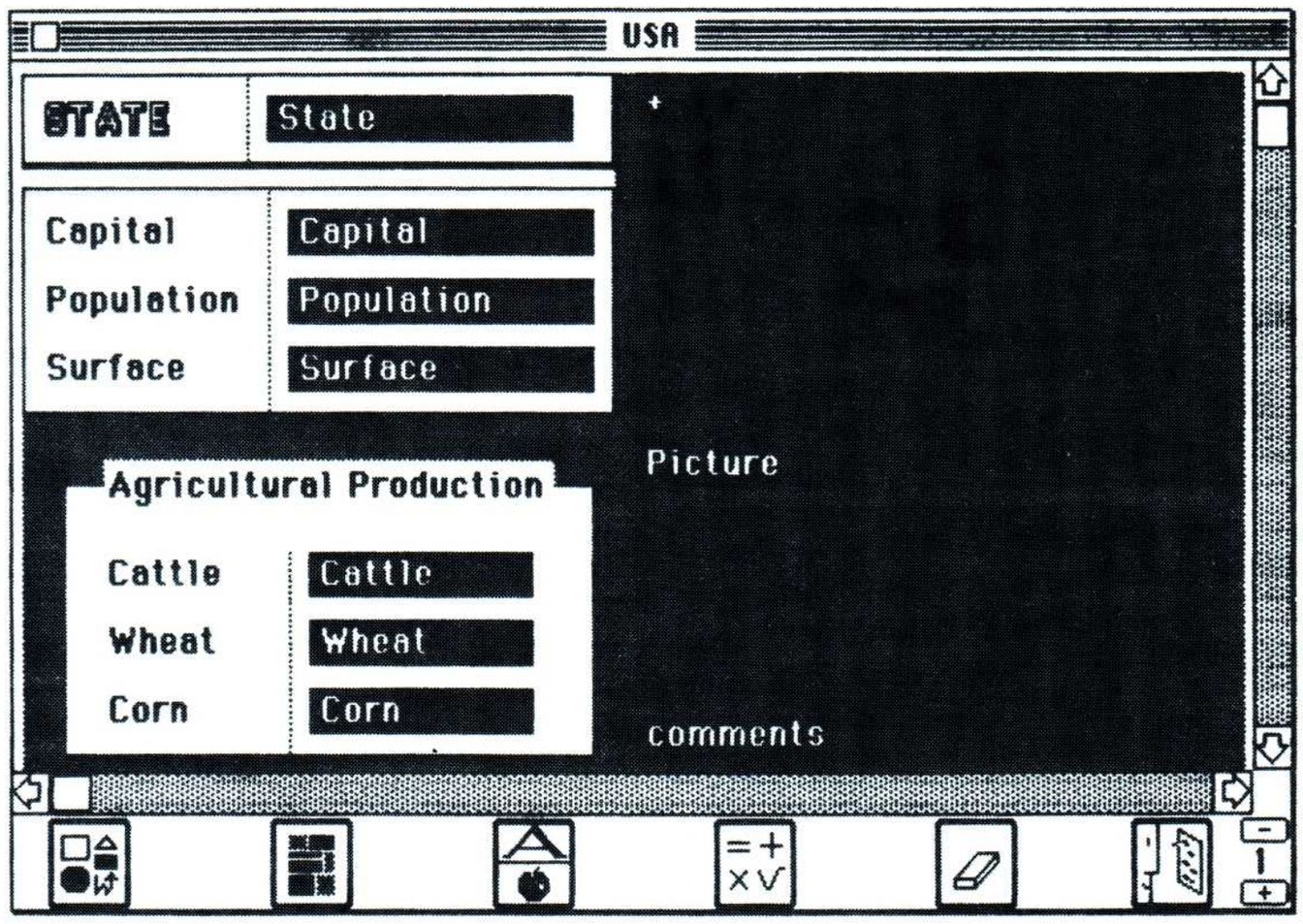
Opening the File and Selecting the DESIGN Option

- If the **USA** form **isn't** on the desktop: select OPEN from the FILE menu and double click USA.
- If the **USA** form **is** on the desktop: double click anywhere inside the form.

The ENTRY window opens. To add a field to a Form, you must change the design.

- Select DESIGN from the FILE menu **OR** press the ⌘-d keys.

The form appears in the DESIGN window as shown here.



Creating Space for the Density Name and Field

Before adding the field name and field, you will want to create space for it under the surface field by moving the other field names and fields:

- Click the LAYOUT icon.
- Use the movement bar to move the Capital, Population and Surface titles and fields up about 1/4 inch.

Adding a Field Name and a Field

The procedure is the same as you used earlier in this tutorial.

To add a field name:

- Select TITLE from the AREA menu, if it is not already selected.
- Position the pointer in the space you created for the field name under the Surface title and fields.
- Create a rectangle by dragging the pointer to the right about an inch.
- Change the size and position as needed.
- To name the field: click inside the rectangle and type Density. Select bold from the STYLE menu before or after you type.

To add a field:

- Click the LAYOUT icon.
- Select FIELD from the AREA menu.
- Position the pointer below the Surface field.
- Drag to the right to create a field.
- When the field dialog box appears, click NUMBER. It is not necessary to click a selection under FORMAT.
- Click OK.

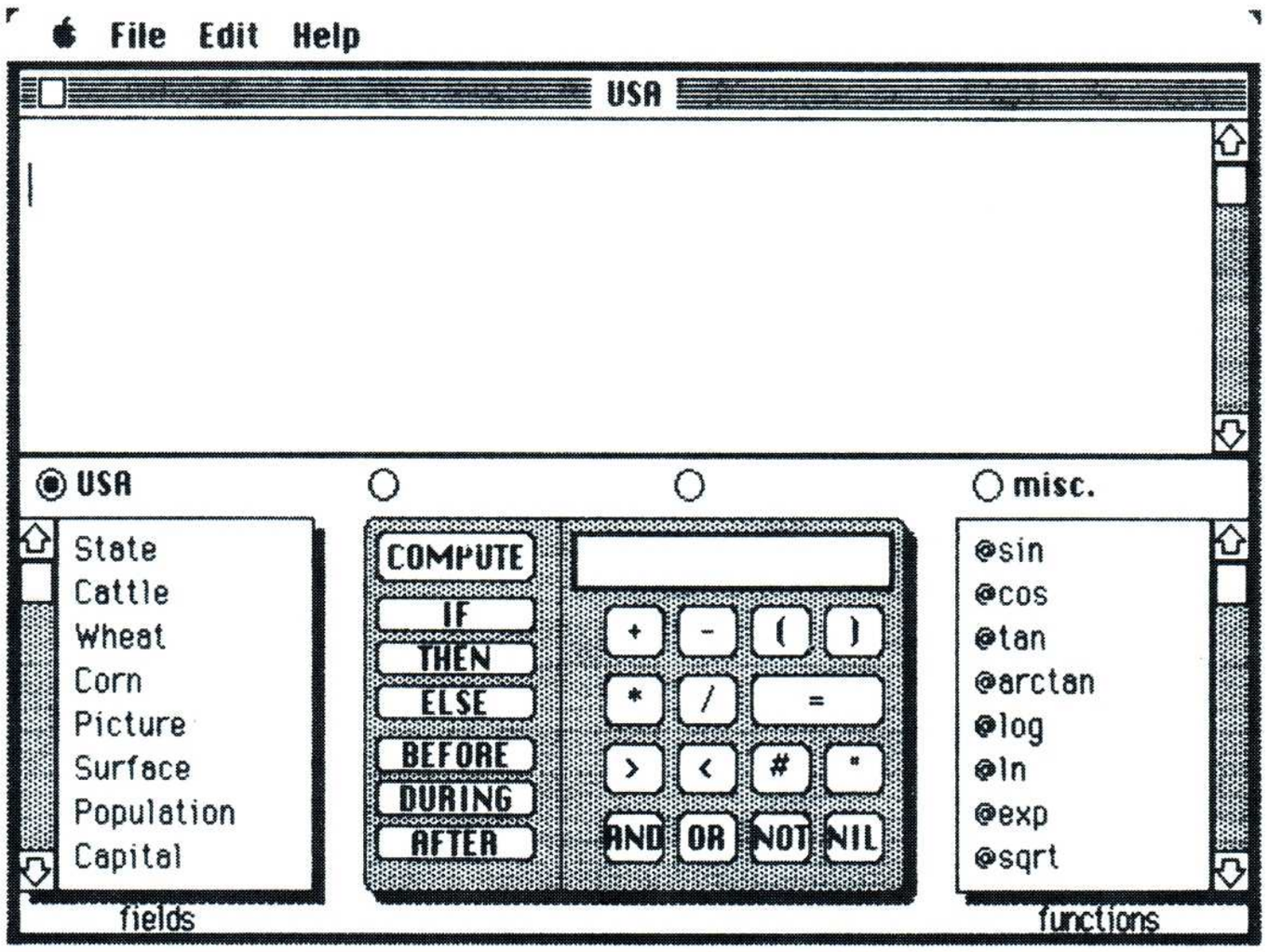
Specifying the Computation

All computations are specified in the COMPUTATION window. In this example, density is the number of people (the POPULATION field) in an area (the SURFACE field). In mathematical terms, density is the population divided by the surface area.

To specify the computation:

- Click the COMPUTE icon.

The COMPUTATION window appears.



The COMPUTATION window appears with a list of fields, operations, and functions for specifying components of each formula. The formulas appear at the top of the window as you type them.

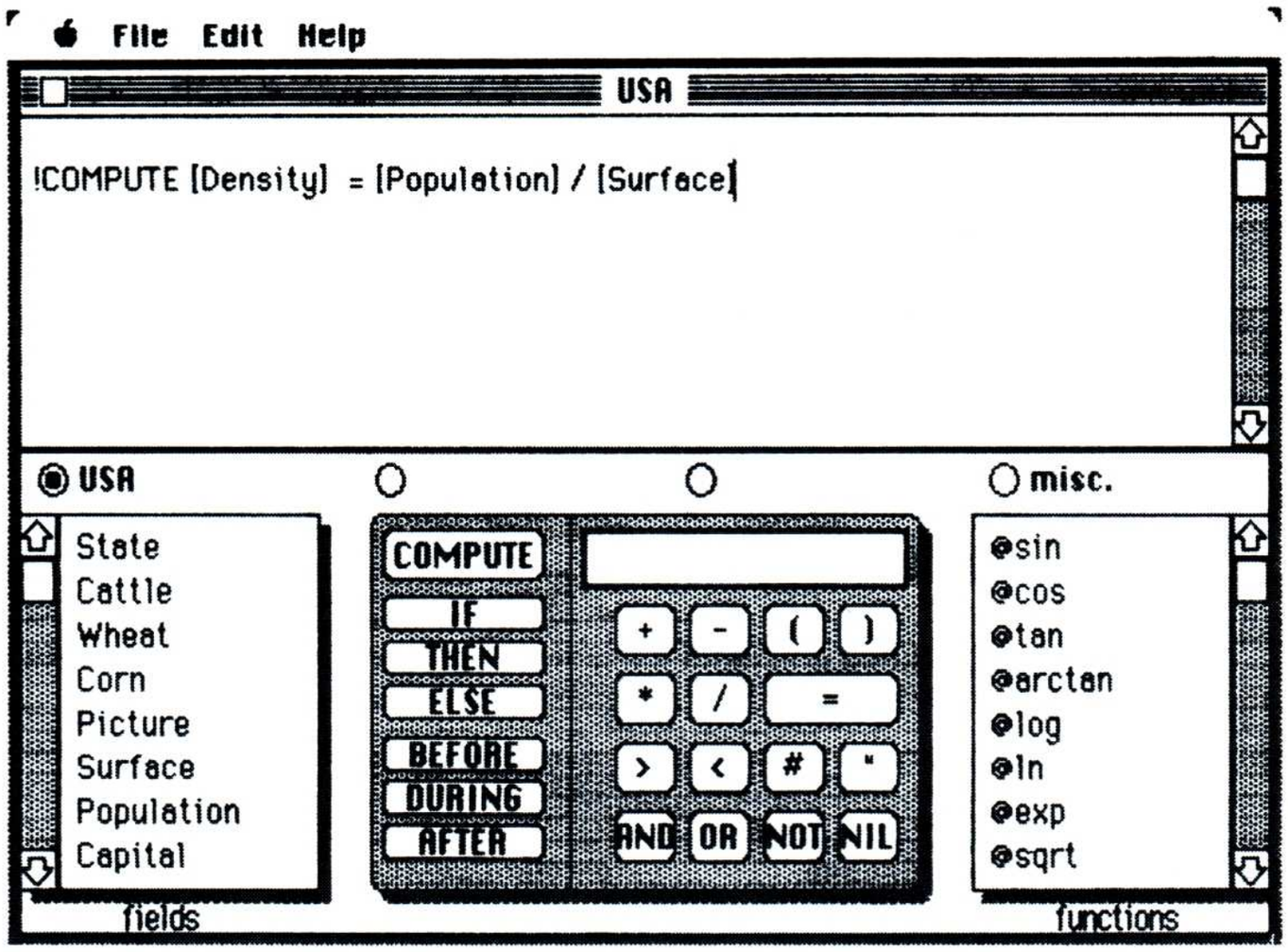
To enter the formula:

- Click COMPUTE.

Notice that !COMPUTE appears at the top of the window and a message appears in the message area of the CALCULATOR to help you decide what to do next.

- Use the vertical scroll bar to the left of the field window to display the DENSITY field.
- Click the DENSITY field.
- Click = (equal) sign.
- Click the POPULATION field.
- Click the / (division) sign.
- Click the SURFACE field.

The window shows the completed formula as follows.



You can type the formula instead of clicking the appropriate fields, operations, and functions. However, clicking is faster and automatically places the formula in the correct syntax.

- Click the CLOSE BOX **OR** select QUIT from the FILE menu to close the COMPUTATION window.

Saving the Modified Form & Instructing Ensemble to Perform

You can instruct Ensemble to automatically compute as you enter data into the file or after you have entered data by selecting COMPUTATIONS ON or COMPUTATIONS OFF from the OPTIONS menu. The choice of having computations off is a useful time-saving feature when entering many records of data into a large form with several compute statements.

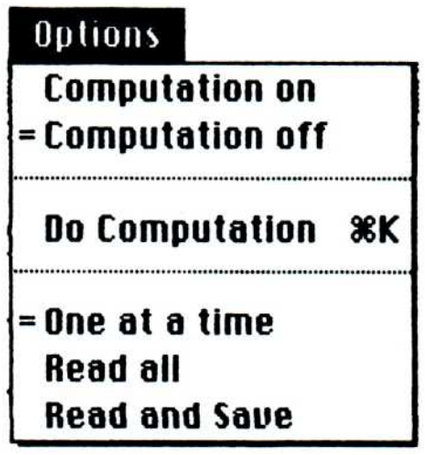
To save the change and instruct Ensemble to compute:

- Select ENTER from the FILE menu or press the ⌘-e keys.

Before allowing you to do another activity, Ensemble displays a SAVE dialog box.

- Click SAVE.

The new version of the form is saved. Now you can give the instructions to compute the new Density field. First, call up a state record by clicking the SEARCH icon and typing, say, Arkansas in the dialog box.



- If not already selected, select COMPUTATION OFF from the OPTIONS menu.
- Click the DENSITY field.
- Select DO COMPUTATION from the OPTIONS menu **OR** press the ⌘-k keys.

Ensemble calculates the density.

Automatic Calculations

With automatic calculation, Ensemble recalculates the value of a FIELD each time you change the value in an associated field. In this example, you will change the population and Ensemble will recalculate the density.

- Select COMPUTATION ON from the OPTIONS menu.
- Double click the Population field.
- Type **2782004** and press ENTER.

Ensemble recalculates the density using the new value. Experiment with other values, if you would like to.

Summary

The tutorial is now complete. You have used several of the many Ensemble tools to do most of the basic and some of the more advanced activities, including the following:

- Create a file
- Design a form
- Save a file
- Display a previously saved file
- Add a record
- Save a record
- Search for one or more records
- Print a record
- Create and editing a graph table and a graph
- Build a computation into a form

To learn more about what you have seen and about the other features of Ensemble, continue to Chapter 2, Overview of Ensemble and Parts II and III and IV of this user guide.

Chapter 2

An Overview of Ensemble

This chapter sets the stage for learning the details of Ensemble. The following topics and activities are discussed.

- Systems, Files, Records, Fields and Forms: Some Definitions
- What Ensemble Can Do for You
- Ensemble Environments
- Your Part
- More Ensemble Features

Systems, Files, Records, Fields, and Forms: Some Definitions

With Ensemble you can create one or more systems composed of information from different files. Let's pause here to examine what is meant by files, systems, and related terminology.

When you think of a *file*, imagine a filing cabinet in an office of any business, such as an office supply store. Each filing cabinet is full of manila folders containing information about the business, such as customers, lists of inventory for internal use, catalogs that go to customers, orders to fill, back orders, and price quotations. When the files were set up, a method of organizing the files was selected so that employees could easily find records for each customer. For example, the customer file might have been organized alphabetically by company or customer name or numerically by customer number. For each customer, certain types of information were necessary. A standard form was agreed on and used to collect and update information.

When information about a customer account changes, someone can search through the filing cabinet to find the manila folder for the customer and then make the necessary changes. If several changes to several customer records are to be made, the employee can pull several manila folders and make changes a batch at a time.

The office supply store can use much of the same terminology when using Ensemble to organize its information. It can create a customer *file* with a *record* for each customer and a *form* for easy and consistent data compilation and update. However, an additional term appears when using Ensemble; that term is *field* and simply refers to the area where information is entered.

What Ensemble Can Do for You

With Ensemble, you can recreate manually maintained files on your Macintosh and create an automated system. With Ensemble, constructing and updating a file is just the beginning. Once the information is organized into Macintosh files, you can instruct Ensemble to do all sorts of tasks, such as tracking orders, stock, and pricing schemes; printing packing slips, order forms, and invoices; and updating quantity sold, quantity ordered, and quantity on hand. You can also use Ensemble to communicate with customers and clients through form letter mailings. In addition, you can create worksheets to analyze your current expenses, income and to project future expenses and income. Furthermore, you can present this information as lists, graphs, and reports.

Ensemble Environments

In using Ensemble, you will be working in several ''environments'' within the program. Different environments are suited to different tasks:

- The Ensemble desktop for managing files
- The DESIGN window with its COMPUTATION window for designing the layout of the form
- The ENTRY window with its SPECIFICATION window for entering data into a file and specifying instructions for selecting records to display, send to a list table, send to a graph table, print as a simple report, and print as a complex report (See Appendix E for a diagram that portrays the relationships among the desktop and the windows discussed here.)
- The LIST window for working with a list table
- The GRAPH window for working with a graph table and selecting the type of graph that best suits your data

Your Part

With Ensemble you create and design one file at a time. Using the DESIGN window, you create a layout called a Form, in which you enter each record. Each Form can be the size of the screen or the size of the paper on which you ultimately print records, and consists of one or more pages. In creating a Form, you decide

- The information to be recorded
- The placement of the information
- The amount of space needed to record the information
- The characteristics of the information
- How each information entry interacts with others to form the basis for calculations

For example, a Form for a Customer file might include the following items of information:

- Company name
- Address
- Person to contact
- Phone numbers
- Date of last contact

- Discount rate
- Current balance
- Information about the customer that helps you sell your product or service.

The Form for an Order file might include the following items:

- Customer name
- Address
- Date of order
- Order number
- Several order lines, each with quantity, description, unit price, amount
- Subtotal before sales tax
- Sales tax
- Total including tax

Within the COMPUTATION window, you would provide the following information:

- Instructions for totaling each line (multiplying the quantity by price)
- Instructions for subtotaling the amount of each line
- Instructions for computing the sales tax (the subtotal multiplied by the tax rate)
- Instructions for computing the total amount due (the subtotal added to the sales tax).

Once you have created a Form, you add records to the file using the ENTRY window. To the Customer file you would add one record for each customer. To the order file you would add one record for each order. The ENTRY window is also used for updating records and searching for one or more records.

Accessible from the ENTRY window, the SPECIFICATION window is a tool for specifying search and update instructions, including conditions according to which records should be selected or updated, and what the update should be. For example, you might want to search the order file to find all orders with totals greater than a particular amount. Or, you might want to increase the discount given to a particular group of customers by giving an instruction to select the customer records that meet the specified condition and

increase the discount rate to a specified amount. Other uses of the SPECIFICATION window include indicating criteria for selecting forms that will be presented as graphs, lists, and reports.

So far it appears that you create and add records to each file without relation to any other file. Things are not always as they appear! Ensemble allows you to redefine the value of a field in one file as the value of a field in another file. This means you can have information in one file, such as the customer name or address, appear in another file. It's up to you to direct and implement the relationships; once you have done so, file management is an automatic process.

More Ensemble Features

The **Graph** feature allows you to choose from 10 different graphing methods for presenting information from up to 3 files. This is accomplished according to selection criteria that you click in the SPECIFICATION window using your mouse. You type directly into the graph table.

The **List** feature allows you to instruct Ensemble to display up to 30 fields in columns according to the selection criteria that you provide in the SPECIFICATION window. Ensemble assembles the list and then upon your command sorts a column or performs operations such as total, average, standard deviation, and range on each column.

The **Report** feature provides the ultimate in information interaction on the Ensemble stage. You can create reports that draw information from up to 3 files. Your report can also contain headers and footers, graphs, text, numeric information and pictures.

Finally, you can create files for **Labels** and **Mailings,** or form letters that draw information from 2 files. You can embellish your mailings by pasting in your company logo created in MacPaint, or any other MacPaint picture.

We invite you now to begin Chapter 3. You will find Ensemble to be a consummate performer. It's integrated features make it the perfect productivity aid for business today.

Part II

Creating a Database

Part II describes each of Ensemble's features in detail and provides examples for you to try and then modify for your own Ensemble applications. Rather than using the tutorial approach, each chapter provides narratives with examples that you can try. Areas that were touched on briefly or not discussed in the quick tour in Chapter 1 are described in detail in this section.

Topics and activities are discussed in the following chapters.

Chapter 3
Creating and Managing A Form

Chapter 4
Specifying Computations

Chapter 5
Managing a Database

Chapter 3

Creating and Managing a Form

In Chapter 1, you created a form for an address book, where you inserted titles, fields and a decoration. You opened the USA file and modified the USA form by adding a title and a field. You then saved both new forms.

This chapter discusses these activities in more detail. The following topics will be discussed:

- Overview
- Creating a New File
- Determining the Format and Width
- The DESIGN Window
- Designing the Form
- Decorating the Form
- Notes about Editing the Form Design
- Saving a File
- Advance Planning for Form Design
- Overview of File Management
- Opening a File
- Clearing a File from the Ensemble Desktop
- Editing a Saved File

Overview

As you learned in Chapters 1 and 2, designing a form is the way you shape and organize your information. You decide the size, layout and appearance that best matches the uses of your file; then you manage your form by opening, editing and clearing it.

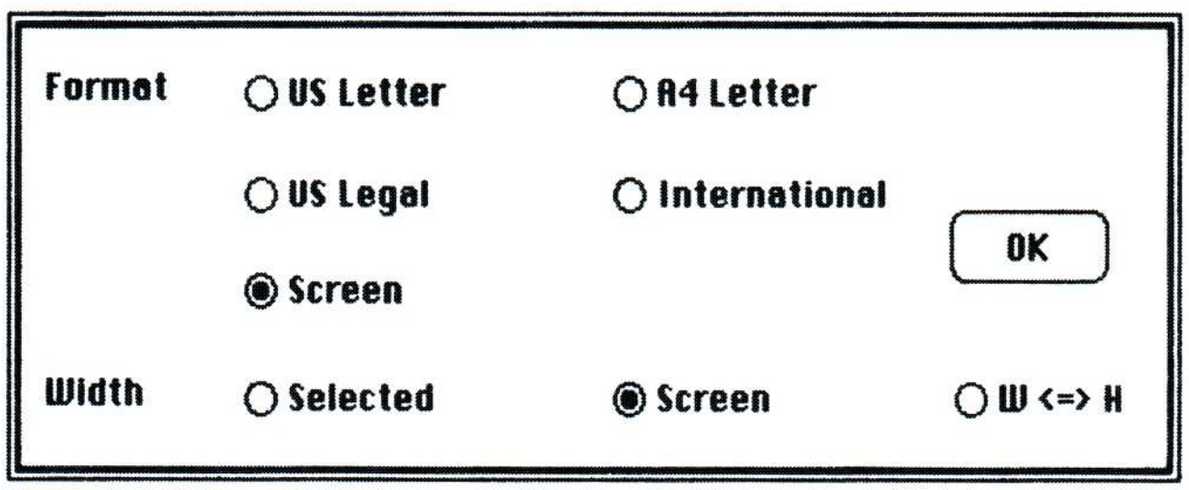
Creating a New File

You use the DESIGN window to build the form you have designed by clicking icons, selecting choices from the menus, typing field names and indicating other information that describes the field. To start, create a new file.

To create a new file:

- At the Ensemble desktop, select NEW from the FILE menu **OR** press the ⌘-n keys.

A dialog box appears for you to select the length and width of the printed page and length of the form on the screen.



Determining the Format and Width

When deciding which FORMAT and WIDTH to select, first consider the dimensions of the form that you are about to design and the number of forms that you need to print on one page. Will it be a small form, such as an index card, or a larger one that could fill an 8 1/2 × 11-inch sheet of paper? Next, consider the number of forms you would like to print on a sheet of paper. For example, if you select SCREEN for the FORMAT and SCREEN for the WIDTH, Ensemble will print three forms on a letter-sized piece of paper using the Ensemble print feature.

As long as you select a page size for FORMAT, you will be able to use the scroll bars, boxes, and arrows to display other parts of the form on the screen while you design it and later fill it in with information. However, if you select a page size for FORMAT and SCREEN for WIDTH, only the vertical scroll works. Since all of a screen-sized form appears on the screen, the scroll features are not available if you select SCREEN for FORMAT (even if you select SELECTED or W<=>H for WIDTH, described below).

For FORMAT, click one:

- **US Letter**, 8 1/2 by 11 inches
- **A4 Letter**, 8 1/4 by 11 2/3 inches
- **US Legal**, 8 1/2 by 14 inches
- **International**, 8 1/4 by 12 inches
- **Screen**, screen size

For width, click one:

- **Selected** when the form width is narrower than the form length. Choose this option when you intend to use the TALL or TALL ADJUSTED print option.
- **Screen** when the form size is the same as the screen.
- **W<=>H** when the form width is wider than the form length. Choose this option when you intend to use the WIDE print option to print pages sideways.

When you have finished selecting and are certain of your choice:

- Click OK.

The DESIGN window appears.

The FORMAT and WIDTH dialog box appears only when you create a new file. Therefore it is your only opportunity to decide the FORMAT and WIDTH. You can delete the file and start over if you change your mind during the design process. If you have entered records for this form, you will lose the valuable information that you have accumulated in your file.

- Click the CLOSE BOX of the DESIGN window.

The Ensemble desktop returns with the Untitled form.

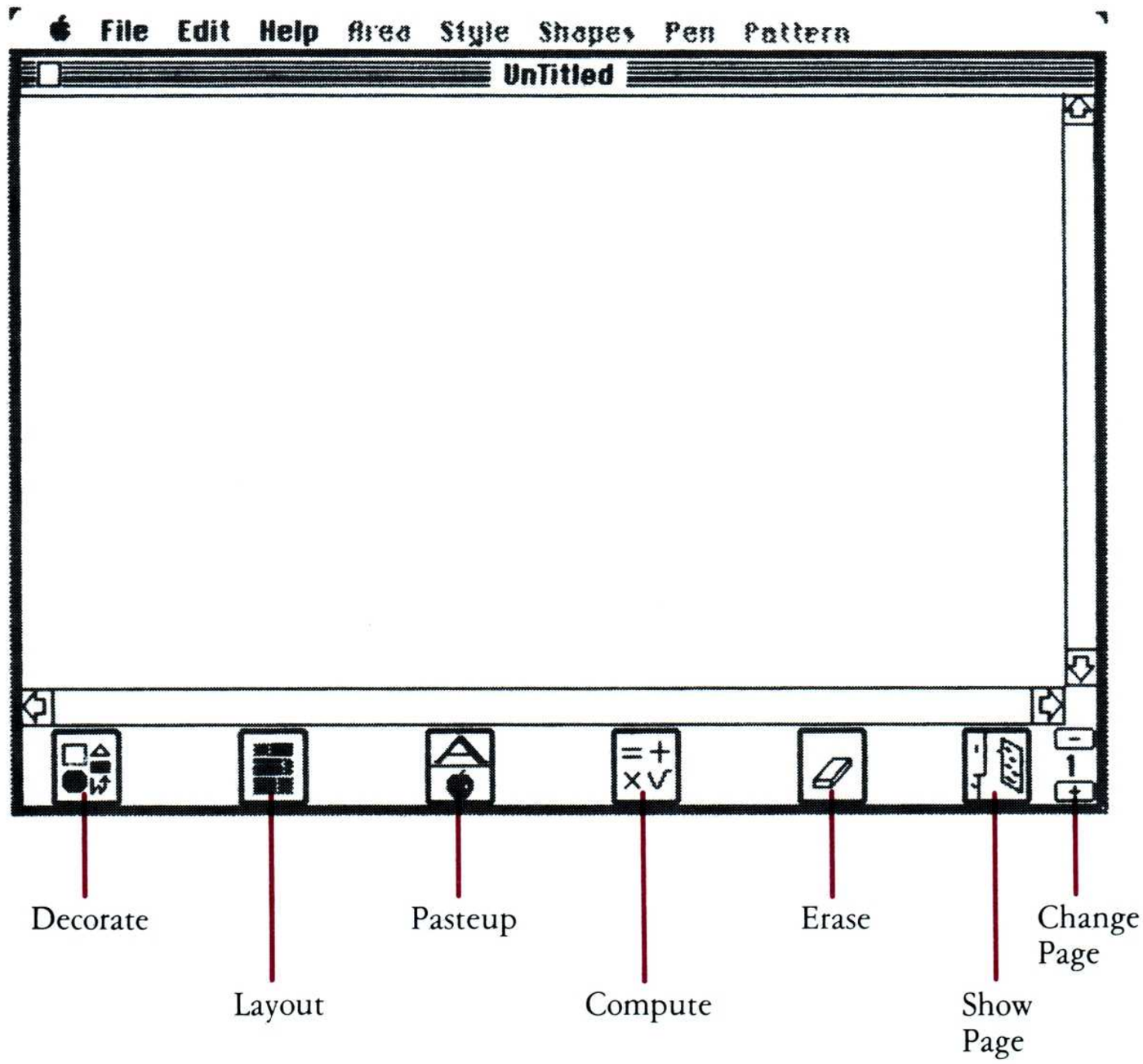
- Select CLEAR from the FILE menu **OR** press the ⌘-z keys.

The desktop clears without saving the file.

- Start again: select NEW from the FILE menu **OR** press the ⌘-n keys.
- Select the correct FORMAT and WIDTH from the FORMAT dialog box.

The DESIGN Window

As soon as you click OK, your selections are recorded and the DESIGN window appears with seven icons.

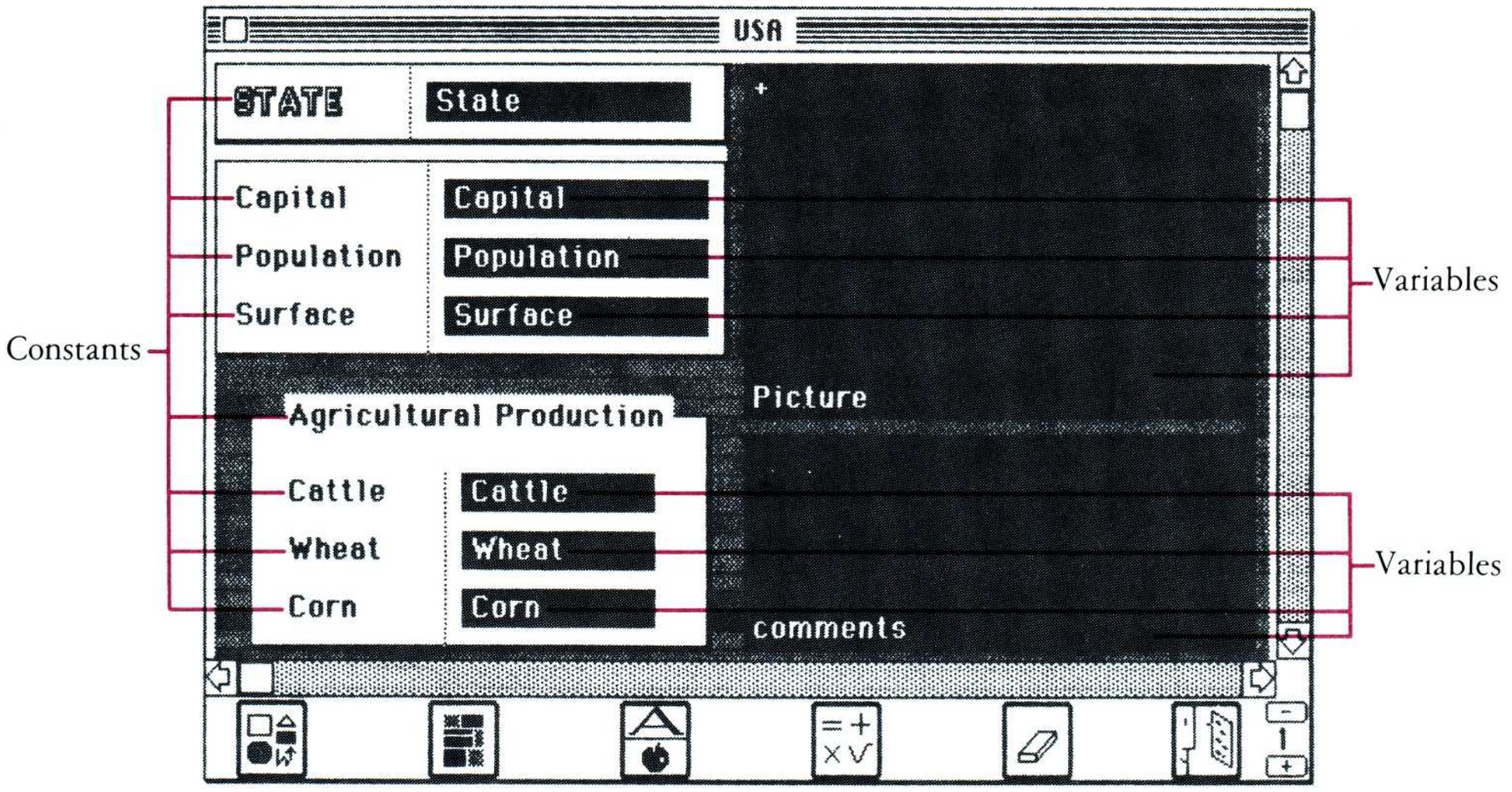


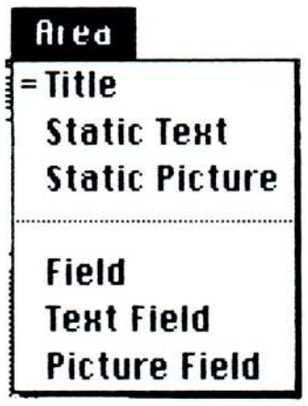
Each of the icons is a tool for creating, modifying, or viewing the form, as follows.

DECORATE	To decorate a form with lines, shapes and patterns.
LAYOUT	To create areas for titles, comments, field names, and fields.
PASTEUP	To type titles, comments, and field names or paste pictures from the CLIPBOARD or SCRAPBOOK.
COMPUTE	To open the COMPUTATION window for entering formulas that Ensemble calculates.
ERASE	To erase decorations or areas for titles, comments, field names, and fields.
SHOW PAGE	To view a reduced version of a form as it would appear on a full page. This is especially useful when the format is larger than the screen. Click the mouse and hold it down to see the reduced page.
CHANGE PAGE	To display the previous or next page of a form, if there is more than one page. Click + to display the next page, and click – to display the previous page. Double click – to display page 1 from anywhere in the form.

Designing the Form

Each form consists of constant and variable information. Constant information is the same on each form and includes titles, field names, pictures, and comments. Variable information is information that differs on each form. For example, in the USA form shown below, the constant information includes the words State, Capital, Population, Surface, Agricultural Production, Cattle, Wheat and Corn. Variable information is all the fields next to these titles, and also the Picture and Comments fields.





To add areas for variable and constant information:

- Click the LAYOUT icon.
- Select the appropriate area from the AREA menu.

Ensemble has three types of constant formats that you can select from the AREA menu:

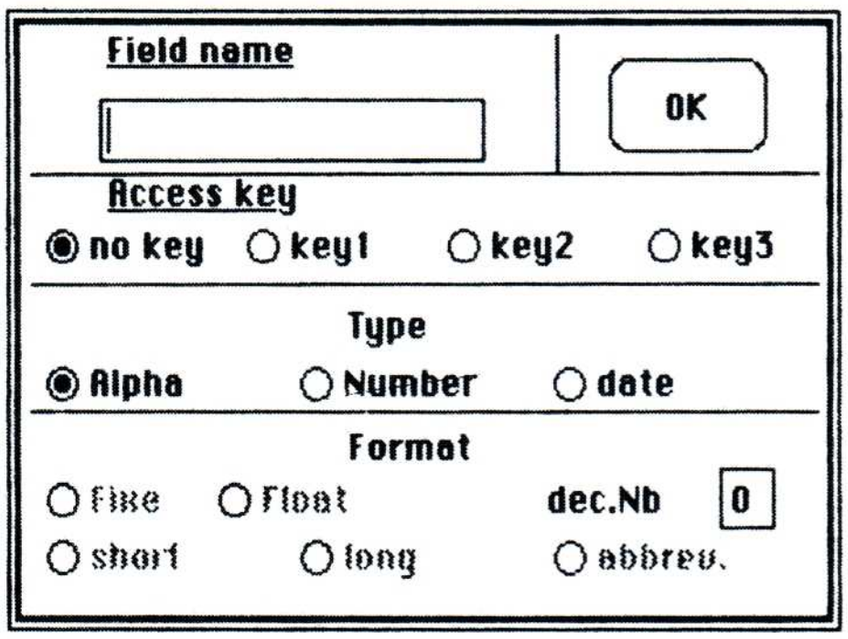
TITLE	Area for one line of text or numbers that appears in each form.
STATIC TEXT	Area for one or more lines of text or numbers that appears in each form.
STATIC PICTURE	Area for a picture, drawing, or graph that appears in each form.

Ensemble has three types of variable formats that you select from the AREA menu:

FIELD	Area for one line of text or numbers that varies with each form.
TEXT FIELD	Area for one or more lines of text that varies with each form.
PICTURE FIELD	Area for a picture, drawing, or graph that varies with each form.

- After selecting the appropriate area from the area menu, place the arrow on the form in the place where you want the area. By dragging, create a rectangle large enough to contain the variable or constant information.

As soon as you create a FIELD, a dialog box appears. If the area is for a TEXT FIELD or PICTURE FIELD, you simply give the area a name. If the area is for a FIELD, however, there is more information needed.



For each FIELD you must decide up to four characteristics, as follows.

FIELD NAME	The name of the field. Field names cannot be more than 15 characters long.
ACCESS KEY	If you decide to use this field as an access key for a QUICK ACCESS search, you must decide whether this is the first, second, or third of a maximum of three access keys that you can assign in any one file. If you decide not to assign it as an access key then click NO KEY, if not already selected. For more information about using the access key during a QUICK ACCESS search, see **Searching for One or More Records** in Chapter 5.
TYPE AND FORMAT	Fields can be one of 3 types: alphanumeric, numeric, or date. An alphanumeric field can contain numbers and text. However, the numbers in an alphanumeric field typically do not have any calculations performed on them. Examples of alphanumeric data are addresses and telephone numbers. Select NUMBER for numeric values, such as prices. You can select the display format for any numeric value: The number 1,200,000 will appear as 1200000 in a fixed format and 1200000.00 in a fixed format with 2 decimal places. It will appear as 12.E6 in a floating format. Numeric data must be entered without spaces or commas. Click the decimal box and type the desired number of decimal places. Select DATE for dates on which you will want to sort. The date 9/15/85 will appear as 9/15/85 in the short format, Sunday, September 15, 1985 in the long format, and Sun. Sept. 15, 1985 in the abbreviated format. Dates must be entered as numbers with slashes between them. If you select NUMBER or DATE, then you must also select a FORMAT for the number or date:

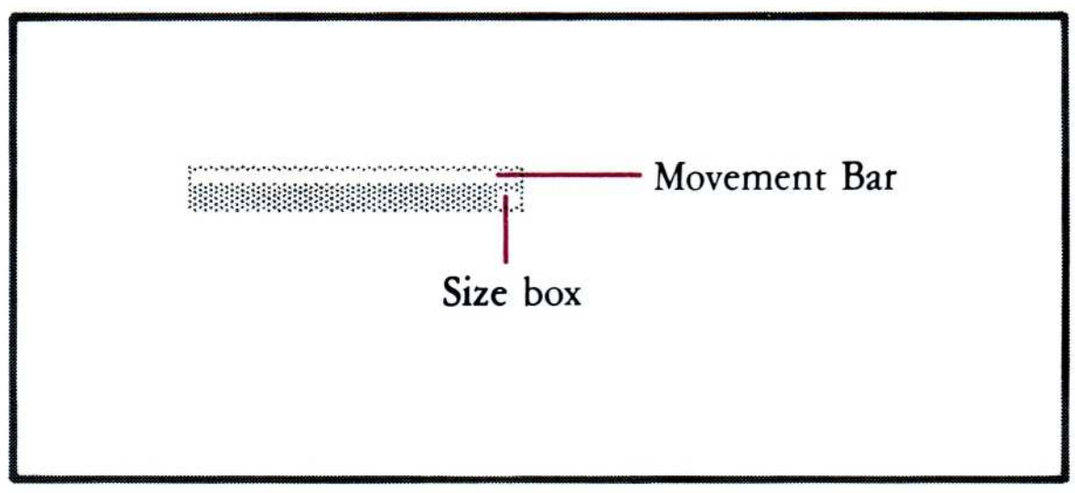
To add constant titles and text:

- If not already selected, click the PASTEUP icon.
- If not already selected, click the title or text area where you want to place the title or text.
- Type the title or text.
- Press the BACKSPACE key to delete, then retype as needed.

To add constant pictures:

- If not already selected, click the PASTEUP icon.
- Open the SCRAPBOOK and copy a picture from it into the CLIPBOARD by selecting COPY from the EDIT menu **OR** pressing the ⌘-c keys.
- Click the picture field where you want to place the picture.
- Paste a picture from the CLIPBOARD by selecting PASTE from the EDIT menu OR pressing the ⌘-p keys.

To adjust the size and position of the rectangle, click the LAYOUT icon and drag the long white area of the rectangle called the *movement bar* or the small white box in the lower right corner of the rectangle called the *size box*.



To use the movement bar:

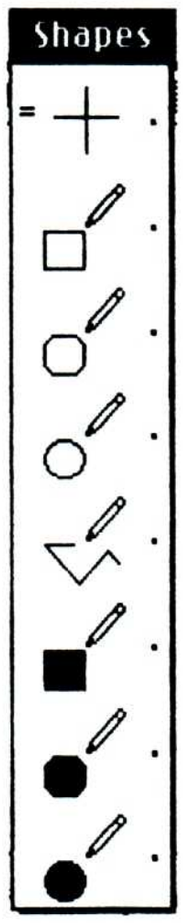
- Put the tip of the pointer in the movement bar.
- Drag the rectangle to the new position.

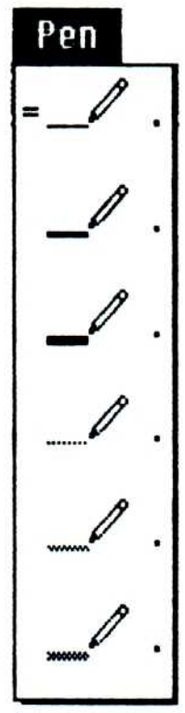
To use the size box:

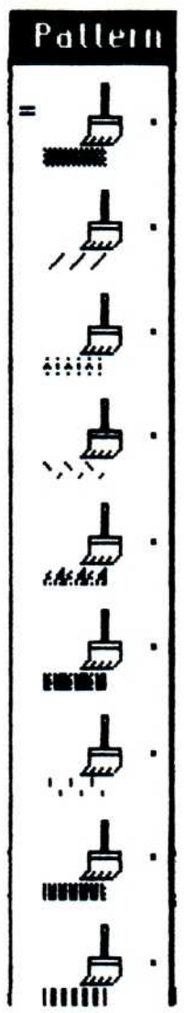
- Put the tip of the pointer in the size box.
- Drag the size box to the right to expand or to the left to shorten the rectangle.

Decorating the Form

The decoration tools allow you to embellish and individualize the appearance of your form. Selections in the SHAPES, PEN, and PATTERN menus are tools for decorating the forms.







The tools in the SHAPES menu are empty and filled squares, ovals, circles, and lines. The tools in the PEN menu are for selecting the border width (single, double, or triple) and the shade of the border (black or gray). The tools in the PATTERN menu are for selecting the interior of closed objects —squares, ovals, and circles.

To decorate forms:

- Click the DECORATE icon.
- Select a width from the PEN menu and a pattern from the PATTERN menu.
- Position the arrow where you want the line or shape to begin. Drag **from left to right OR top to bottom** to create the shape, then release the mouse.

Notes about Editing the Form Design

You can edit titles, fields, and decorations as described in the following guidelines.

- To edit a TITLE or CONSTANT TEXT, put the tip of the arrow inside the grey part of the rectangle, then use standard Macintosh editing techniques, such as those used in MacWrite.

- To edit the size or position of the rectangle for a FIELD, use the movement bar or the size box.
- To edit the characteristics of a FIELD (for example, if you want to change a field from numeric to alphanumeric), put the tip of the pointer inside the black part of the rectangle, click it, then click the correct circles in the dialog box.
- To add a decoration, click the DECORATE icon, then select decoration tools from the SHAPE, PEN, or PATTERN menu to insert the correct line or shape. To delete a decoration, use the eraser as follows:

To use the ERASER:

- Click the ERASE icon.
- Position the black corner of the ERASER on the decoration or rectangle that you want to erase.

> NOTE: Make sure you want to erase — you cannot UNDO once the object is deleted.

- Click to erase permanently.

Saving a File

If you want to save as you go along, select SAVE AND CONTINUE from the FILE menu. If you are finished, click the close box, which will put your untitled form on the desktop.

To save an Untitled file on the Ensemble desktop:

- If the file isn't already selected (that is, if it doesn't already have a black border around it), click anywhere inside the form to select it.
- Select SAVE from the FILE menu **OR** press ⌘-s.

A SAVE dialog box appears.

- Type the name.
- Click the button that refers to the correct drive.

On any Macintosh you have the option of ejecting a disk by clicking EJECT and inserting another disk. On a two-drive Macintosh you can choose the internal or external drive. With a hard disk drive you get the additional choice of saving on the hard drive.

You now have two choices:

- Click CANCEL if you decide not to SAVE. Macintosh ends the procedure without saving and returns the Ensemble desktop to the screen.
- Click SAVE. Macintosh saves the file and displays the ENTRY window of the file.

> HINT: It's a good idea to save periodically while designing a form, using SAVE AND CONTINUE from the FILE menu.

To save a previously saved form on the desktop:

- If the form isn't already selected, click the file.
- Select SAVE from the FILE menu **OR** press ⌘-s.

Macintosh saves, closes the file, and clears the file from the desktop.

To return to the DESIGN window before saving the file:

- Select DESIGN from the FILE menu OR press ⌘-d.

Advance Planning for Form Design

Among the many things you learned in Chapters 1 and 2, you learned that you must design a form before you can add records of information to a file. While designing a form you should consider what you intend to do with the information in the file. The design of your form requires advance planning so that you can make use of the full range of Ensemble's features. Here are some things to consider as you plan.

1. Look at the information and think about how you want to sort it. If company names often begin with The, such as The Kennsington Company, consider creating a separate field for prefixes so that later you can sort by company and have The Kennsington Company occur with the K's instead of the T's.
2. Think about possible calculations that you would like to incorporate in a file, such as totaling each line item in an invoice. Include fields for the results of the calculations in your form design.

3. Decide if there are particular words and phrases in text fields that you want to use as a basis for a search later on. These are known as keywords and phrases and their use is described in Chapter 5.
4. Decide how many files will work together and plan them together, such as customer file, inventory file, and order file. Think of ways that you might want to integrate information from all these files in applications such as computations and reports. Draw a flow chart if necessary.

Overview of File Management

Managing a file includes the following activities:

- Opening a file
- Editing a file
- Closing a file
- Clearing a form from the desktop

Opening a File

All open files appear on the Ensemble desktop. Ensemble allows you to open up to three files at once.

> NOTE: You can design, modify, or add forms to only one file at a time, but other files can be open on the desktop during that time.

The number of steps required to open a file depends upon what is showing on the screen: the disk window, the Ensemble desktop with zero, one or two files, the Ensemble desktop with three files.

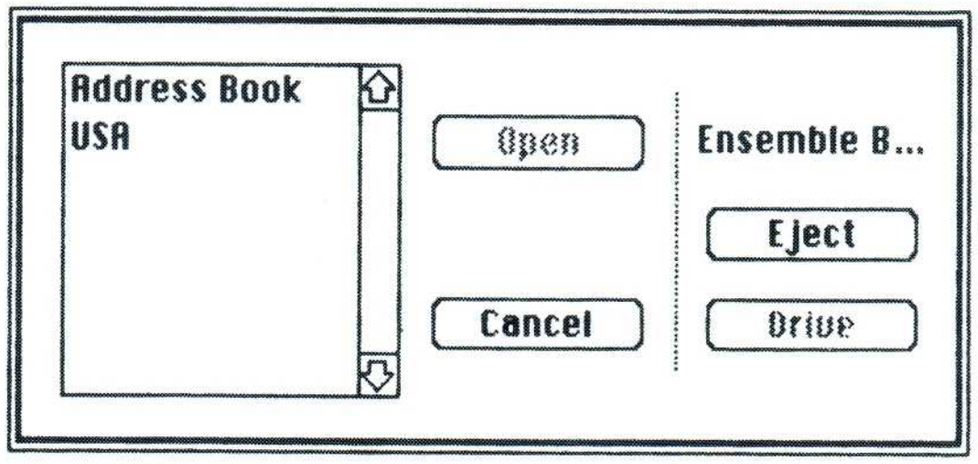
To open a file from the disk window:

- Click the Ensemble program icon.

The Ensemble desktop appears on the screen.

- Select OPEN from the FILE menu **OR** press the ⌘-o keys.

A dialog box with a list of files appears. (Yours may look different from this, depending on the contents of your disk.)



- To open a file: double click the name **OR** click the name and click OPEN.

NOTE: If you try to open a file already on the desktop, Ensemble displays a message telling you that the file is already open. Click the OK button. When the Ensemble desktop returns, double click anywhere on the form of the file you want to use to open the ENTRY window.

- The ENTRY window of the file appears.

To open a file from the Ensemble desktop when there are no more than two files open:

- Select OPEN from the FILE menu **OR** press the ⌘-p keys.

A dialog box with a list of files appears.

- To open a file: double click the name **OR** click the name and click OPEN.
- The ENTRY window of the file appears.

NOTE: Since a maximum of three files can be on the desktop, if you want to open another file when three are already open, you must clear a file from the desktop. However, if you have not saved recently, select SAVE from the FILE menu **OR** press the ⌘-s keys. This will automatically clear it from the desktop.

Clearing a File from the Ensemble Desktop

Clearing a file from the desktop will increase the speed of operations, such as searching for and updating forms.

To clear a file from the desktop:

- Click anywhere on the form of the file to be cleared.

The border of the file darkens.

- Select CLEAR from the FILE menu **OR** press the ⌘-c keys.

The file clears from the desktop, but remains unaffected on the disk.

Editing a Saved File

Earlier in this chapter, you learned how to modify your form while you were still in DESIGN mode. But you may want to modify it after you have saved your model and worked on other activities. However, some changes affect the records you have added.

> WARNING: If you erase a field, the information that you entered is deleted. Also, if you change a field from a TEXT FIELD to a FIELD, the information you entered when it was a TEXT FIELD is lost.

To edit a saved file:

- If it isn't already open, open the file you want to edit. For information, see **Opening a File** in this chapter.
- When the ENTRY window appears, select DESIGN from the FILE menu **OR** press the ⌘-d keys.
- When the DESIGN window appears, use all the techniques, tools, and suggestions for creating a file to modify it. See **Designing the Form** in this chapter.

Chapter 4 explains how you can relate the fields in your files through calculations. These calculations combine simple arithmetic operations with powerful logical operations that can compute the values of fields drawn from up to 3 files.

Chapter 4

Building Computations

One of the most important and exciting features of Ensemble is its ability to build computations into a form. In chapter 1, you saw a quick example of how to add a field and formula to the USA file that instructed Ensemble to automatically compute the density of each state. In this chapter, you will learn the full range of Ensemble's computation capabilities. A Profit Analysis form is used as an example at the end of the chapter. (For more complex applications of the computation feature, see the Examples brochure and disk.)

The following topics and activities are discussed.

- Overview of the Computation Feature
- Formulas for Simple Computations
- Conditional Computations: IF, THEN, ELSE
- Timing of Computations: BEFORE, DURING and AFTER
- Guidelines for Entering Computations
- Steps for Entering Computations
- Computations with Fields from Two or Three Files
- Using Computations to Update Records in a Form
- Application: Profit Analysis

Overview of the Computation Feature

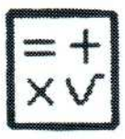
Just what is a computation? In Ensemble terms, a computation is a formula for comparing two or more values, providing instructions for the timing of another instruction, or defining or redefining a value. You can interrelate values from the records in a file, such as the price of an item in an item field, or you can include a value in a formula, such as a rate of sales tax.

Simple computations involve one or two operations. For example, you can instruct Ensemble to increase the value of a particular field in all records in a file. This ability is useful for making across-the-board changes, such as increasing the cost of one item, several items, or all items by 3 percent. You can also instruct Ensemble to multiply a value in one field by a value in another field. For example, on an invoice, you can have Ensemble multiply quantity by unit cost for each item, and then subtotal the line items, compute the tax and the grand total.

Complex computations can involve several operations and can involve the fulfillment of conditions. Suppose you want to change only records for customers whose numbers fall within a particular range. You can use a conditional statement to perform an operation on matching records and a different operation on the remaining records. You can also create computations with multiple conditions.

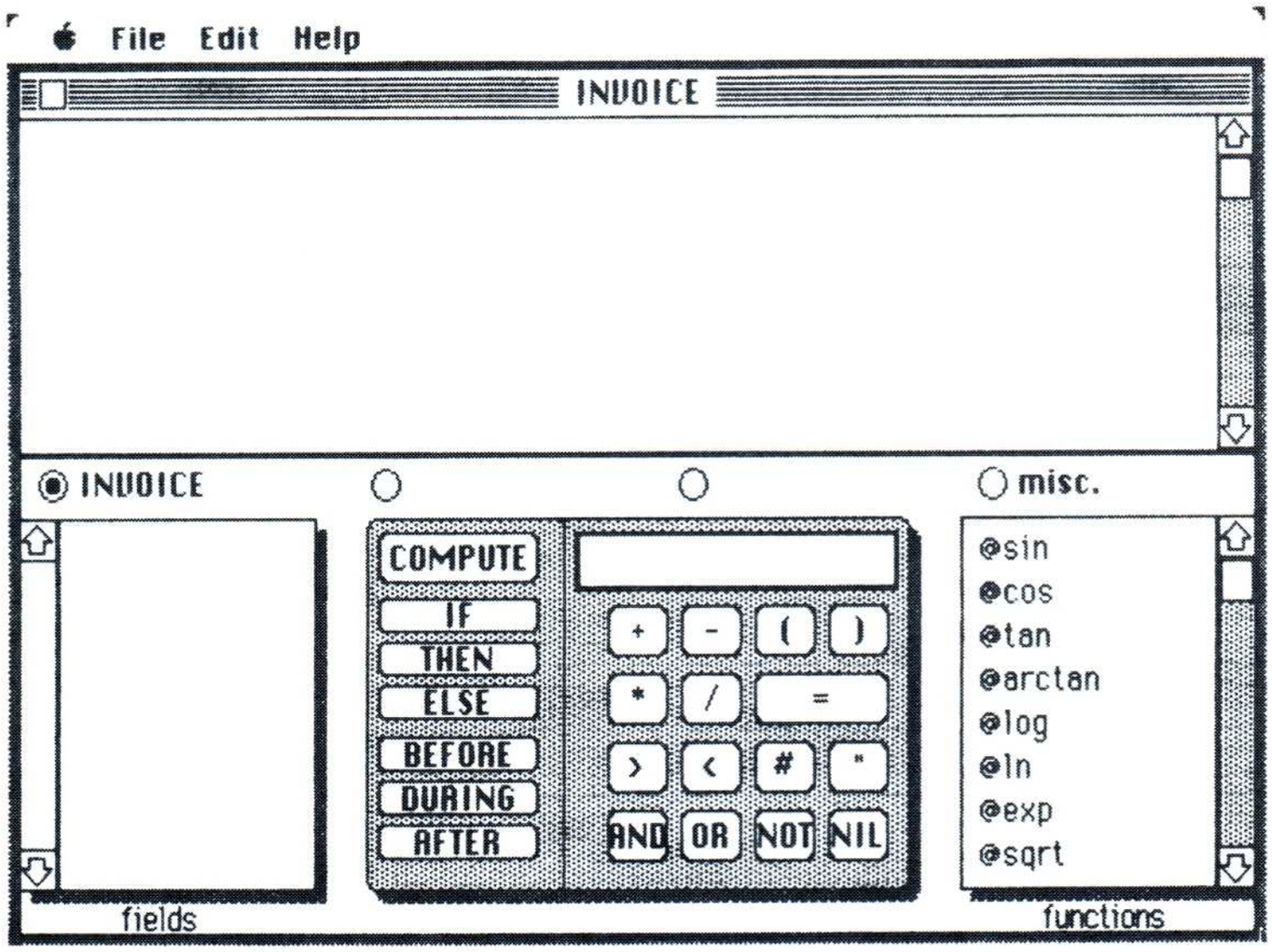
Computations can also be used to present information in a different format, such as combining the contents of two different fields into one field. For example, you might want to place the fields ''first name'' and ''last name'' together into a field called ''customer.'' Or, you might want to display a message in response to the presence or absence of a particular condition. Ensemble allows you to do all these.

Formulas for Simple Computations

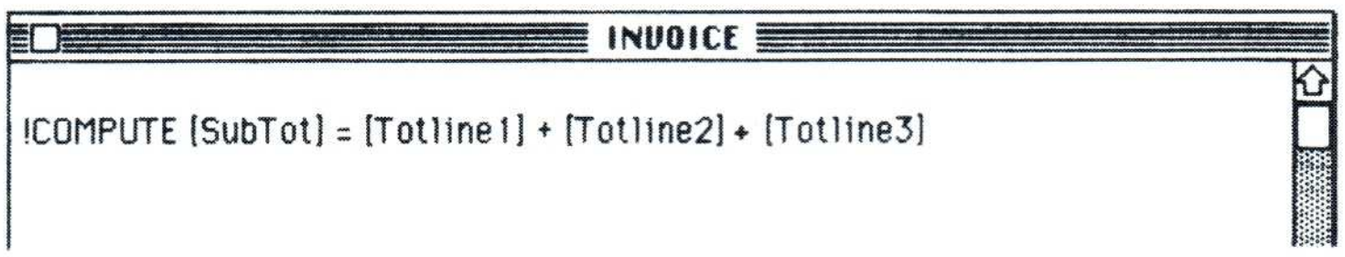


In order for you to input formulas, the COMPUTATION window must be on the screen. To display the COMPUTATION window, click the COMPUTE icon at the bottom of the DESIGN window.

Here is the COMPUTATION window.



Simple computations are used to perform simple mathematical operations between two or more fields as well as constants. You can add the value of three fields and have the result appear in a fourth field. Suppose you are preparing an invoice with three line items that you need to subtotal. You could use the following formula in an invoice file. (Your field names may well be different from these.)



Notice that the COMPUTE instruction appears first and the field where the result will appear is to the left of the equal (=) sign.

To enter this formula:

- Click COMPUTE.

Ensemble displays the !COMPUTE instruction and leaves the required space after it.

- Click the SubTot field in the field scroll box in the lower left corner of the screen. Use the scroll box if necessary to display the field names you need.

Ensemble displays the field and leaves the required space after it.

- Click the = sign.
- Click the Totline1 field.
- Click the + sign.
- Click the Totline2 field.
- Click the + sign.
- Click the Totline3 field.

You would use a similar formula for other simple operations, using subtraction (–), multiplication (*) , division (/).

> NOTE: In formulas with more than one type of operator, Ensemble performs multiplication and division before addition and subtraction. In formulas with the same type of operator, Ensemble performs operations from left to right.

Here are examples of other simple operations, where constant values are assigned to alphanumeric fields:

```
!COMPUTE [message] = ''Please pay promptly.''
!COMPUTE [account] = ''Open Account''
```

In the above examples you must include quotation marks. To accumulate a running balance, such as you might need in a monthly statement, you could use the following formula.

```
!COMPUTE [Balance] = [AmtDue] + [Balance]
```

In the next example, where you are setting a discount rate, you simply type the constant after clicking COMPUTE, the field, and the operator.

```
!COMPUTE [Disc%] = .03
```

In this final example, you see how to redefine information in two fields into one field and place a space between the two pieces of information.

```
!COMPUTE [Customer] = [First name] + '' '' + [Last name]
```

Conditional Computations: IF, THEN, ELSE

If you want a computation performed only if a particular condition exists or fails to exist, then specify the formula in the following terms:

- The condition that may or may not exist [IF]
- The computation that is performed if the condition exists [THEN]
- The computation that is performed if the condition does not exist [ELSE]

Example #1 — Inventory Control

You can create a conditional computation to check information and display a message if a certain condition occurs. Suppose you need to know when stock on hand for any item falls below 50. You might use the following formula to check for the condition and display one message if the condition is true and another if the condition is false.

```
!IF [item amt] < = 50
!THEN [item message] = ''Reorder now!''
!ELSE [item message] = ''Warehouse full.''
```

Example #2 — Checking an Input

You can use a conditional computation to check the information that is entered into a field and instruct Macintosh to emit a tone if the information is not within the desired range.

Suppose you want to assign a four-digit customer code between 1500 and 3500 and have Macintosh beep if something outside that range is added; the computation might appear as follows.

```
!IF [code] < 1500 OR [code] > 3500
!THEN @beep
```

Here's another example, this time to check for the correct length of a 5-digit zip code.

```
!COMPUTE [Length] = 5
!IF [zip code] # @Long [Length]
!THEN @beep
```

Example #3 — Inserting Date and Time

You can also call up the current date and time:

```
!IF [my date] = nil
!THEN [my date] = [# date]
```

For the time, use a similar formula using [my time] and [# time].

Timing of Computations: BEFORE, DURING, and AFTER

You decide when the computation is performed:

- BEFORE a file opens
- DURING the time the file is open
- AFTER the file is closed

Unless you include a BEFORE or AFTER instruction, Ensemble performs all computations while the file is open (DURING). When you click BEFORE, DURING, or AFTER, Ensemble places the timing instruction on a separate line.

You might want to use the BEFORE instruction to assign a value to a field as a file opens. For example, you could instruct Ensemble to assign the value of 0 (zero) to a field before an operation that increments it by a given value.

You would use the DURING instruction to change the timing after using a BEFORE or AFTER instruction. So, if you instructed Ensemble to perform a formula BEFORE the file opens, you might want to instruct Ensemble to perform the next formula while the file is open.

Use the AFTER instruction to compute totals after entering or updating information. For example, you could transfer the result of a computation to another file after the first file closes.

Guidelines for Entering Computations

The first step is to determine the values you need, such as the total of line items, the amount of sales tax at a rate of 5%, or the combining of a last name FIELD and a first name FIELD into a field called customer name. If there are conditions that must be met before the instructions should be carried out, then you should use IF, THEN, and ELSE. In addition, decide when the computations should be made, that is, while the file is open, before it opens, or after it closes. You will be using DURING, BEFORE, and AFTER statements to instruct Ensemble of your intentions.

Next, you must make sure that the FIELDs that will be included in the formula are included in a file and that you use FIELDs from no more than three files. If a FIELD is not on a form, you must edit the form to include the FIELD. Finally, use the COMPUTATION window or SPECIFICATION window to enter the formula or formulas.

Ensemble follows your instructions about what and when to compute. If you specified the DURING command or did not give any timing instruction, then after you select COMPUTATIONS ON and DO COMPUTATIONS from

the OPTIONS menu, Ensemble follows the instructions in the formula once for each record it finds in a file. However, if you gave a BEFORE or AFTER timing command, Ensemble follows the instructions in each formula *before* the file opens into the ENTRY window **OR** *after* the file closes.

Steps for Entering Computations

Now that you have a general idea of what comprises a formula, let's look at the Ensemble environment for entering and editing computations, the COMPUTATION window.

To display the COMPUTATION window:

- Open the DESIGN window for a file. (As needed, see Chapter 3 for details.)
- Click the COMPUTE icon.

The COMPUTATION window appears with smaller windows showing fields of the selected file, operations, and functions.

Computations are entered into the COMPUTATION window shown above. Each instruction must be on its own line. Ensemble takes care of that requirement for you by automatically placing the !COMPUTE, IF, THEN, ELSE, AFTER, DURING, and BEFORE statement at the beginning of a line when you click the statement.

Once you have chosen the operation, indicate the values by clicking a FIELD or typing numbers or text. If the information that you type consists of numbers or words separated by spaces, you would place quotation marks around them so that Ensemble interprets them as a complete phrase. For example, ''Please pay promptly.'', ''Open Account'', ''(415) 555-1212'', and 617/555-6996. Note that since the last example has no spaces, you would not need to place it between quotation marks.

To specify computations:

- Begin each !COMPUTE statement by clicking COMPUTE.
- Click the field where the result is to be placed.
- Click = (equal to) or # (not equal to).
- Click a field or type a constant.
- Click an operator.
- Click a field or type another constant.

To specify a conditional [IF, THEN, ELSE] statement:

- Click IF.
- Click a field.
- Click an operator (= or #).
- Identify the condition by clicking a field, entering a string, or clicking a function.
- Click THEN.
- Identify the instruction to carry out when the condition is met.
- If appropriate, click ELSE.
- Identify the instruction to carry out when the condition is not met.

Computations with Fields from Two or Three Files

Ensemble allows you to create computations using fields from up to three Forms. Make sure the Forms that you plan to use in creating computation formulas are on the desktop before you click the COMPUTE icon to open the COMPUTATION window.

> NOTE: For information about opening a Form, see **Opening a Form** in Chapter 3.

- To switch between Forms while creating computation formulas, click the circle to the left of the Form's name.

The fields from that Form appear in the field window and you can include them in the formula. Switch between Forms as needed.

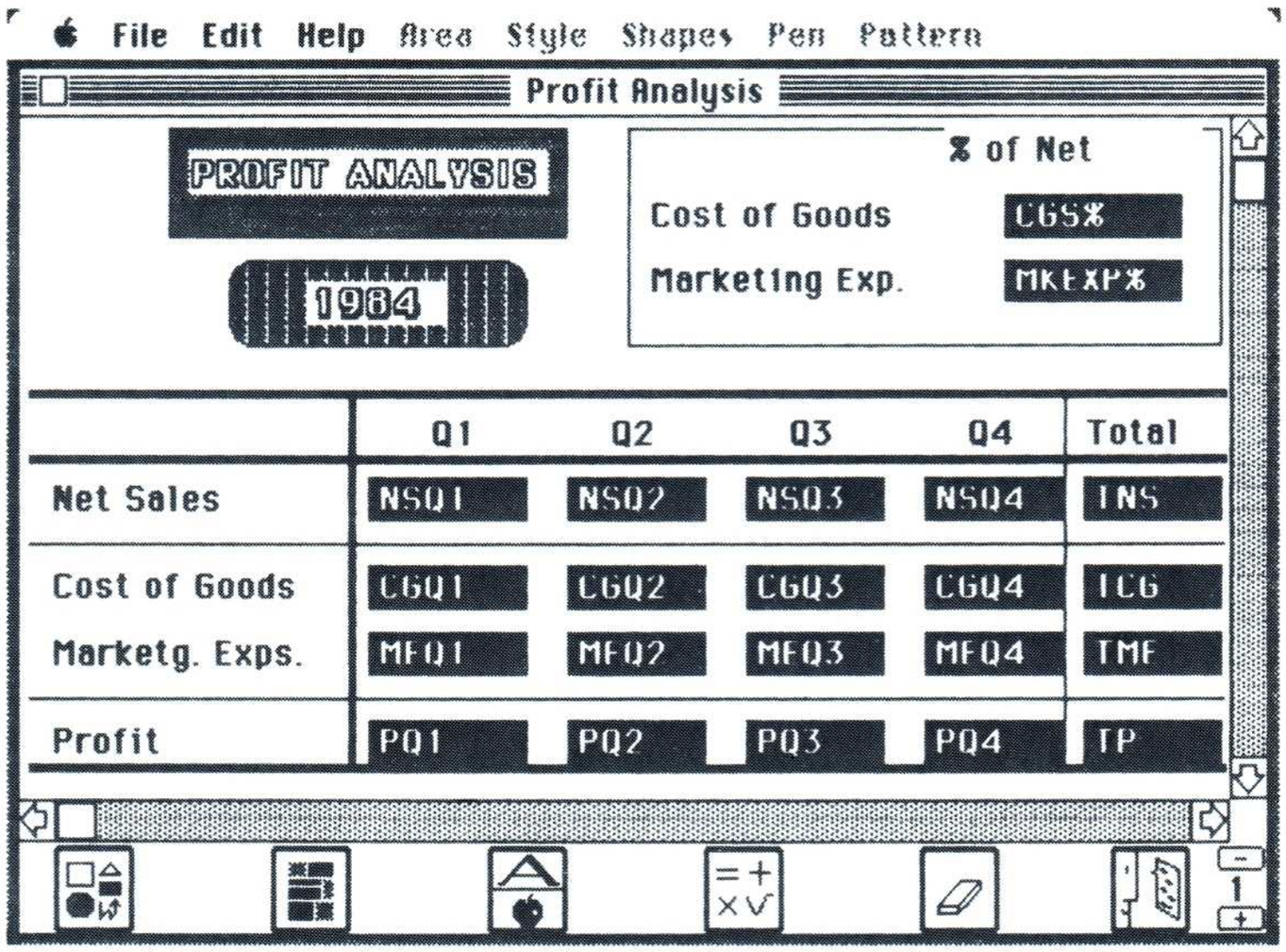
Using Computations to Update Records in a Form

You can use computations to update records in a Form. However, instead of using the COMPUTATION window, you specify computation formulas in the SPECIFICATION window. When you open the ENTRY window of a Form, then click the SPECIFY icon to open the SPECIFICATION window, you will see that there is no COMPUTE button to click. You must type !COMPUTE to begin the computation formula. For information about using computations to update records in a Form, see **Updating One or More Records** in Chapter 5.

Application Profit Analysis

In this example, you will learn how to create a profit analysis worksheet that you can use to determine profit by entering the cost of goods and marketing expense as a percentage of the net sales. You can play ''what if?'' by changing the percentage of the cost of goods and marketing expenses and watch Ensemble recompute the profit.

For this example you need to create only one file. The form for the profit analysis file appears as shown here.



First design the profit analysis form in a new file. When you have finished designing the form you can enter the computations in the COMPUTATION window, as follows:

- Click the COMPUTE icon at the bottom of the DESIGN window.

The COMPUTATION window appears.

- Select COMPUTATIONS OFF from the OPTIONS menu.

This example has four sets of computations. The first set shown here instructs Ensemble to compute the total net sales and the cost of goods for each quarter and the year. It multiplies the decimal you entered in the Cost of Goods by the net sales for each of the four quarters and by the total for the year.

```
!COMPUTE [TNS] = [NSQ1] + [NSQ2] + [NSQ3] + [NSQ4]
!COMPUTE [CGQ1] = [CGS%] * [NSQ1]
!COMPUTE [CGQ2] = [CGS%] * [NSQ2]
!COMPUTE [CGQ3] = [CGS%] * [NSQ3]
!COMPUTE [CGQ4] = [CGS%] * [NSQ4]
!COMPUTE [TCG] = [CGS%] * [TNS]
```

To enter the formula for the total net sales:

- Click COMPUTE.
- Click the [TNS] field, then click the = sign.
- Click the [NSQ1] field, then click the + sign.
- Click the [NSQ2] field, then click the + sign.
- Click the [NSQ3] field, then click the + sign.
- Click the [NSQ4] field.

Use the same technique to enter the other computations in this example.

> NOTE: Save periodically by selecting SAVE AND CONTINUE from the FILE menu.

The next set of computations, shown here, instructs Ensemble to compute the marketing expense for each quarter and for the entire year by multiplying the decimal you entered in the Marketing Expense field by the net sales for each of the four quarters and the total net sales.

```
!COMPUTE [MEQ1] = [MKEXP%] * [NSQ1]
!COMPUTE [MEQ2] = [MKEXP%] * [NSQ2]
!COMPUTE [MEQ3] = [MKEXP%] * [NSQ3]
!COMPUTE [MEQ4] = [MKEXP%] * [NSQ4]
!COMPUTE [TME] = [MKEXP%] * [TNS]
```

The third set of computations tells Ensemble to generate the profit by subtracting the cost of goods and marketing expenses from the net sales.

```
!COMPUTE [PQ1] = [NSQ1] – [CGQ1] – [MEQ1]
!COMPUTE [PQ2] = [NSQ2] – [CGQ2] – [MEQ2]
!COMPUTE [PQ3] = [NSQ3] – [CGQ3] – [MEQ3]
!COMPUTE [PQ4] = [NSQ4] – [CGQ4] – [MEQ4]
```

Finally, you instruct Ensemble to compute the total profit by adding the quarterly profits.

!COMPUTE [TP] = [PQ1] + [PQ2] + [PQ3] + [PQ4]

As soon as you finish adding the computations, close the COMPUTATION window by clicking the CLOSE BOX.

- Now save the profit analysis file and display the ENTRY window by selecting ENTER from the file **OR** pressing the ⌘-e keys.

When the ENTRY window appears with the form, you can begin using it.

To use the profit analysis worksheet:

- In the % of Net box, type the cost of goods as a decimal (value less than one) and press the ENTER key.
- Also in the % of Net box, type the marketing expenses as a decimal and press the ENTER key.
- Type net sales amounts for quarters 1 through 4, pressing the ENTER key after you type each number.
- Select DO COMPUTATION from the OPTIONS menu.

Ensemble computes the values for total net sales, cost of goods, marketing expenses, and profit.

File Edit Help Options

Profit Analysis

PROFIT ANALYSIS

1984

	% of Net
Cost of Goods	0.15
Marketing Exp.	0.20

	Q1	Q2	Q3	Q4	Total
Net Sales	4000.	5000.	7000.	8000.	24000.
Cost of Goods	600.	750.	1050.	1200.	3600.
Marketg. Exps.	800.	1000.	1400.	1600.	4800.
Profit	2600.	3250.	4550.	5200.	15600.

To play "what if?":

- Select COMPUTATIONS ON from the OPTIONS menu.
- In the % of Net box, double click the Cost of Goods field, type a new percent, and press the ENTER key. The cost and profit figures are automatically recomputed.

Continue to experiment. You can save a profit analysis by clicking the SAVE icon. When you are finished with the profit analysis, close the ENTRY window by clicking the CLOSE BOX. The Ensemble desktop returns to the screen.

Chapter 5

Managing a Database

Once you have created a Form, you create a database by adding records, then manage the database in a variety of ways, as described in this chapter.

The following topics and activities are discussed.

- Introduction to Database Management with Ensemble
- The ENTRY Window
- Adding a Record
- Notes About a File with Computations
- Viewing a Multi-Page Record
- Saving a Record
- Searching for One or More Records
- Sorting Records
- Updating One or More Records
- Clearing a Record from the ENTRY Window
- Deleting a Record from the Disk
- Printing a Record

Introduction to Database Management with Ensemble

After creating a form and entering formulas, you will want to enter your data. Each filled form is then known as a record. Your form and all the records associated with it comprise a file, and one or more files are referred to as a database.

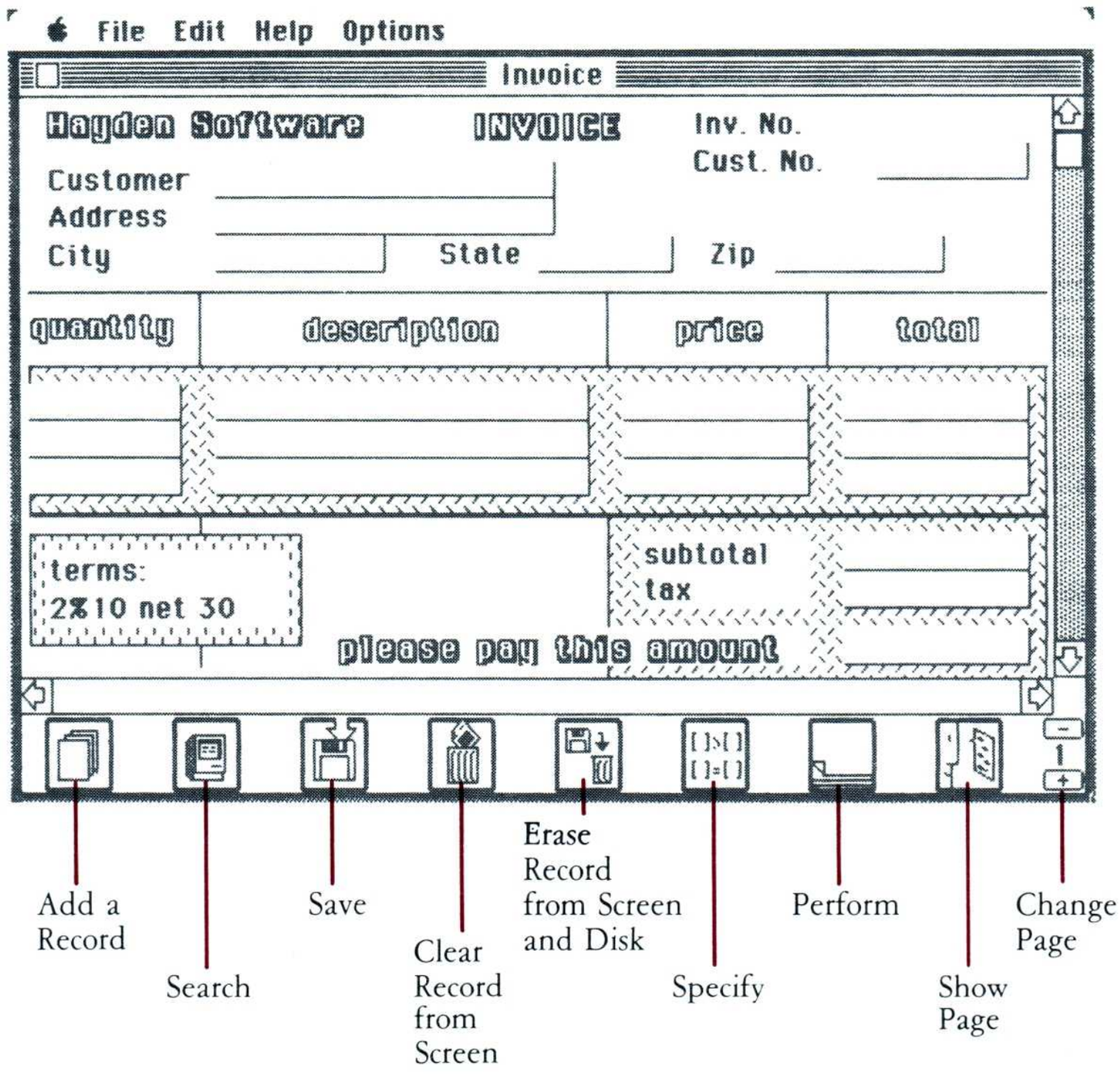
You will want to manage your database in a variety of ways. For example, you will want to add client records to a client file, save them, search for them, or update a record already in the base.

To manage a database, the ENTRY window must be on the screen. To display the ENTRY window for a file, open the file.

For more information see **Opening a File** in Chapter 3.

The ENTRY Window

As the file opens you see the ENTRY window with nine icons across the bottom and the cursor blinking at the first field of the record. Here is a sample Invoice record:



The icons are used as follows.

ADD A RECORD	To add a new record.
SEARCH	To search by one, two, or three keys.
SAVE	To save a record to the disk.
CLEAR RECORD FROM SCREEN	To clear the record from the screen, leaving it on the disk.
ERASE RECORD FROM SCREEN AND DISK	To clear the record from the screen **AND** delete it from the disk.
SPECIFY	To open the SPECIFICATION window to specify criteria to search or sort a database or create a list, graph, or report of the database.
PERFORM	To view the next record, the results of a search, list, graph, report, sort, or computation specified in the SPECIFICATION window.
SHOW PAGE	To view a reduced version of the page. This is most useful when the form is larger than the screen.
CHANGE PAGE	To display the next or previous page of a multi-page form. Click + to see the next page. Click – to see the previous page. Double click – to return to page 1.

Adding a Record

Once the ENTRY window is on the screen you add a record by filling in the blank form.

To add text:

- If a record is in the ENTRY window from a previous operation, click the ADD A RECORD icon to display a blank form.
- Click a text or alphanumeric field, if the cursor is not already there.
- Type the information and, if necessary, use standard Macintosh editing procedures.
- To move the cursor to the next field, press the ENTER key **OR** click the field where you wish to enter text. (Don't be alarmed if you inadvertently press TAB and your screen goes blank. This merely takes you to the second page of your form. To return, click – in the CHANGE PAGE icon.)

To add a picture that will appear in this record only:

- To take a picture from the SCRAPBOOK: open the SCRAPBOOK, COPY into the CLIPBOARD.
- Click the picture field, if the cursor is not already there.
- PASTE into the picture field.

> NOTE: Select COPY from the EDIT menu or press the ⌘-c keys. Select PASTE from the EDIT menu or press the ⌘-v keys.

Notes about a File with Computations

If your file contains formulas that will compute the contents of one or more fields, you can control the timing of computations. You may want to see each field computed at the time you enter your data. However, if you are more interested in rapid data entry, you can delay the actual computations until after entering your data, or even wait until after the record is saved to disk.

When the computation feature is on (COMPUTATION ON in the OPTIONS menu), the result of a computed field is displayed as soon as you add data and press the ENTER key. If you are adding data to a file that has several computed fields, you may prefer to postpone the computations until after entering the record.

To turn off computations:

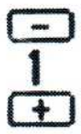
- Select COMPUTATION OFF from the OPTIONS menu.

To compute fields:

- Select DO COMPUTATION from the OPTIONS menu.
- Press the ENTER key.

All computed fields are computed and displayed.

Viewing a Multi-Page Record



If your form consists of more than one page, you need to change the page to fill in the fields or merely look at other parts of a record.

The CHANGE PAGE icon is used to change pages.

To change the page:

- Click the – of the CHANGE PAGE icon to see the previous page.
- Click the + of the CHANGE PAGE icon to see the next page.
- Double click the – of the CHANGE PAGE icon to return to page 1 from any page of the form.

Saving a Record

After adding a record, you must save it before you can add another record. If you try to add another record before saving, a dialog box appears asking you to ''save or cancel''.

To save a record:

- Click the SAVE icon **OR** select SAVE THE RECORD from the FILE menu **OR** press the ⌘-s keys.

Ensemble saves the record, clears it from the screen, and displays an empty form with the cursor in the first field. You can then fill in the form.

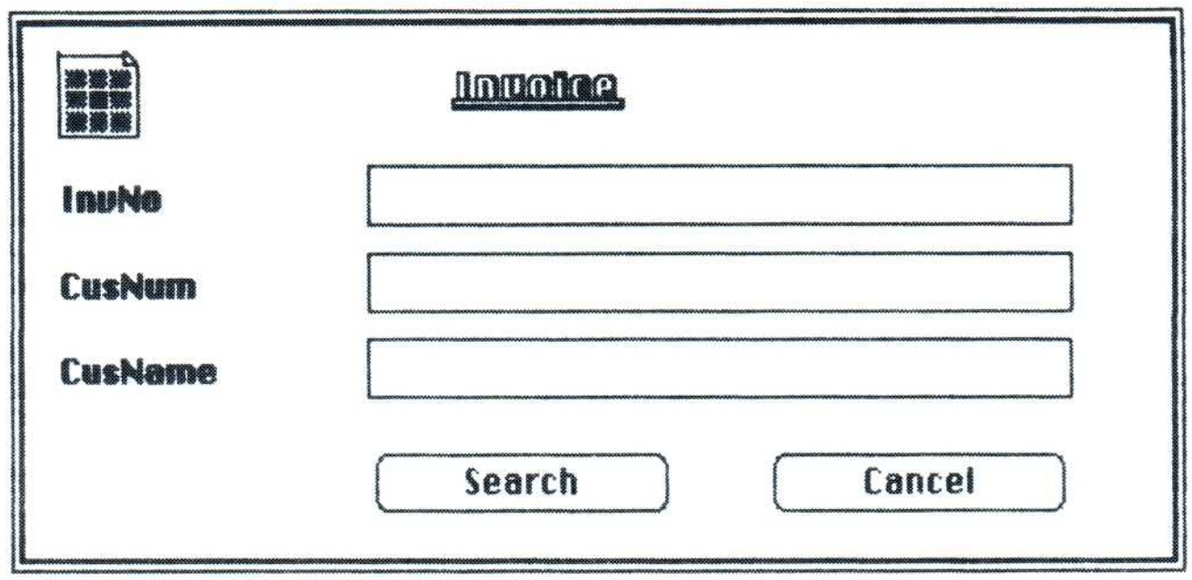
Searching for One or More Records

Ensemble provides two methods of searching. One is the QUICK ACCESS feature by clicking the SEARCH icon to search for one record (using access keys you designated in the design phase). For example, you can search for the customer record for John Smith. The other is the SPECIFICATIONS window to specify criteria for selecting one record or a series of records. For example, you might want to look at the records for customers whose names begin with the letter c and who live in Arkansas.

To SEARCH with the SEARCH icon for one record:

- Click the SEARCH icon.

The QUICK ACCESS dialog box appears with up to three fields that you defined as access keys when you designed the form. Below is the QUICK ACCESS box for an Invoice form that uses the invoice number, customer number, and customer name as QUICK ACCESS KEYS.



NOTE: You cannot use the QUICK ACCESS method to search unless you have defined at least one FIELD as an access key. You can redefine the access keys as needed by returning to the DESIGN window. If you have already designed your form without access keys, you can do so now by selecting DESIGN from the FILE menu and designating the access key in the characteristics box as described in Chapter 3, **Creating and Managing a Form.**

- In the space provided, type the piece of information that Ensemble will use to match the record you seek.

You must spell the information just as it appears on the record. However, upper and lower case letters do not have to be correctly represented.

You now have two choices:

- Click CANCEL if you change your mind.
- Click SEARCH to begin the search.

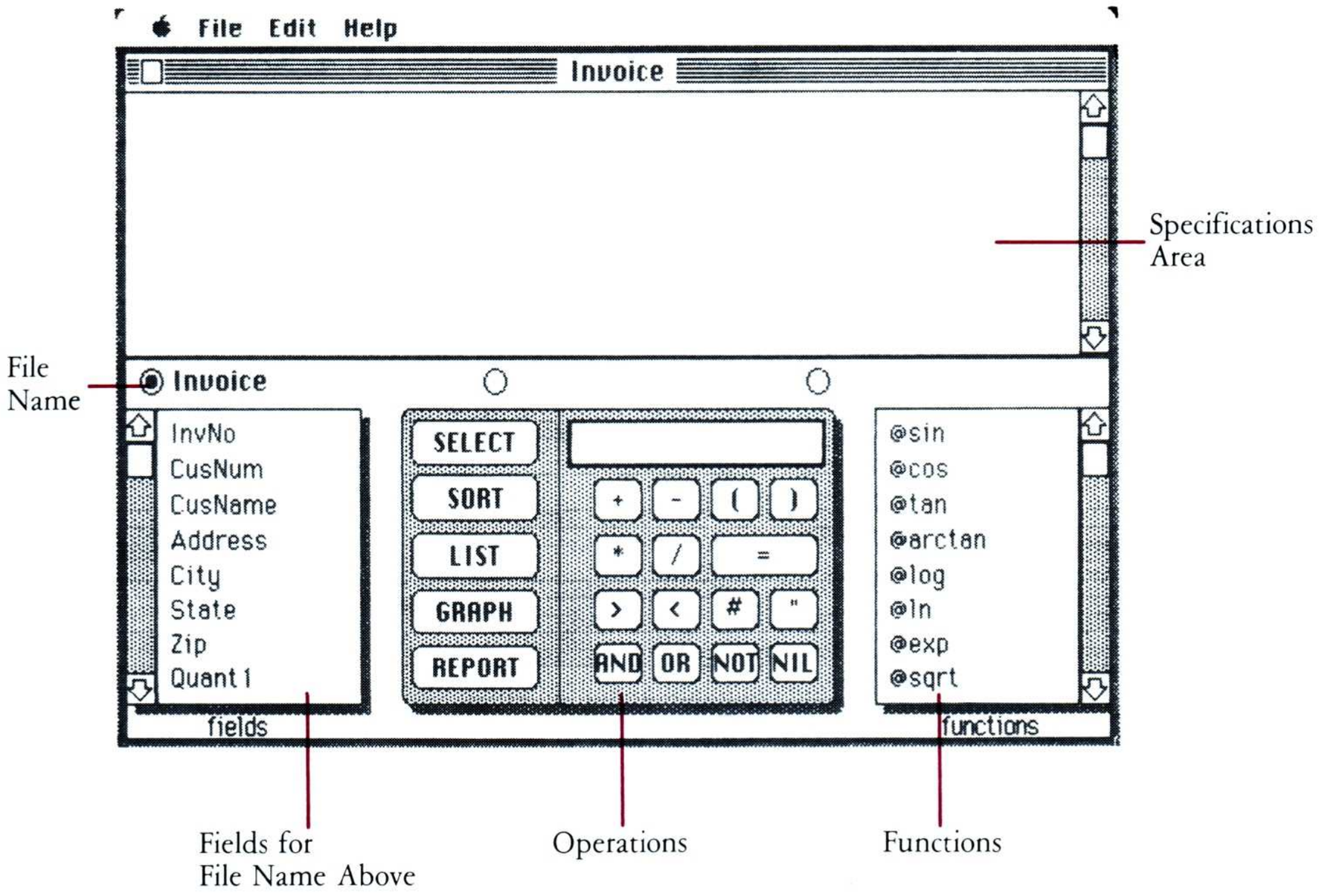
One of two situations occurs:

The matching record, if there is one, appears in the ENTRY window. OR, if there is no match, a dialog box appears with a message to that effect. Click OK to continue.

To search for one or more records that meet specific criteria:

- Make sure the ENTRY window of your file is on the screen.
- Click the SPECIFY icon.

The SPECIFICATION window appears as shown here with smaller windows containing fields of the selected file, operations, and functions. Note that your file name appears above the field window with a filled circle to the left of it.



NOTE: For more information about functions and operations, see Chapter 4.

To enter search instructions:

- Begin each selection instruction by clicking SELECT.
- Click the appropriate field name, operation, or function, as you did in the COMPUTATION window.
- Specify the selection criteria by using logical, relational, and arithmetic operators.
- Type the criteria.
- Click the CLOSE BOX.

The ENTRY window appears.

- If not already selected, select ONE AT A TIME from the OPTIONS menu.

- Click the PERFORM icon.

One of two situations occur:

When there is no match, Ensemble displays a blank record. Otherwise, Ensemble selects the records according to your instructions and displays the first record that matches. You can edit the record, but you must save it before looking at the next record that meets the criteria.

- To view the next record, click the PERFORM icon.

When you have viewed all the matching records, Ensemble displays a blank record.

To see the records again:

- Select ONE AT A TIME again **OR** open the SPECIFICATION window and then close it by clicking the CLOSE BOX.
- Click the PERFORM icon again.

Example #1 — Selecting Regions by Zip Code

You would use the following formula to select customers from western states by specifying zip codes greater than or equal to [70000]. Use the following formula:

```
!SELECT [Zip] > = 70000
```

If you had such a customer file, you would enter the formula as follows.

- Click SELECT.
- Click Zip from the field window.
- Click the > operator and the = operator.
- Then type 70000 with no spaces or commas.

Use the same kind of procedure to enter the formulas in the following examples.

Example #2 — Selecting by One State

Use this formula to select customers located in Massachusetts:

!SELECT [State] = MA

> NOTE: Because there are no spaces in the state name, you don't need to place MA between quotation marks. If you were to spell out a state name with two words, such as North Dakota, you would place quotation marks around the state name.

Example #3 — Selecting by a City in a State

Suppose you had customers in Amherst, New Hampshire and Amherst, Massachusetts and wanted to select only those located in Amherst, Massachusetts. You could use a formula such as this:

!SELECT [City] = Amherst AND [State] = MA

> NOTE: AND means that both conditions must be met before the record is selected. A customer in another city in Massachusetts will not be selected, nor will a customer in Amherst, New Hampshire.

However, if you use the formula:

!SELECT [City] = Amherst OR [State] = MA

Records for customers in Amherst in any state AND customers in any city in Massachusetts will be selected.

Example #4 — Selecting by Keyword

Suppose the information in your records contain areas of text and you want to search for all records with a particular word or phrase. For example, if you are a general contractor, expansion is an important key word. If you use the word expansion consistently in describing client needs in a field called Needs, you could later use the key word function to find clients with plans for expansion.

> NOTE: To use the key word function for finding key words in a field, design a scheme of key words or key phrases and use them consistently when entering records into a Form. (For more information about entering records, see the beginning of this chapter.) A key word is one word, while a key phrase consists of two or more words. The difference is important when using the key word or key phrase in the SELECT instruction.

Having set up a keyword scheme and used it consistently as you entered records, you might use this formula to find all records of customers who are considering expanding.

!SELECT expansion ^in^ [Needs]

If instead of using the keyword expansion you used the key phrase expansion plans, you would need to place quotation marks around the phrase. The select instruction for expansion plans would appear as follows.

!SELECT ''expansion plans'' ^in^ [Needs]

Example #5 — Selecting with Partial Information

Ensemble allows you to search for a word or number even if you know only part of it. The start of field function [^..fd^] allows you to search for records containing the first few letters or numbers that you specify. Similarly, the end of field function [^fd..^] allows you to search for records containing the last few letters or numbers that you specify. Follow the format in the examples below; after the field function, type the number of characters of your search criterion.

Suppose you are looking for customers in the San Francisco area. You could specify the search criteria by looking for all 415 area codes in phone numbers in a file, such as 415/555-1234, as follows.

!SELECT [Phone] ^..Fd^3 = 415

Another example would be to look for a name that you are not quite sure how to spell but that you are reasonably sure begins with the letters Pa. You would use the following specification.

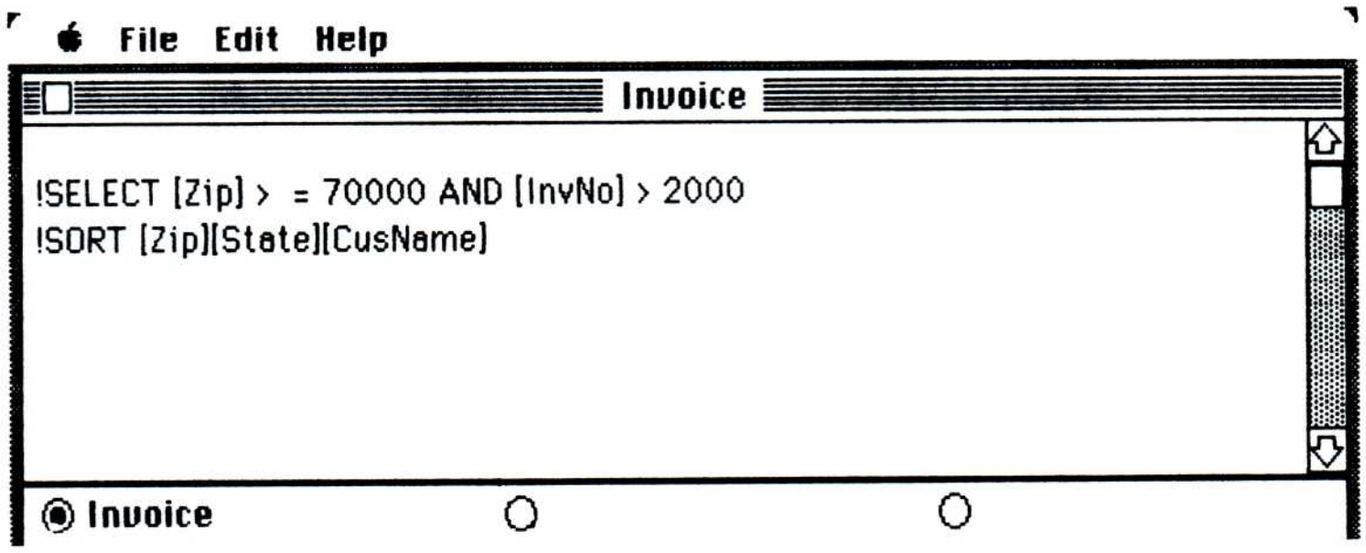
```
!SELECT [Last name] ^..Fd^2 = Pa
```

Now suppose you are looking for personnel with social security numbers that end with 6225. The formula for finding numbers that end with the last four digits 6225 would be:

```
!SELECT [SocSec] ^Fd..^4 = 6225
```

Sorting Records

When you sort records in a file, you are rearranging them in ascending, descending, or alphabetical order. You can instruct Ensemble to sort the records in a database by one, two, or three fields. This is especially useful in a large database. For example, you might want to sort first by area, then within each area, to sort alphabetically by salesman's name and within each of these, alphabetically by customer. Sort instructions are also specified in the SPECIFICATION window and can be combined with other selection instructions, as shown here.



In the above instructions, invoices for customers in the western part of the country and in a certain group of invoice numbers are selected. These invoices will be sorted by zip code; within each zip code, the invoices will be arranged alphabetically by state, and within each state, arranged alphabetically by customer name.

FIELDs defined as alphanumeric, numeric, or date are sorted as follows.

- Alphanumeric fields are sorted numerically in ascending order and then alphabetically.
- Numeric fields are sorted in ascending order.
- Dates are sorted chronologically.

Sorting in descending order. To specify a descending sort, type a – (minus) sign at the end of the SORT instruction, as follows.

!SORT [Zip code] [Company name] –

To enter sort instructions:

- Begin each sort instruction by clicking SORT.
- Much like entering computations in the COMPUTATION window, you click the appropriate field name.
- Click the CLOSE BOX.

The ENTRY window appears.

- If not already selected, select ONE AT A TIME from the OPTIONS menu.
- Click the PERFORM icon.

After the sort process is complete the first sorted record will appear.

Updating One or More Records

Ensemble provides a number of methods for updating one or more records in a database, including:

- Using the QUICK ACCESS search to find one record so you can update it manually
- Using the SPECIFICATION window to specify selection criteria to find one or more records so you can manually edit them one by one
- Using the SPECIFICATION window to specify selection criteria and a computation formula so that Ensemble can find and automatically update records
- Using the LIST feature (see Chapter 6)

HINT: The appropriate method depends upon how many records must be updated. If you need to update only one record, the quickest method is to search by key and then update the record when it appears in the ENTRY window.

To manually update a record:

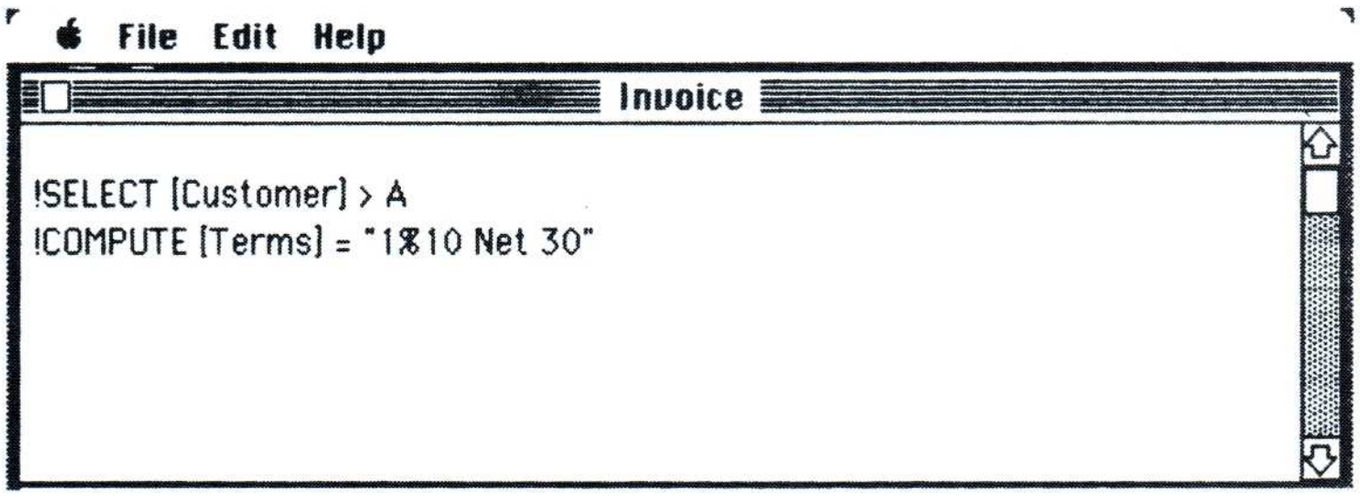
- If a computation has been specified for a field, select COMPUTATION OFF from the OPTIONS menu before beginning to edit.
- Double click a field, then type the new or corrected information.
- To delete one or more characters, click to the right of the character, then press BACKSPACE.

To have Ensemble automatically update selected records:

- Click the SPECIFY icon.

The SPECIFICATION window appears.

- As appropriate, click SELECT and type selection specifications.
- Press return and type: !COMPUTE and press the SPACE BAR.
- Type the formula that updates one or more fields. Here is an example of a SELECT instruction and COMPUTE formula for updating a series of records. Use this instruction to update fields that are not used in computations.



- Once you have entered the formula, close the SPECIFICATION window by clicking the CLOSE BOX.
- Select COMPUTATION ON from the OPTIONS menu.
- Select READ AND SAVE from the OPTIONS menu.
- Click the PERFORM icon.

Ensemble performs the specified computations on the selected records and saves the changes on disk.

To view the changes:

- Select ONE AT A TIME from the OPTIONS menu.
- Click the PERFORM icon.

Ensemble shows the first updated record.

- Click the PERFORM icon to see the next updated record.

Continue until a blank record appears in the ENTRY window.

Clearing a Record from the ENTRY Window

You can remove a record from the ENTRY window without deleting it from a disk, as follows.

- Click the CLEAR A RECORD icon **OR** select CLEAR THE RECORD from the FILE menu **OR** press the ⌘-z keys.

> NOTE: You can return the record to the window by performing a QUICK ACCESS search **OR** by using the SPECIFICATION window to specify selection criteria.

Deleting a Record from the Disk

To remove a record permanently from a disk, you can use the delete procedure, as follows.

> WARNING: Make sure you want to delete this record. You cannot UNDO after deleting a record from a disk.

- Click the DELETE A RECORD icon **OR** select DELETE THE RECORD from the FILE menu.

Printing a Record

You have two choices for printing one record from a file: using the Macintosh screen print procedure OR giving the print command from the Ensemble desktop. To print more than one record either repeat a print procedure or use the report features described in Chapter 8.

To use the Macintosh screen print procedure:

- Display the record that you want to print by using one of the search methods described above.
- If appropriate, scroll to the part of the form that you want to print.
- Check that the paper and ribbon are properly positioned on the printer. Start the printer, if it is not already on.
- Press the SHIFT-⌘-4 keys all at the same time to print the active screen; press CAPS LOCK-SHIFT-⌘-4 keys to print the entire screen, including the menus.

To use the Ensemble print feature:

- Display the record that you want to print by using one of the search methods described above.
- Close the file by clicking the CLOSE BOX.

The Ensemble desktop returns to the screen.

- Check that the paper and ribbon are properly positioned in the printer. Start the printer, if necessary.
- Select PRINT from the FILE menu OR press the ⌘-p keys.

As soon as the printer stops, you can continue using Ensemble.

Conclusion

This ends the chapter about managing a database and is the last chapter in the section about creating and managing forms, records, and files with Ensemble.

Continue to Part 3 for information about using files created with Ensemble to create lists, graphs, reports, labels, and mailings.

Part III

Using a Database

Once you have created a database, you can choose any of Ensemble's display options, alone or in combination, to create a truly integrated presentation of your data.

Part Three describes each of Ensemble's presentation options in detail and provides several examples.

The following topics and activities are discussed:

Chapter 6
Creating and Using Lists

Chapter 7
Creating and Using Graphs

Chapter 8
Creating and Printing Reports

Chapter 9
Creating and Printing Labels and Mailings

Chapter 6

Creating and Using Lists

Ensemble's list feature allows you to extract and display selected information from your files in a variety of ways; it also gives you a way of quickly updating the files in your database.

The following topics and activities are discussed.

- Overview of the List Feature
- Creating a List
- Editing a List
- Using a List
- Updating a File with the List
- Saving a List
- Opening a Previously Saved List
- Clearing a List from the LIST Window
- Deleting a List from a Disk

Overview of the List Feature

A list is a table with up to thirty columns of variable width. Your list can have as many rows as there are records in a file or as many as you add to the list table. You create a list by using the SPECIFICATION window to specify up to thirty fields from up to three files. Ensemble assembles the information into a list. You can also create a list by typing information directly into the LIST table. After creating a list you can edit it and then send these changes back to your file. This is a quick way to change or add records to your database. Within the list, you can ask Ensemble to calculate the following information for each column:

- Total
- Average
- Standard deviation
- Minimum value
- Maximum value
- Range
- Count

You can have Ensemble sort records in ascending order or bring a specified row to the top of the list. You can also save the list as an independent file and then return to the Ensemble desktop to start other activities.

> NOTE: The list feature is not a printing feature. To print information in columns, see **Creating and Printing Reports**, Chapter 8.

Creating a List

To use the SPECIFICATION window to create a list:

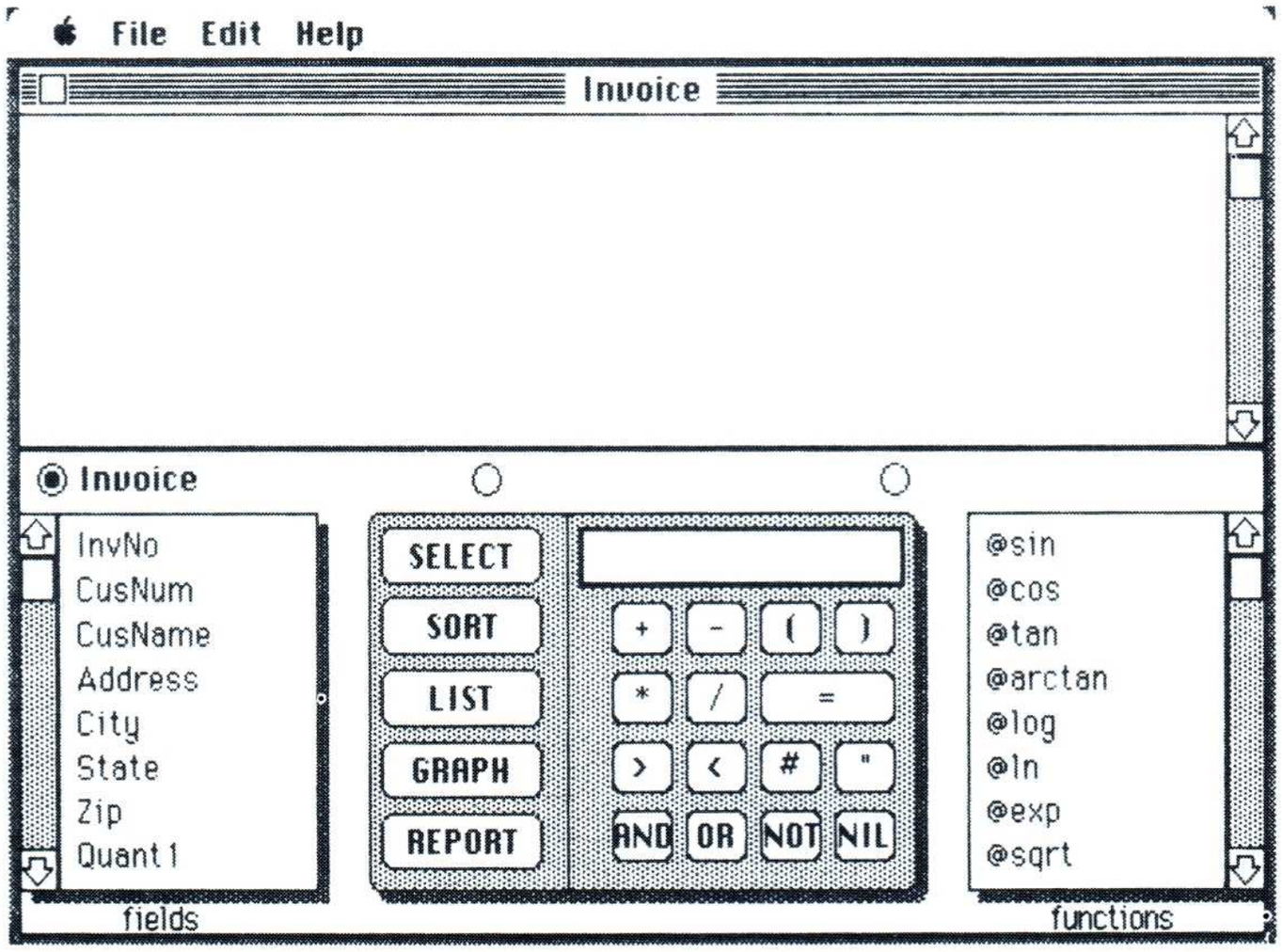
- Open one, two, or three files on the Ensemble desktop.

See **Opening a File** in Chapter 3 for details, if necessary.

- If not already open to the ENTRY window of the selected file, display it by double clicking anywhere on the form.
- The entry window appears on the screen. Enter records at this point if you wish.

- Click the SPECIFY icon.

The SPECIFICATION window appears with the field names for your opened file in the field box on the lower left.



To specify a list:

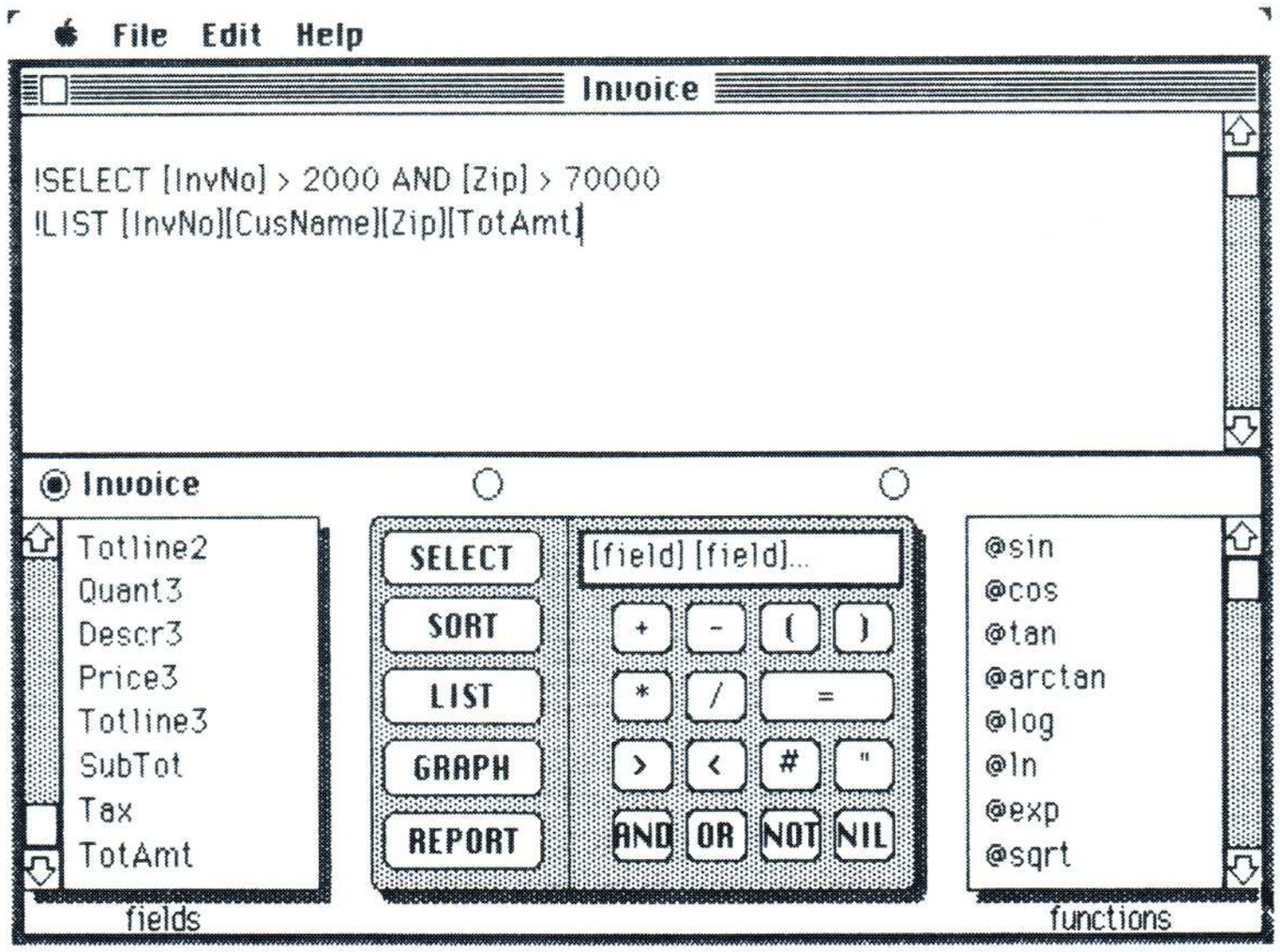
- If you do not want all records from a file to appear in a list, use a SELECT formula to indicate which records should be included in the list.

> NOTE: For more information about selecting records, see **Searching for One or More Records** in Chapter 5.

- Since the list feature has its own faster sort feature, you don't need to enter SORT instructions in the SPECIFICATION window.
- Click LIST.
- Click the FIELDs that you want in the list **in the order that you want them to appear**.

> NOTE: Select only FIELDs. TEXT FIELDs and PICTURE FIELDs are ignored because each row of a list holds only one line of alphanumeric or numeric information, while TEXT FIELDs and PICTURE FIELDs hold one or more lines of information and pictures.

The list and select formulas appears in the formula window.



- Edit the formula if necessary.

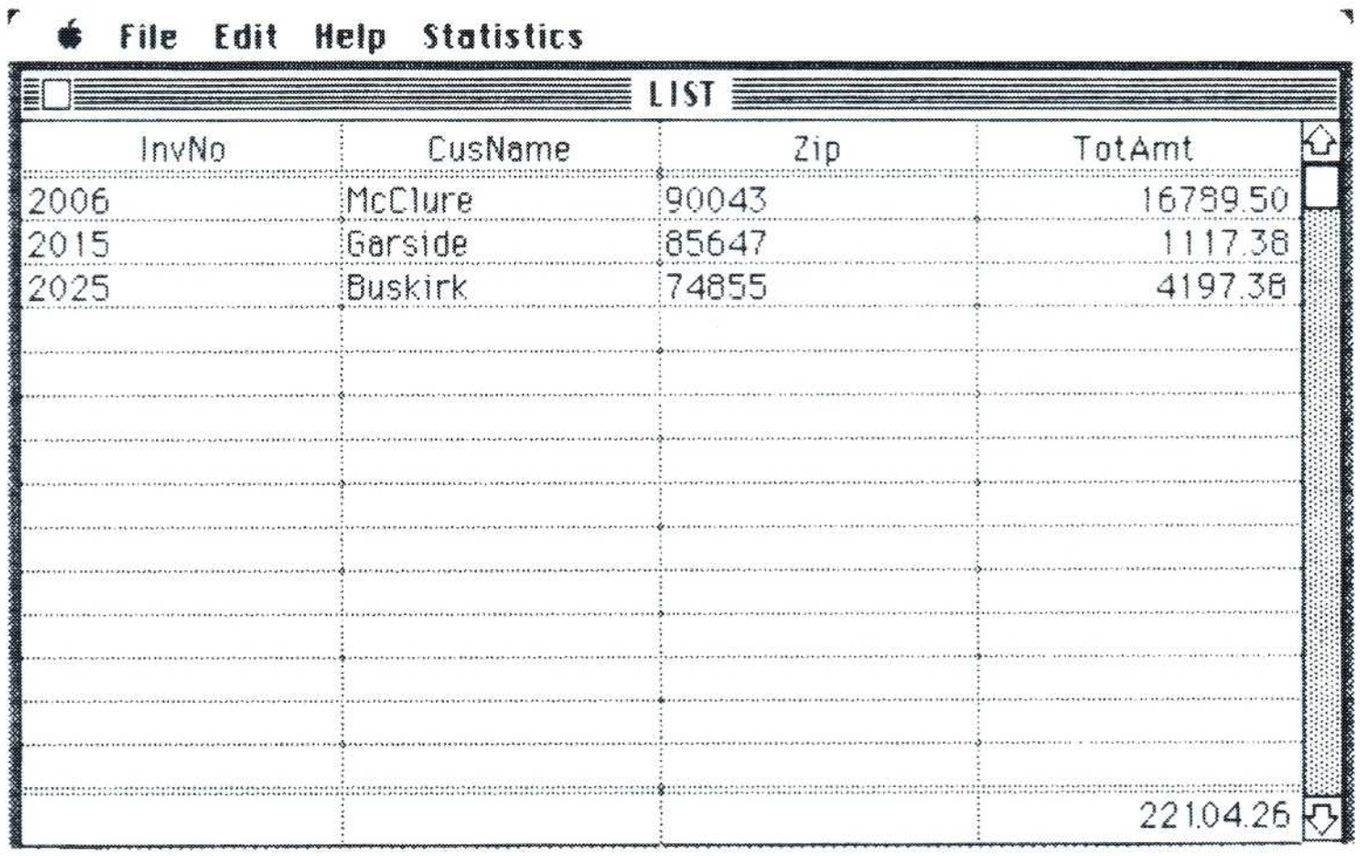
For more information about editing a formula, see Chapter 5.

- When you have finished specifying the information you want in the list, click the CLOSE BOX.

The ENTRY window returns to the screen.

- To see the list, click the PERFORM icon.

Ensemble assembles the list according to your instructions. The list appears with one row for each record and one column for each field that you selected.



NOTE: If there is not enough memory to compile a large list, you will get a message saying ''Process Partially Completed.'' If this happens, go back to the SPECIFICATION window and add a SELECT statement that will allow you to process the list in 2 batches. For example, first list customers A–M, then list N–Z.

To type information into the list:

- At the Ensemble desktop, double click the LIST icon.
- Decide the type of information that each column will hold.
- Type the appropriate information into each column.

Editing a List

After creating a list, regardless of which method you used to create it, you can change the entries as well as the width of the columns to suit the length of your data fields.

To edit a list:

- Highlight the cell you want to edit by dragging or double clicking, and retype the entry.
- Expand all cells by clicking <—>.
- Shorten all cells by clicking >—<.

Using a List

Once you have created a list you can select a column and use the STATISTICS menu to perform different operations on the values in the column, as follows.

Total	Totals the values in the column.
Average	Averages the values in the column.
Standard deviation	Finds the standard deviation of the values in the column.
Minimum value	Finds the smallest value in the column.
Maximum value	Finds the largest value in the column.
Range	Computes the difference between the minimum and maximum value in the column.
Count	Counts the number of values in the column.

To request a sort in ascending order:

- Click the cell at the bottom of the column that you want sorted.
- Select SORT UP from the STATISTICS menu.

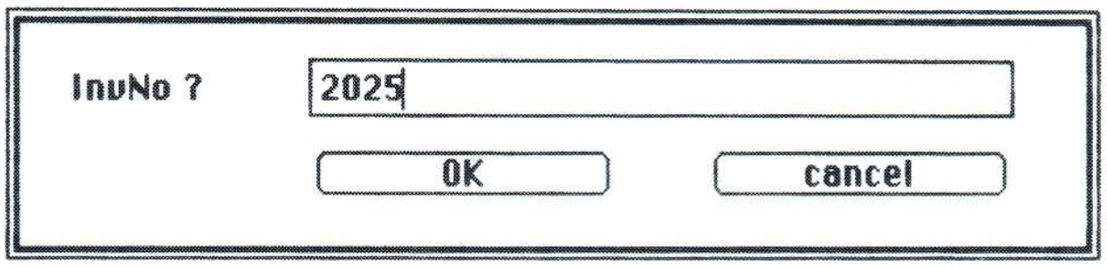
To request a sort in descending order:

- Click the cell at the bottom of the column that you want sorted.
- Select SORT DOWN from the STATISTICS menu.

To search for a record and display it at the top of the list:

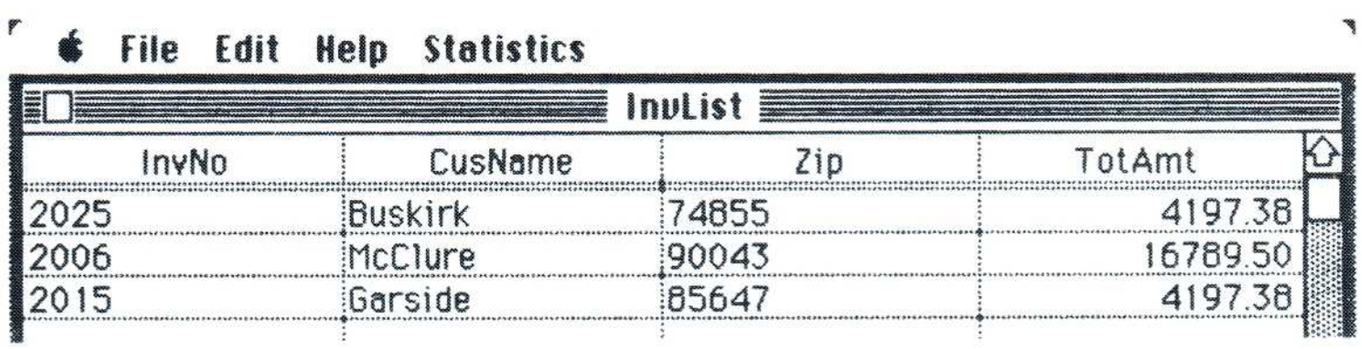
- Click the cell at the bottom of the column by which Ensemble will search.
- Select LOOK UP from the STATISTICS menu.

The LOOK UP dialog box appears.



- Type the information for which Ensemble will search.

If Ensemble finds a matching record, it displays it in the first row of the list table, such as shown here.



Updating a File with the List

The list can be a powerful tool for updating the files in your database, and even for adding new records to the file. Once the list appears on the screen, make changes to any fields you like. Double click, drag or backspace to highlight information you want to modify, and retype. Adding additional rows will add new records to your file. After editing, click UPDATE FILE, and all the changes you made to your list are reflected in your database.

However, you do not have to send your changes back to modify the database; you can merely save the list as an independent file. Once you've done so, it has no effect on the database.

Saving a List

Saving a list is similar to saving a file, as follows.

To save a new list:

- Click the SAVE icon.

A SAVE dialog box appears.

- Name the list.
- Click the button that refers to the correct drive.

On any Macintosh you have the option of ejecting a disk and inserting another disk. On a two-drive Macintosh you can choose the internal or external drive. With a hard disk drive you get the additional choice of saving on the hard drive.

You now have two choices:

- Click CANCEL if you decide not to SAVE. Macintosh ends the procedure without saving and returns the Ensemble desktop to the screen.
- Click SAVE.

Ensemble saves the list and clears the information from the screen.

> NOTE: To **save a previously saved list,** simply click the SAVE icon. Ensemble saves the new version of the list and clears the information from the screen.

Opening a Previously Saved List

You can retrieve a saved list. The steps to use depend on what is on the screen: the Ensemble desktop or the LIST window.

To open a list:

- At the Ensemble desktop, double click the LIST icon.

The LIST window appears.

- Click the SEARCH icon.

A dialog box appears with the titles of lists.

- Double click the name of the list **OR** click the name and click OPEN.

Ensemble displays the selected list.

Clearing a List from the LIST Window

If you have specified or typed a list and decide to create a new one without saving it, you can clear it from the window.

> NOTE: Plan carefully before clearing a list from the window. You cannot UNDO once a list is cleared. Although this activity does not affect a list on a disk, if you clear a list that is NOT saved on a disk, you will lose the list.

To clear a list:

- Click the CLEAR icon.

The list clears from the LIST window. Now you can create another list.

Deleting a List from the Disk

When your disk is becoming full or you no longer need a previously saved list you can delete it from a disk.

> NOTE: Plan carefully before deleting a list. You cannot UNDO once a list is deleted from a disk.

- Click the ERASE FROM DISK icon.

Ensemble clears the list from the window and deletes it from the disk.

Chapter 7

Creating and Printing Graphs

With Ensemble's graph feature, you can easily draw information from your database into the graph table, and from there create any of 10 graphs. You can also enter information into the graph table from the keyboard. Graphs can be annotated with arrows and text, and pasted into any Ensemble document for a truly integrated presentation.

The following topics and activities are discussed.

- Introduction to the Graph Feature
- Creating a Graph Table
- Editing a Graph Table
- Displaying a Graph
- Selecting Graph Options
- Emphasizing Areas of a Graph
- Saving a Graph Table
- Opening a Previously Saved Graph Table
- Clearing a Graph Table from the GRAPH window
- Deleting a Graph Table from a Disk
- Copying a Graph
- Printing a Graph
- Applications

Introduction to the Graph Feature

Using the Graph feature you can create the following types of graphs:

- Vertical bar chart
- Vertical stacked bar chart
- Line Graph
- Area Graph
- Pie chart
- Horizontal stacked bar chart
- Gantt chart
- Scatter chart
- Account trends
- Balance Sheet

See **Applications** at the end of this chapter for an example and description of each type of graph, as well as special notes about the graphs.

There are two ways to create a graph table: you can use the SPECIFICATION window to specify the fields to be represented in the graph from up to 3 Files that Ensemble assembles into a table **OR** you can type the information into the graph table. After creating the graph table, you can edit it as needed. Then you merely select the type of graph by clicking one of ten icons along the right side of the GRAPH window. The presentation of your graph can be changed using options from the OPTIONS menu.

Creating a Graph Table

To use the SPECIFICATION window to create a graph table:

- Open one, two, or three Files onto the Ensemble desktop.

See **Opening a File** in Chapter 3 for details, as needed.

- If not already open to an ENTRY window, display the ENTRY window of the selected file by double clicking anywhere on the form, selecting ENTER from the FILE menu or pressing the ⌘-e keys.
- Enter your records. Close this File and enter records into the other two Files.

- Click the SPECIFY icon.

The SPECIFICATION window appears.

- If you do not want all records from a file to appear in a graph, use a SELECT formula to indicate which records should be included in the graph table.
- If you want the information in one or more FIELDs sorted, use a SORT formula. Numbers are sorted in ascending order; alphanumerics are sorted with numbers first in ascending order, then alphabetically; dates are sorted in chronological order.

NOTE: For more information about selecting and sorting records, see **Searching for One or More Records** in Chapter 5.

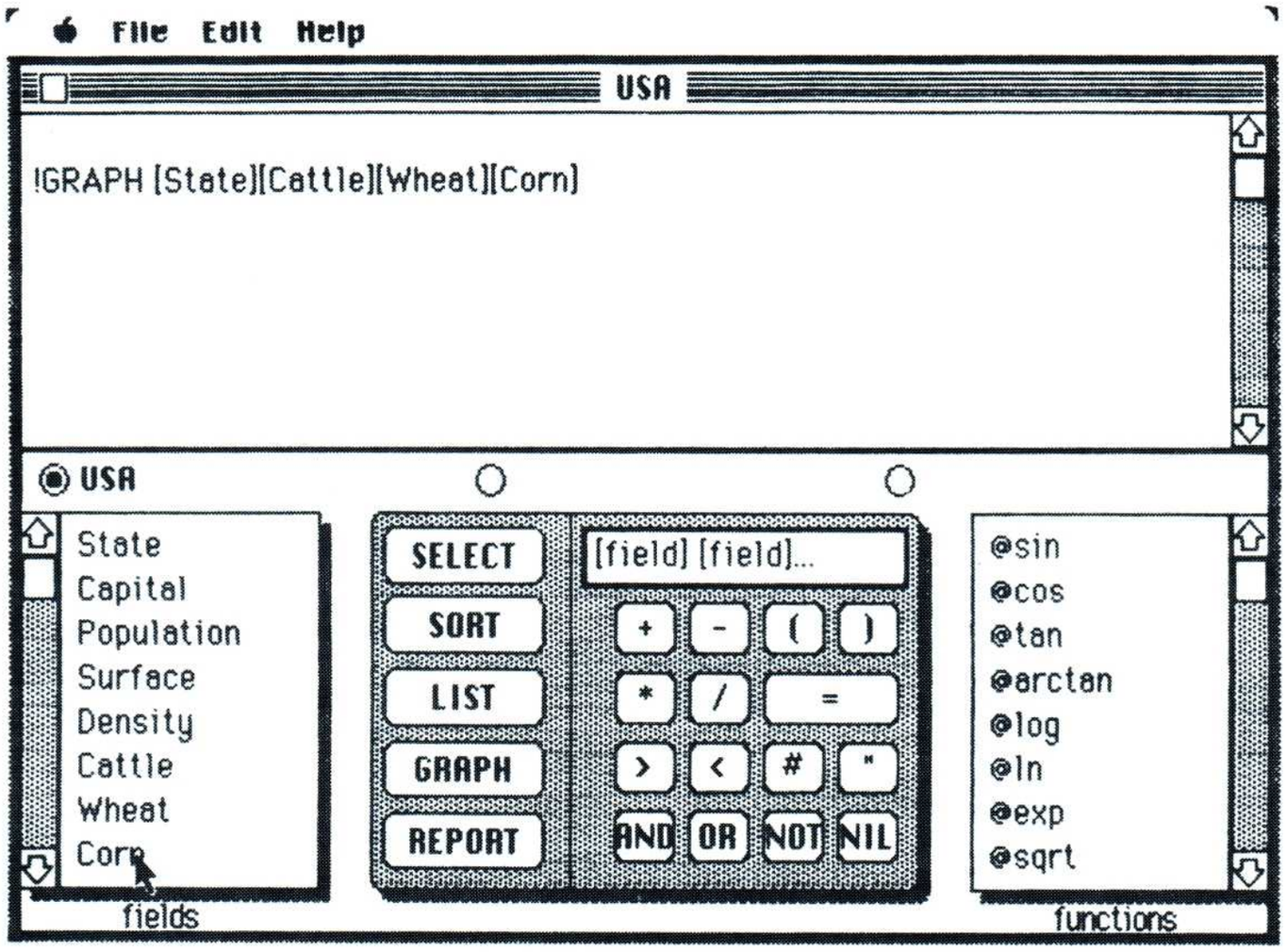
- Click GRAPH.
- Click the FIELDs that you want in the list **in the order that you want them to appear on the final graph.**

NOTE: As you did with lists, select only FIELDs. TEXT FIELDs and PICTURE FIELDs are ignored because each row of a graph table holds only one line of alphanumeric information while TEXT FIELDs and PICTURE FIELDs hold one or more lines of alphanumerics and pictures.

Guidelines for selecting FIELDs:

- You can select up to 5 fields.
- The first field name you select will appear in the upper left corner of the graph table and is always the graph title.
- The information in the first field becomes the horizontal or vertical scale depending upon the type of graph you select.
- The titles of the second, third, fourth, and fifth fields become the legends that describe the four columns, areas, or pie sections of the graph.
- The information in the second, third, fourth, and fifth fields becomes the values of the graph.

The graph formula appears in the SPECIFICATION window.



- Edit the formula.

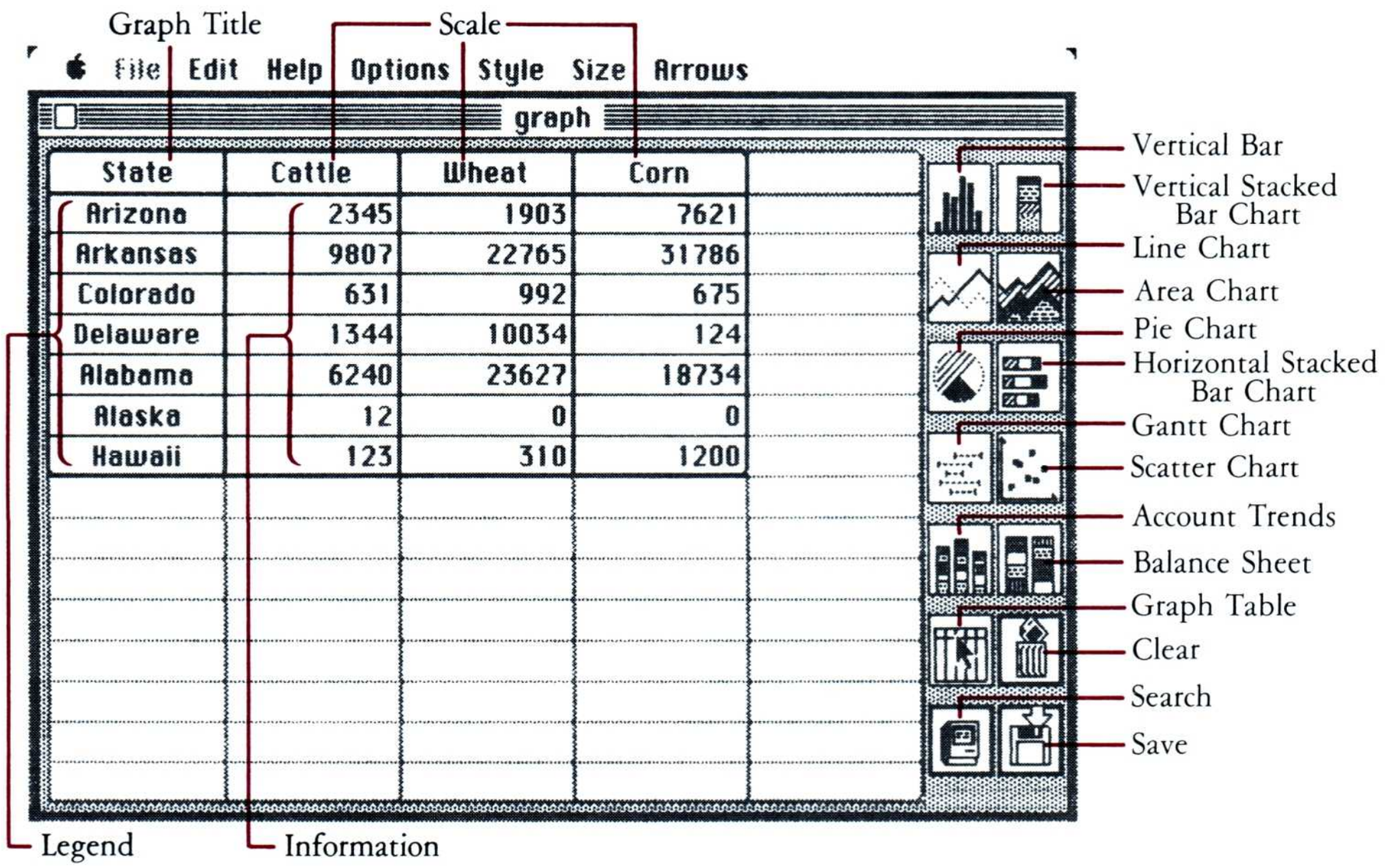
For more information about editing a formula, see Chapter 5.

- When you have finished specifying the information you want in the graph, click the CLOSE BOX.

The ENTRY window returns to the screen.

- To see the graph table, click the PERFORM icon.

Ensemble assembles the graph table from the first 15 records in a file according to your instructions. The GRAPH window appears with the graph table.



To type information into the graph table:

- At the Ensemble desktop, double click the GRAPH icon.
- When the GRAPH window appears, decide the title of the graph, the legends that will appear across the top of the columns, and the information you want to represent.
- Type the graph title in the first cell of the table. It can be up to 9 characters long.
- To move the cursor to the cell in the next column, press TAB.
- Type the legends in the first cells of the second, third, fourth, and fifth columns.
- To move the cursor to the first cell in the next row, press RETURN.
- Type the remaining information into the appropriate columns.

Editing a Graph Table

After creating a graph table, regardless of which method you used to create it, you can edit the entries by double clicking a cell and retyping an entry. Titles, legends, and scales should be less than 8 characters so they fit into the selected type of graph.

Remember:

- To move the cursor to the cell in the next column, press TAB.
- To move the cursor to the cell in the next row, press RETURN.

Displaying a Graph

You can convert the information in a graph table into the 10 different types of graphs.

> NOTE: Some graph types require special formatting of the graph table. For information, see **Applications** at the end of this chapter.

To select a graph type:

- Click one of the 10 graph icons at the right of the GRAPH window.

Experiment to find the graph that best shows the view and information you need to represent.

Once you choose the best format to present your information, you can select options from the OPTIONS menu and emphasize particular areas of the graph using tools in the STYLE, SIZE, and ARROWS menus:

Selecting Graph Options

The OPTIONS menu allows you to hide or show the title, legend, axis, grid, horizontal scale, vertical scale, and the values **AND** show a graph in two dimensions or three dimensions.

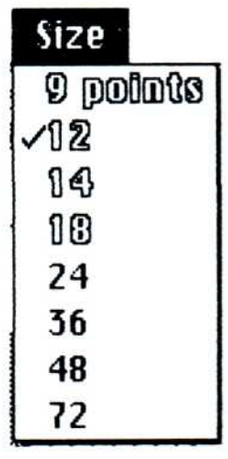
> NOTE: The selected option has a check mark to the left of it in the OPTIONS menu.

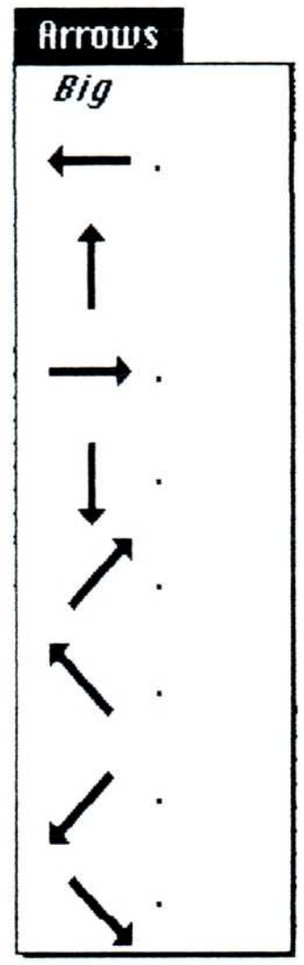
To select an option:

- Select the appropriate option from the OPTIONS menu.
- Click a graph icon to see the change.

Emphasizing Areas of a Graph

Often when using a graph there are areas that you want to emphasize. You can do this by annotating your graph with text and arrows. The selections in the STYLE and SIZE menus are used for formatting text, and the selections in the ARROWS menus are used to point to specific areas of a graph. You can add text and then a large or small arrow, **OR** add an arrow and then add text.





To format and add text:

- Display the type of graph that best shows the information.
- Select the desired format from the STYLE menu.
- Select the desired point size from the SIZE menu.
- Move the insertion point to where the text should begin and click.
- Type the text.

To add arrows:

- Select the size of the arrow from the ARROWS menu: large or small.
- Select an arrow from the ARROWS menu.
- The pointer becomes the arrow of the size you selected.
- Position the arrow and click.

An arrow appears in the place you designated.

- To delete text or arrows, click the CLEAR icon.

Saving a Graph Table

Ensemble saves only the graph table, rather than the graph itself, because of the large amount of memory that would be necessary. However, you can open the table and convert it into a graph at any time by simply clicking the appropriate graph icon.

Saving a graph table is similar to saving a list table.

To save a new graph table:

- Click the SAVE icon.

A SAVE dialog box appears.

- Name the graph. Choose a name that is different from an existing file.
- Click the button that refers to the correct drive.

On any Macintosh you have the option of ejecting a disk and inserting another disk. On a two-drive Macintosh you can choose the internal or external drive. With a hard disk drive you get the additional choice of saving on the hard drive.

You now have two choices:

- Click CANCEL if you decide not to SAVE. Macintosh ends the procedure without saving and returns the Ensemble desktop to the screen.
- Click SAVE.

NOTE: If you have already saved a graph table under a particular name and try to use that name again, a dialog box appears asking whether you want to replace the earlier version.

Macintosh saves the graph table and clears the graph tables from the GRAPH window.

Opening a Previously Saved Graph Table

Once you have saved a graph table you can retrieve it. The steps used to open a graph table depends on what is on the screen: the Ensemble desktop or the GRAPH window.

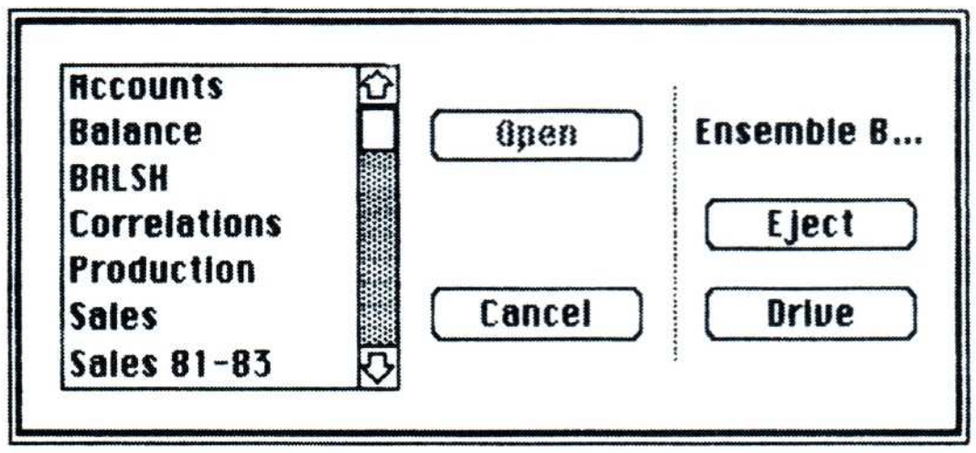
To open a graph table:

- At the Ensemble desktop, double click the GRAPH icon.

The GRAPH window appears.

- Click the SEARCH icon.

A dialog box appears with the titles of the previously saved graphs.



Your dialog box will differ from this depending on the contents of your disk.

- Double click the name of the graph **OR** click the name and click OPEN.

Ensemble displays the selected graph table.

Clearing a Graph Table from the GRAPH Window

If you create a graph table and decide you want to start over again, you can clear a graph table from the GRAPH window without saving it.

> NOTE: This activity does not affect a copy on disk. However, you cannot UNDO once you have cleared and lose the table if it was not saved on disk.

To clear a graph table:

- Double click the CLEAR icon.

The graph table clears from the GRAPH window.

Deleting a Graph Table from a Disk

When your disk is becoming full or you no longer need a graph table, you can delete it from a disk. To do this, you must close Ensemble and use the Finder, as follows.

To delete a graph table:

- Click the CLOSE BOX to close the GRAPH window.

The Ensemble desktop appears.

- Quit Ensemble by selecting QUIT from the FILE menu **OR** by pressing the ⌘-q keys.

The disk window appears on the screen.

- Select and drag the icon that represents the graph table to the TRASH CAN.

> WARNING: Once you empty the trash you cannot UNDO. However, if you change your mind before emptying the trash you can double click the TRASH CAN and drag the graph table icon back into the disk window.

- To delete the graph table: select EMPTY TRASH from the SPECIAL menu.

The graph table is deleted from the disk.

Copying a Graph

To place a graph in a report or a record, first copy it onto the clipboard. To do this, use standard Macintosh procedures:

- Display the graph according to the instructions above as you would like it to appear, using the OPTIONS, STYLE, SIZE and ARROWS menus.
- Select COPY from the EDIT menu or press the ⌘-c keys.

Macintosh copies the graph into the CLIPBOARD.

- If you plan to use the graph several times, paste the graph into the SCRAPBOOK.

Once the graph is in the CLIPBOARD it remains there until you COPY something else into the CLIPBOARD.

Printing a Graph

Although the graph feature does not have a print option, you can print a graph by making a copy (see **Copying a Graph** above) and then pasting it into a STATIC PICTURE or PICTURE FIELD area in a report form or other form that you later print. The size of the PICTURE FIELD will determine the size of the graph; after pasting, you can always change the size of the PICTURE FIELD to adjust the appearance of the graph. You can also use the Macintosh screen print procedure to print a graph by itself.

For information about STATIC PICTURE and PICTURE FIELD areas, see Chapter 3. For information about printing one record, see Chapter 5. For information about creating and printing a report, see Chapter 8.

Applications

This section contains examples of the ten types of graphs that you can create with Ensemble, in the following sections.

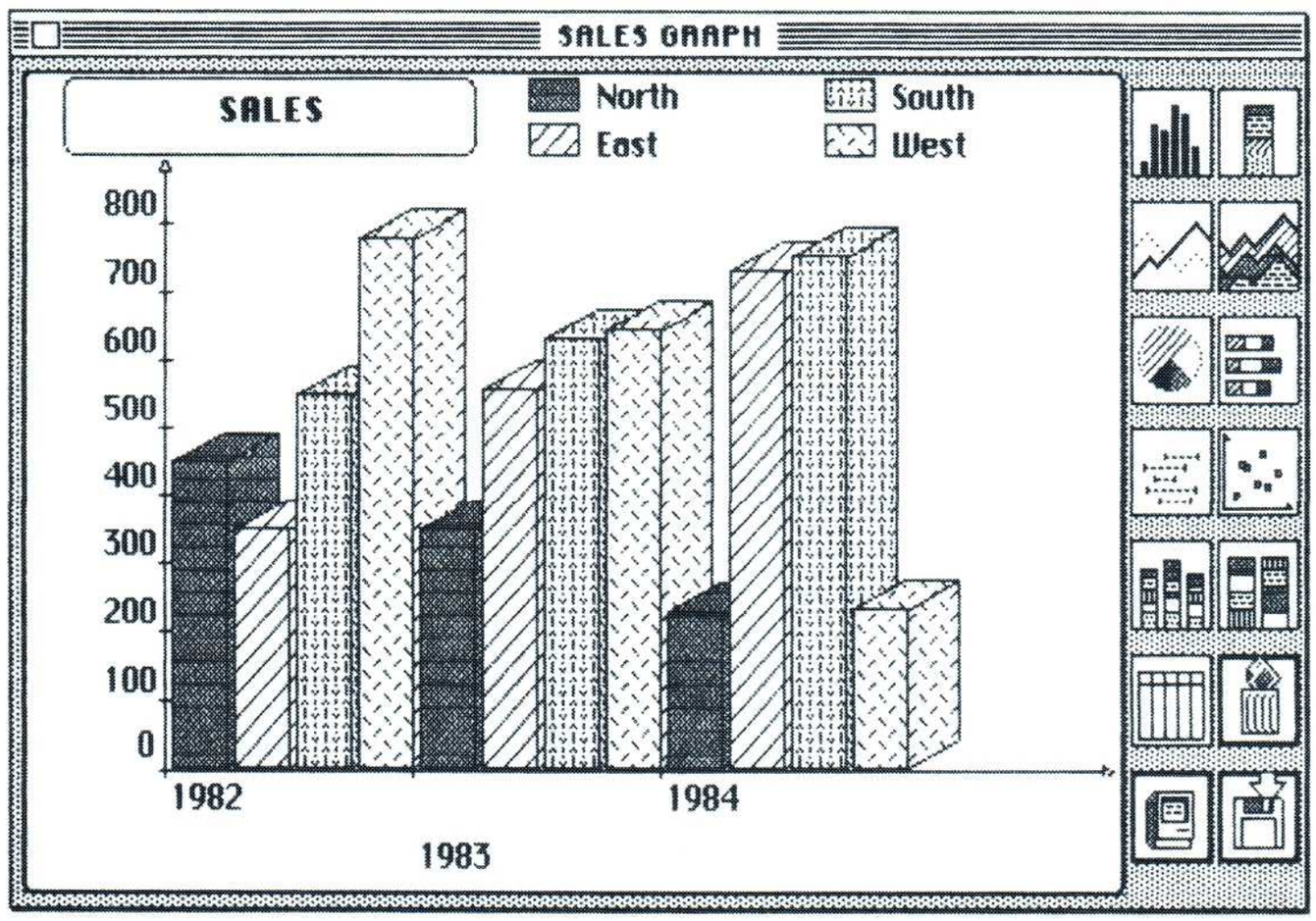
- Standard, vertical stacked, and horizontal stacked bar charts
- Line and area charts
- Pie chart
- Gantt chart
- Scatter chart
- Account trend chart
- Balance sheet chart

NOTE: When using the SPECIFICATION window to select information to be charted, make sure you click the FIELDS in the order that you want them to appear in the chart.

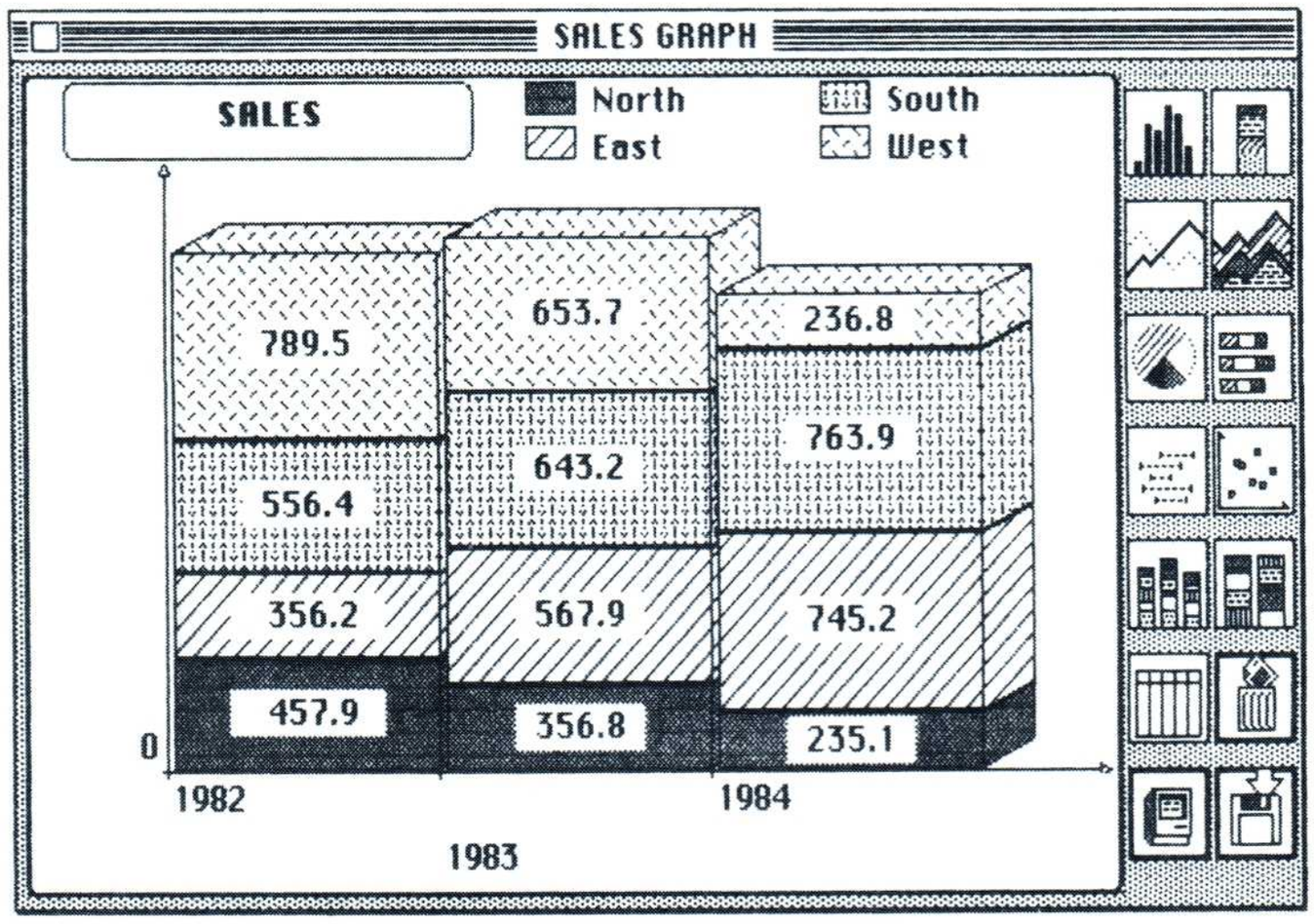
Standard, Vertical Stacked, and Horizontal Stacked Bar Charts

Standard bar and vertical stacked bar charts have vertical bars and horizontal stacked bar charts have horizontal bars.

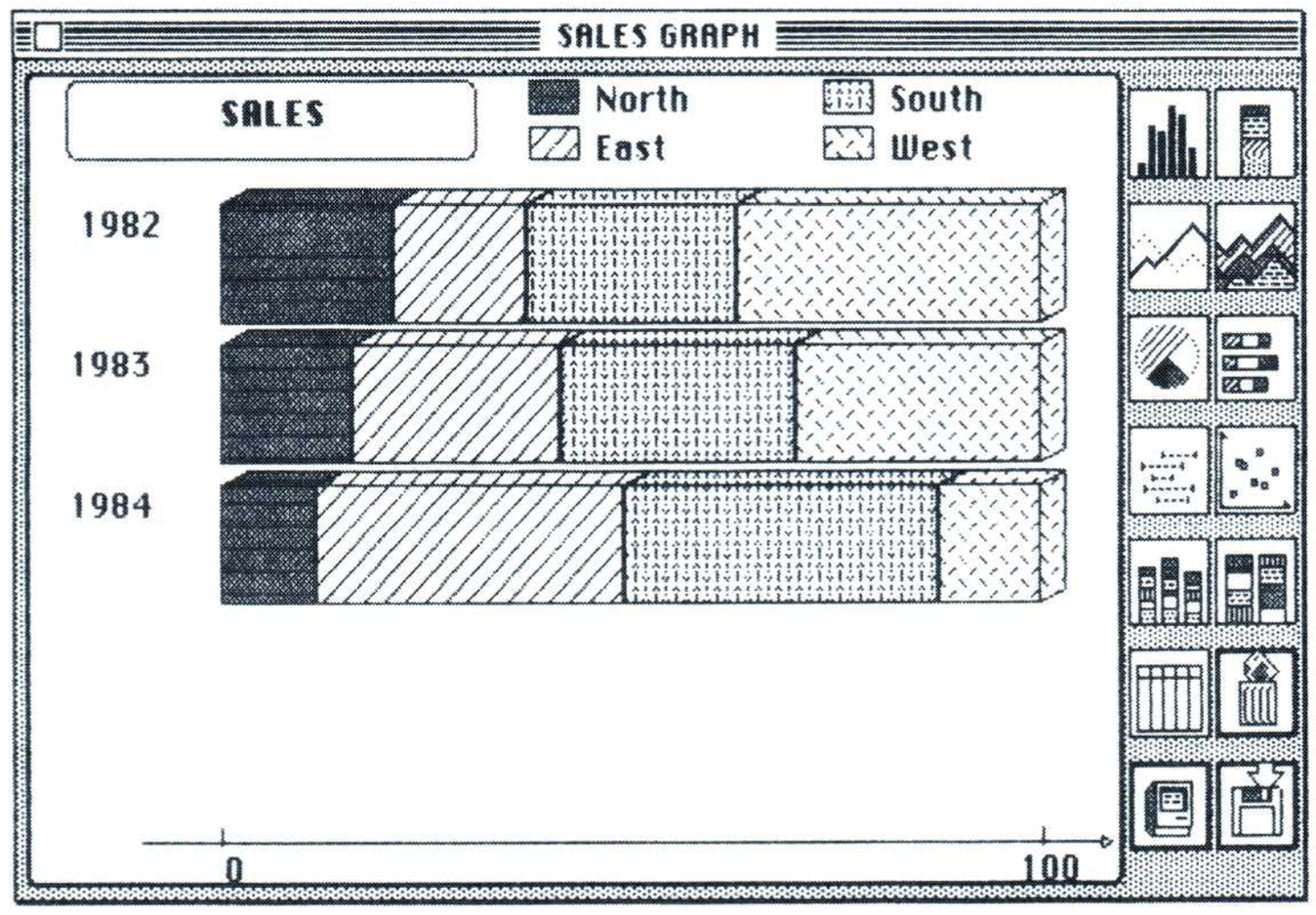
Standard bar charts represent simple relationships, such as shown in this chart. The horizontal axis often represents a year or quarter, while the vertical axis represents an amount or percentage. Standard bar charts are useful for representing series and trends over time. They can also be used to compare forecast and actual values.



Stacked bar charts, whether horizontal or vertical, are most useful when you want to show comparisons between groups of information as well as the items in each group. Here is an example of a vertical stacked bar chart.

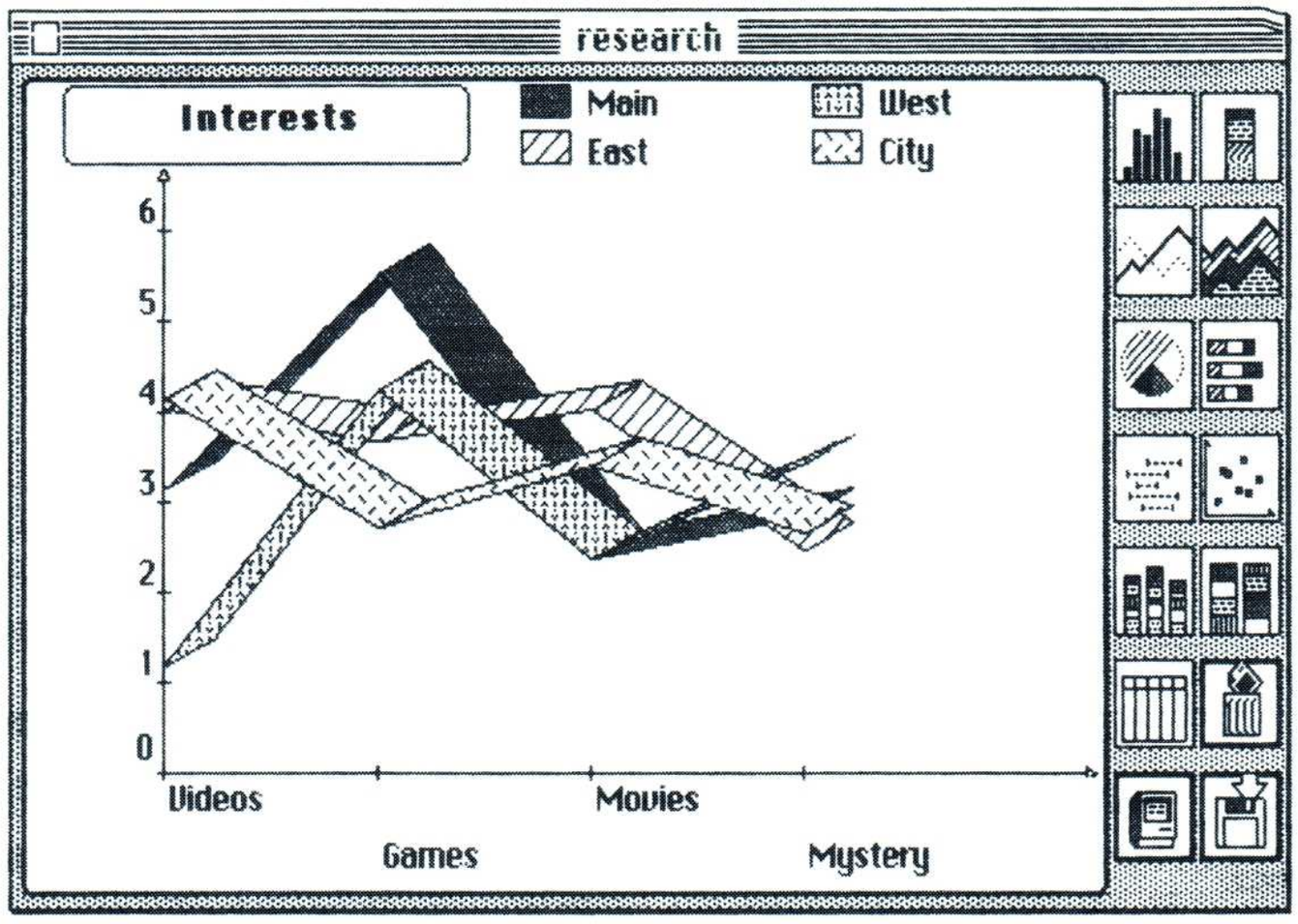


Here is an example of a horizontal stacked bar chart, where the shaded areas represent percentages.

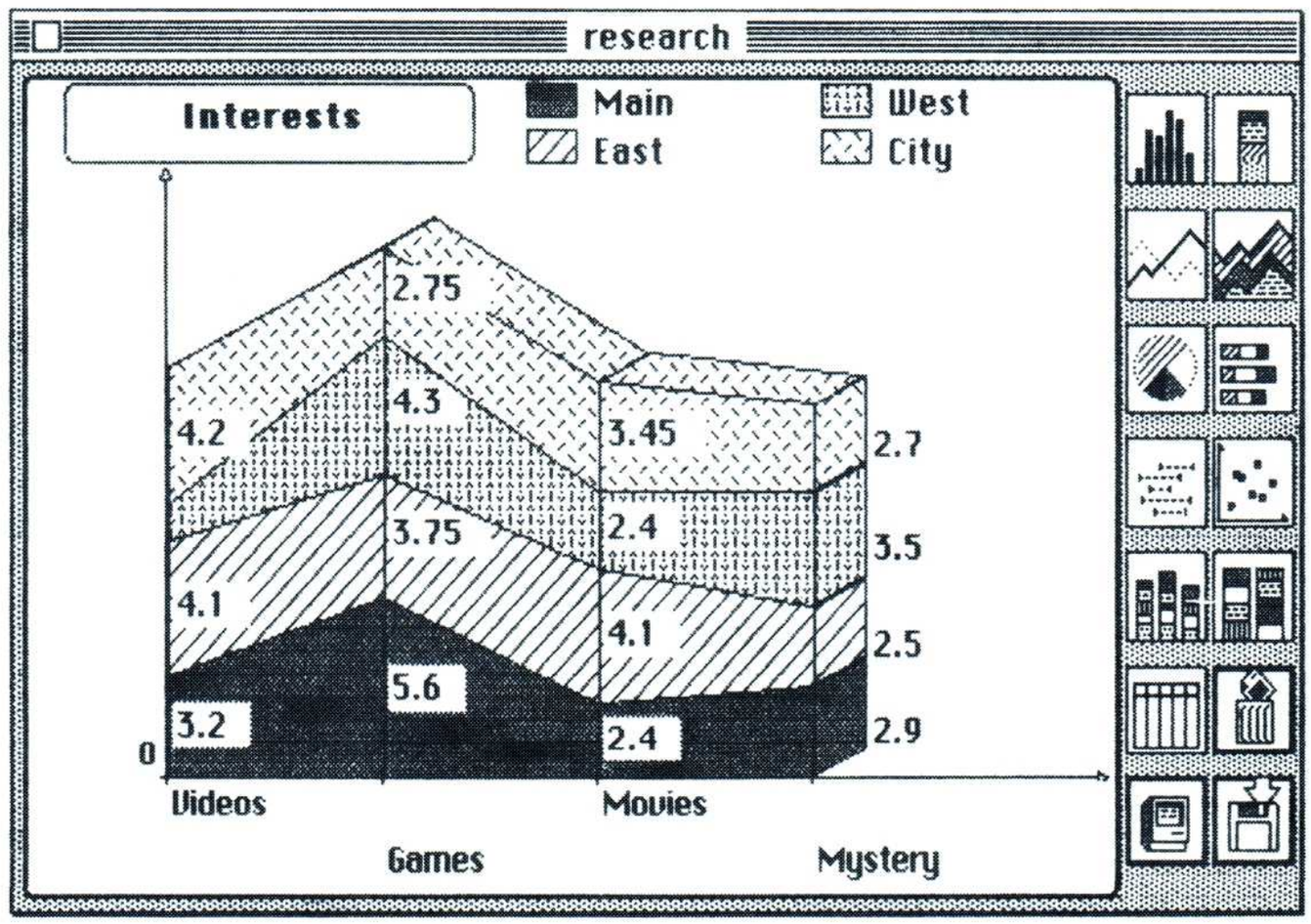


Line and Area Charts

You are probably very familiar with line charts. They are used most often to represent trends. Ensemble creates the lines by joining points that are the intersection of numeric values in the horizontal and vertical axes. Here is an example of a line chart.

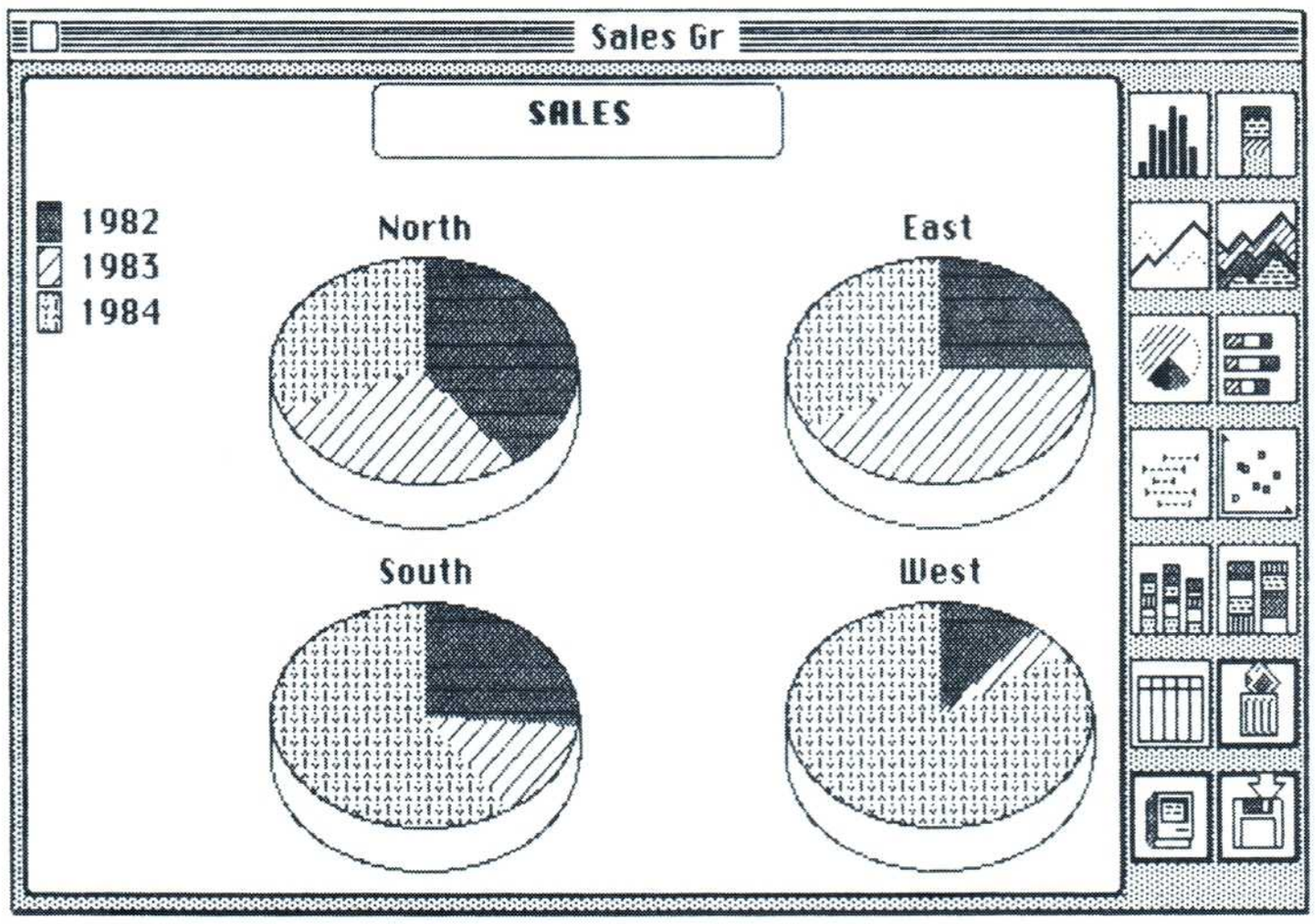


Area charts are cumulative line charts, that is, each value is the total of all values on the line to that point. Here is an example of an area chart.



Pie chart

Pie charts allow you to compare information in a way that's similar to a stacked horizontal chart. The values of the items in the pie chart add up to 100. Ensemble takes your values and computes the percentages. Here is an example of a pie chart. The pie chart format is best when you are comparing from two to eight points. For another view of your pie charts, select 3-D from the OPTIONS menu. In this example, the sales of four areas are compared.



Gantt Chart

The Gantt chart is used for scheduling projects and parts of projects. You can plot and compare relationships between tasks, events, or resources in days, weeks, or months. If you are plotting tasks, you decide the starting and ending date of each task. If you are plotting events that range over a period of time, such as seminars or conferences, you decide the starting and ending date of each seminar. If you are plotting resources, such as personnel, equipment, or work space, you decide the date when each resource becomes available and the last date the resource is available.

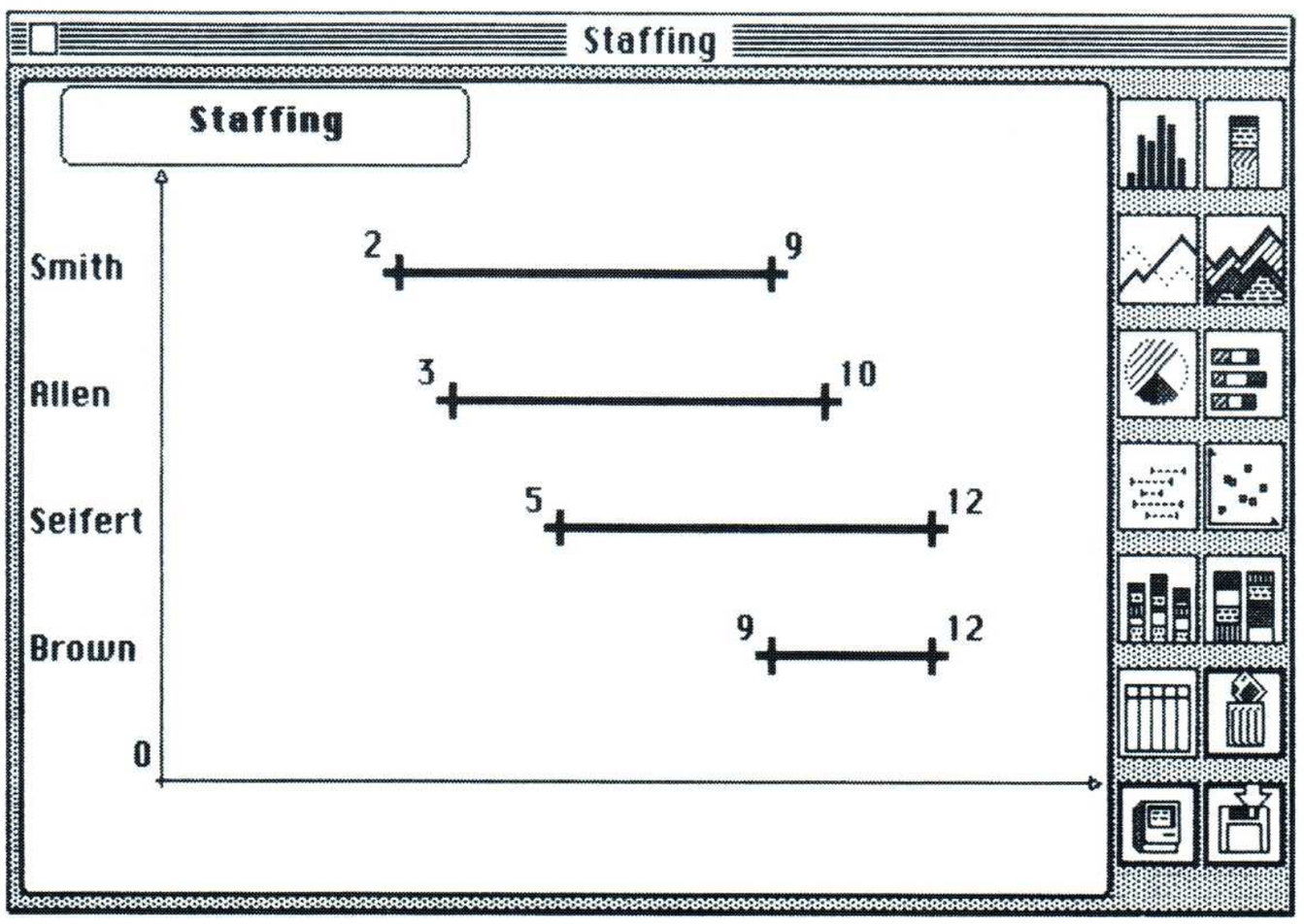
> NOTE: The 3-D and grid options are not available for a Gantt chart.

The following example shows the span of time in weeks that resources are available. The first column of the table is for the resource. The second column is the starting hour, date, week, or month. The third column is the ending hour, date, week, or month.

Staffing

Staffing	Start	End
Smith	2	9
Allen	3	10
Seifert	5	12
Brown	9	12

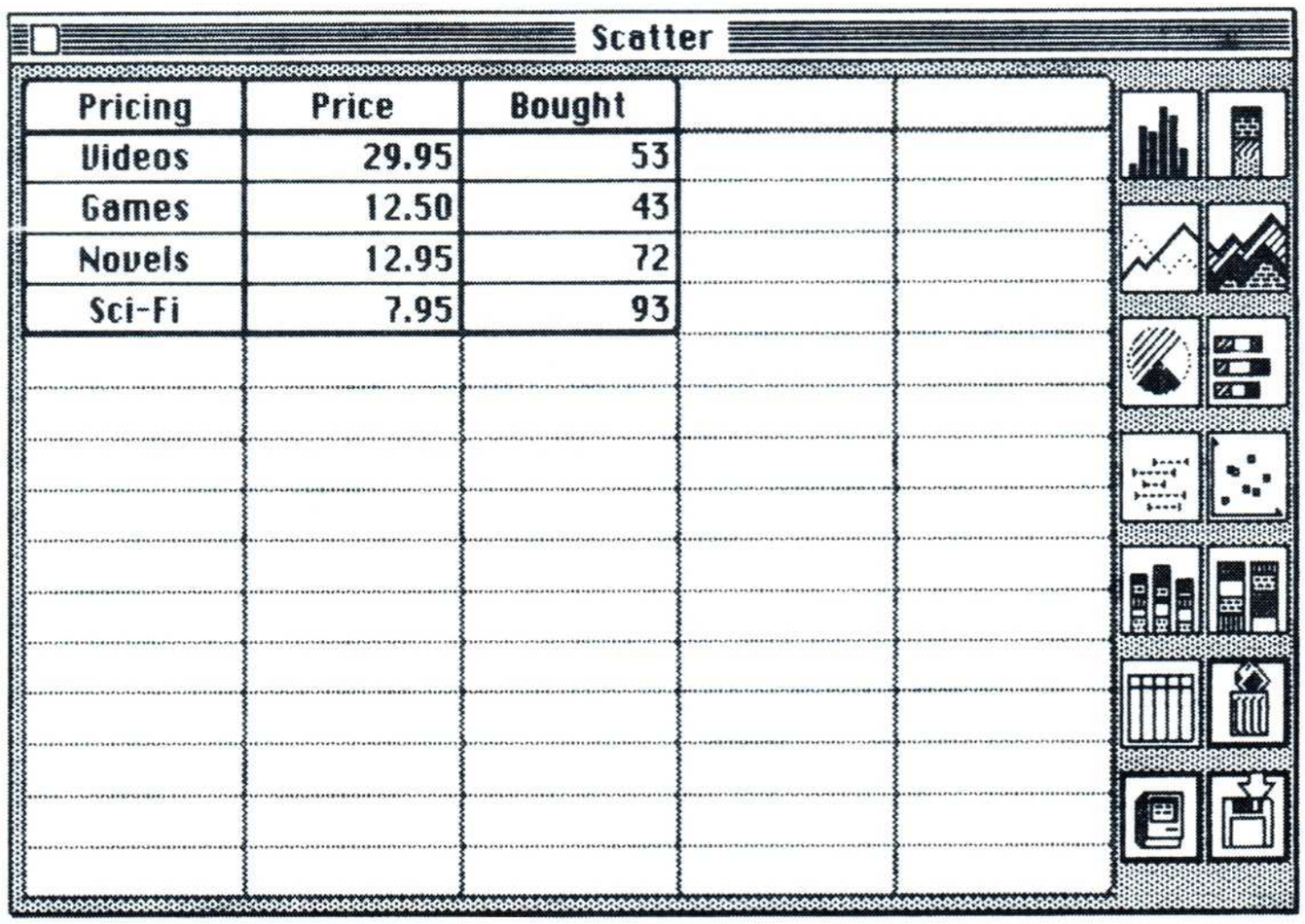
The Gantt chart for this graph table appears as follows.



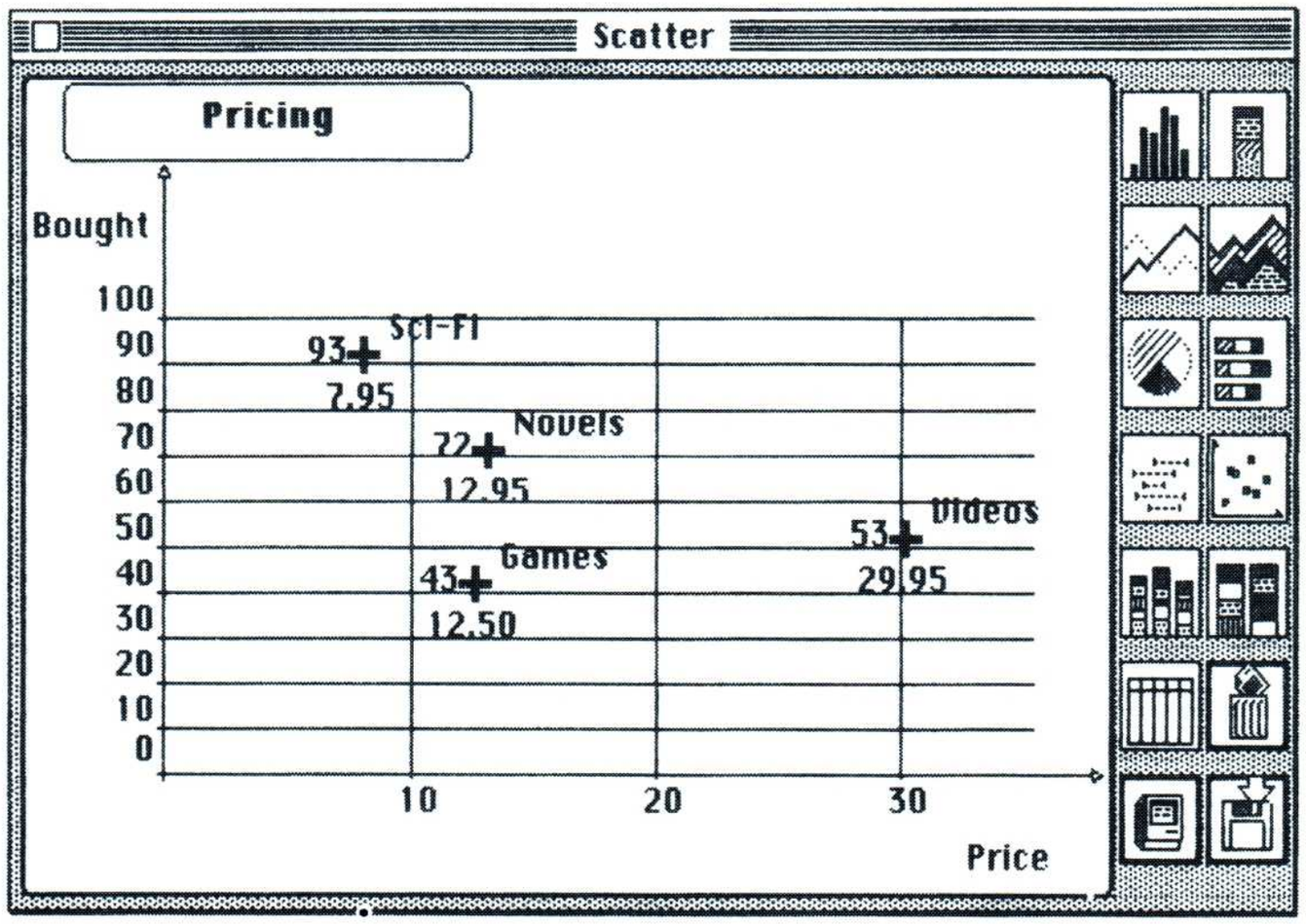
Scatter Chart

The scatter chart allows you to plot a set of x and y coordinates and easily compare them. For example, you might want to compare individuals by weight and height, jogging ability by miles covered in a certain number of minutes, or the quantity of a product purchased at different prices.

Once you have plotted the coordinates you can easily find trends by locating groups of points and using the grid to determine their values. This example shows a graph table of the quantity of four different products priced at five different amounts.



The scatter chart for this graph table appears as follows.

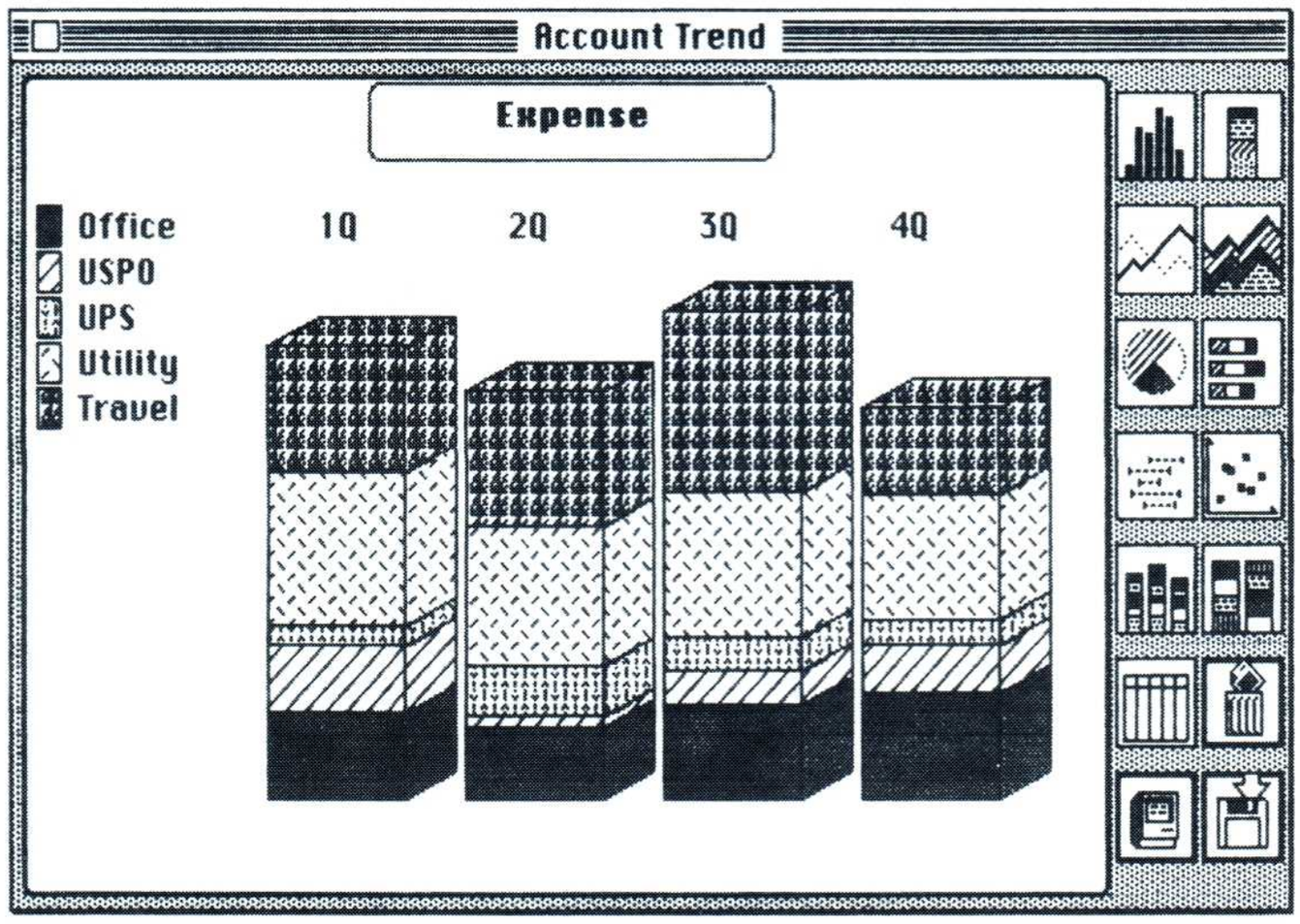


Account Trends

The account trends chart is a vertical stacked bar chart that shows the relationships between groups of accounting information. In this example, each of the four bars represents expenses for one quarter of a fiscal year. The first column of the table shows the expense types and the second through fifth column shows the amounts spent for each during the various quarters.

Expense	1Q	2Q	3Q	4Q
Office	1203.43	1023.32	1324.54	1467.98
USPO	983.05	209.06	503.65	705.21
UPS	304.65	750.45	503.87	402.44
Utility	2100.53	1922.02	2011.44	1723.66
Travel	1775.32	1882.00	2503.99	1234.56

The account trends chart for this graph table appears as follows.



Balance Sheet

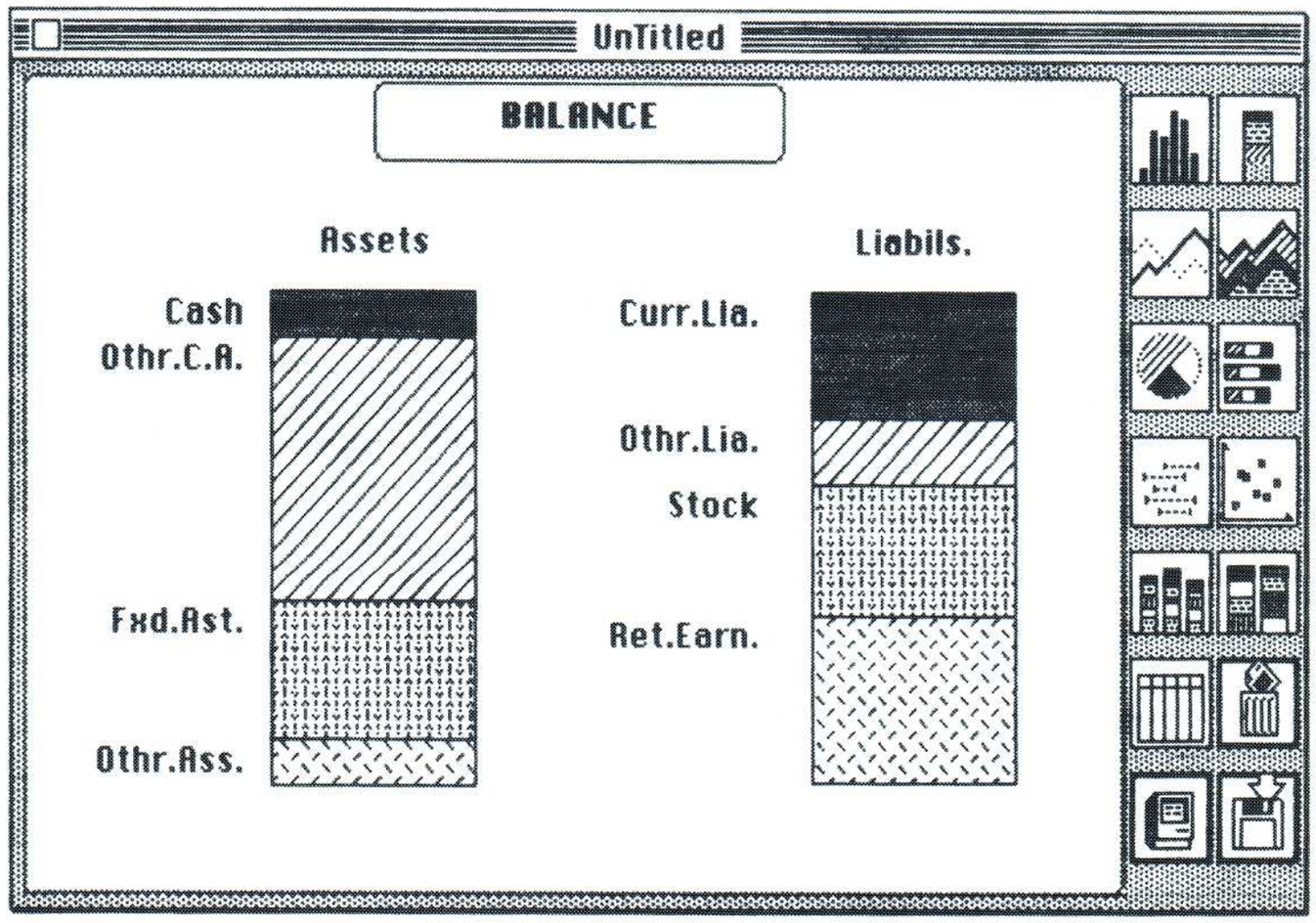
The balance sheet chart consists of two vertical stacked bar charts, the first bar shows the assets and the second bar shows the liabilities. The graph table for the balance sheet chart shows four columns. As shown in the example below, the first column lists the titles of the assets, the second column lists the amount of each asset, the third column lists the titles of the liabilities, and the fourth column lists the amount of each of the liabilities.

> NOTE: The third column does not have a heading.

UnTitled

BALANCE	Assets		Liabils.
Cash	3449	Curr.Lia.	9119
Othr.C.A.	19202	Othr.Lia.	5000
Fxd.Ast.	10100	Stock	10000
Othr.Ass.	3485	Ret.Earn.	12117

The balance sheet chart for this graph table appears as follows.



Chapter 8

Creating and Printing Reports

With Ensemble you can produce simple reports that list the contents of a form **AND** reports that integrate text, numbers and graphics. For example, you can produce a product fact sheet with your logo transported from MacPaint, financial projections in graphic form, and text, either produced in Ensemble or transported from a MacWrite document. Your reports can also include a title page, summary page, header, footer, and decorations, including pictures and graphs from the SCRAPBOOK or the CLIPBOARD.

The following topics and activities are discussed.

- Overview of the Report Features
- Creating a Simple Report
- Notes about Testing a Simple Report
- Printing a Simple Report
- Creating an Integrated Report
- Using Information from Other Files
- Creating a New File for a Report Form
- Doing a Test Run
- Printing an Integrated Report
- Application

Overview of the Report Features

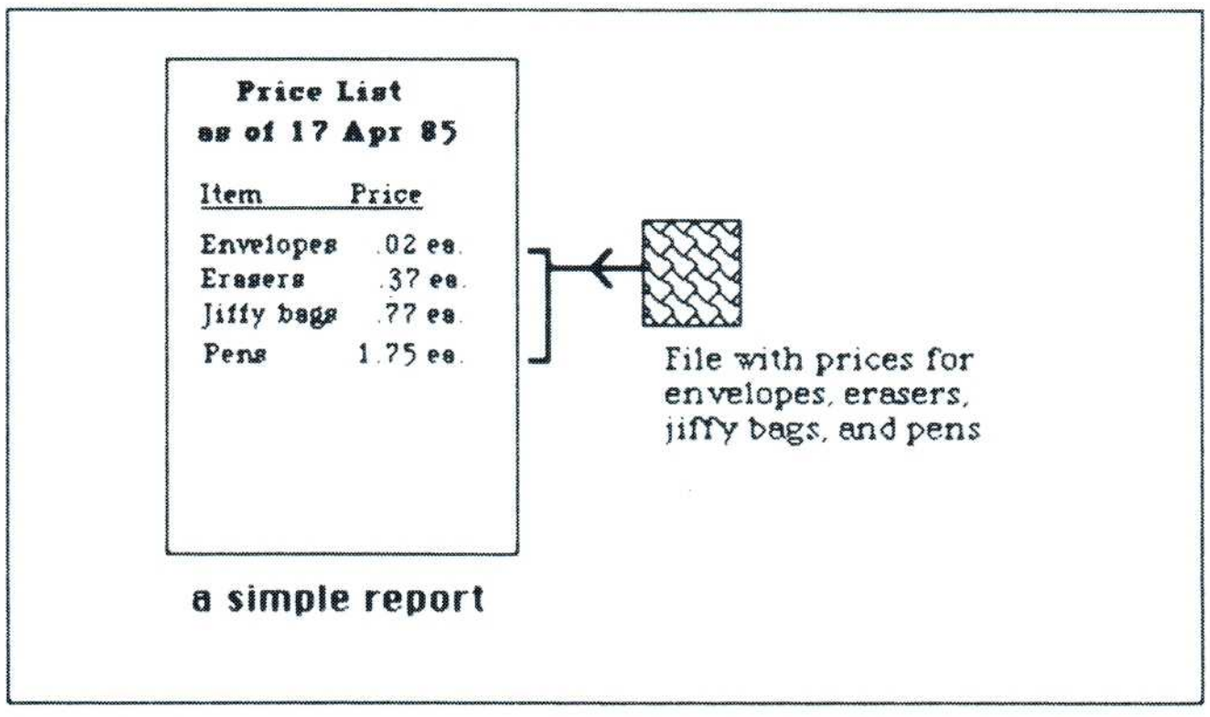
Ensemble provides tools for creating two types of reports:

- Simple reports in which each record of a file is one line of the report.
- Integrated reports, which can include a title page, personally designed body, summary page, header, footer, pictures, and graphs.

The purpose of the simple report is to allow you to create a list of numeric or alphanumeric data from a file by using the SPECIFICATION window to select FIELDs. Columns of a simple report can be totaled and sorted. It is similar to the List except that it can be printed. The purpose of an integrated report is to allow you to integrate different types of information, including pictures or graphs, from one or two *source files*.

> HINT: Since you cannot view a report before you print it, use the list feature to select and view a series of fields from a single file. (See Chapter 6 for details about the list feature.) Or, use the testing instructions in this chapter to do a test run of either report type with only a few records.

The relationship between a simple report and the files from which you select is shown here.

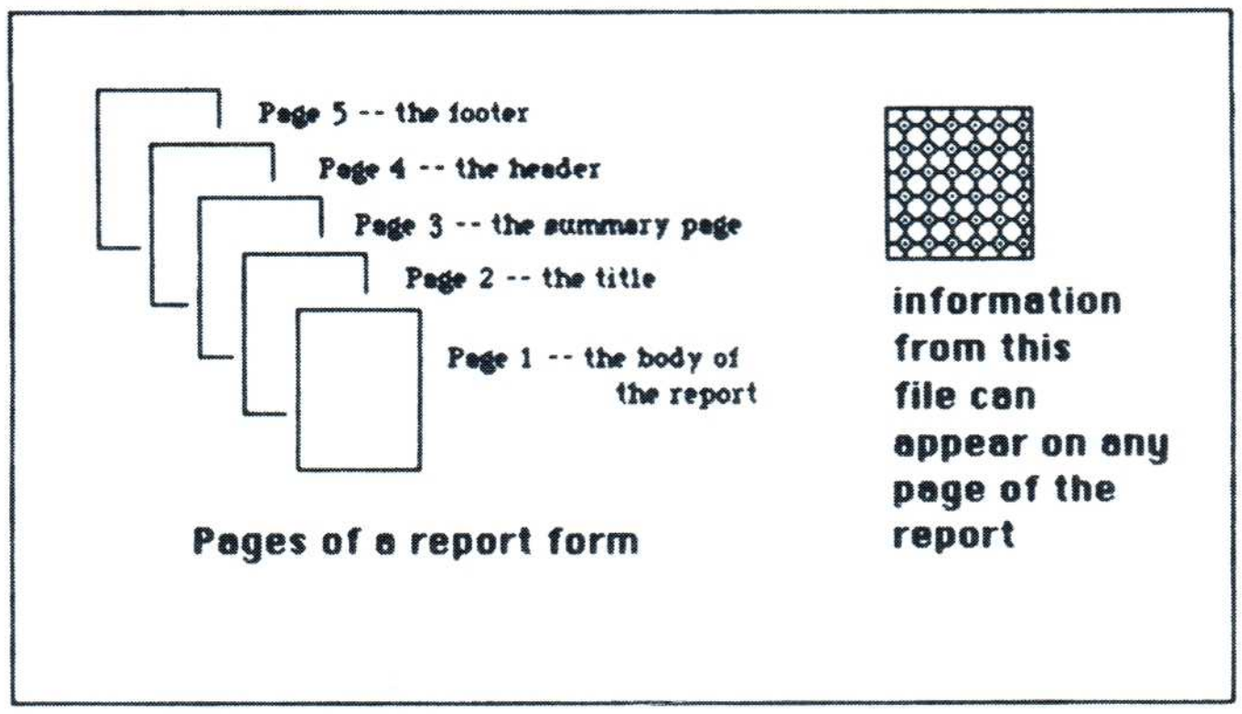


Here are some examples of simple reports:

- Employee list with phone extension
- Price list
- Sales commissions by product

- Sales leads by region
- Sales leads by account executive
- Contributions by contributor
- Inventory by product type

The relationship between the integrated report itself and the file that fills the report is shown here.



The integrated report is especially useful for creating reports where presentation is important, such as a quarterly sales report with graphs, an illustrated catalog, or a price and materials quote for a consulting or contracting project.

Creating a Simple Report

A simple report is a list whose contents you select from a selected file. You can also specify instructions for sorting the first column and totalling all the columns of numeric fields.

To create a simple report:

- Open the desired file onto the desktop
- Open the ENTRY window of the file by double clicking anywhere on the form.
- Click the SPECIFY icon.

The SPECIFICATION window appears.

To specify a report:

If you want to choose only a group of records rather than all records from a file, you can specify a SELECT instruction that includes criteria by which records will be selected for inclusion in the report. This example shows how to include records for companies from M through Z.

Click !SELECT, the field Company, the sign > and type in the letter M. Your selection formula will look like this:

!SELECT [Company] > M

- Click !REPORT, then click each field that you want included in your report.
- To **total all columns of numeric fields** on the last page of the report, type 1 at the end of the REPORT instruction, such as follows.

!REPORT [SubTot] [SalesTax] [AmtDue] 1

- To obtain subtotalling within the report, include a SORT instruction that will produce subgroups that will be totaled. Type 2 at the end of the REPORT instruction to indicate that each subgroup should be totaled.

!SORT [Customer] [Sales Rep] [AmtDue]
!REPORT [Customer] [Sales Rep] [AmtDue] 2

> NOTE: Alphanumeric fields are sorted alphabetically and numeric fields are sorted in ascending order.

- To **subtotal groups within the report AND total all columns of numeric fields** on the last page of the report AND **sort by the first column**, include a SORT instruction and type 3 at the end of the REPORT instructions, such as follows.

!SORT [Customer] [AmtDue]
!REPORT [Customer] [AmtDue] 3

HINT: Since the REPORT specification is not saved after the report is printed, you might want to keep a record of frequently used specifications for future use. Display the COMPUTATION window by clicking the COMPUTE icon, then print the contents of the COMPUTATION window by pressing the SHIFT-⌘-4 keys.

Once you have specified the information to be included in the report, as well as the format of the report, return to the ENTRY window and instruct Ensemble to print according to your instructions:

- Click the CLOSE BOX.

The ENTRY window returns to the screen.

Notes about Testing a Simple Report

Since the selection of records from a large file and assembly of a report can take several minutes, you might consider saving time by doing a test run. One method of doing a test run is as follows.

- Select a small group of records to test.
- Make a note of the REPORT specification that you entered into the SPECIFICATION window.
- Follow the instructions for printing the report (below) using the test group of records.
- Edit the specification as needed.
- Retest until the report presents the information you need in the desired format.
- Do a final run using the complete file or a larger subset.
- To stop the print process at any time, press ⌘ ".".

Printing a Simple Report

Now you should make sure the printer is set: check the switches, ribbon, and paper. Continue when ready:

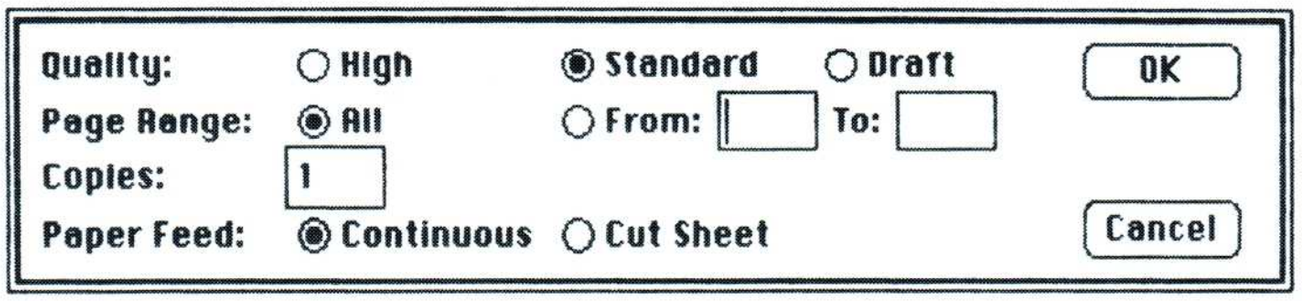
- Click the PERFORM icon.

A dialog box for choosing the paper size and the printing method appears.

HINT: The tall adjusted selection assures that the picture is printed in the dimensions in which the picture is stored.

- Click the appropriate page size, if not already selected.
- Click the appropriate method of printing, if not already selected.
- Click OK.

A final dialog box appears.



- For other than STANDARD print quality, click HIGH or DRAFT.
- For more than one copy of each print run, click the COPIES box and type the number.
- Click CONTINUOUS or CUT SHEET, as appropriate.
- Click OK to begin printing.

If your files have many records with several pages, the assembly process could take a few minutes.

Ensemble displays a reduced version of each page on the desktop as it prints it. When printing is complete the Ensemble desktop reappears.

Creating an Integrated Report

Unlike a simple report, for an integrated report you create a form and specify the location and format of each part of the report. An integrated report can have a title page, summary page, header, and footer in addition to the body of the report.

When deciding the structure of an integrated report, keep in mind that:

- Each part of the report can contain text, pictures, and decorations. A picture can originate from a MacPaint document or from a graph created with Ensemble.
- Information is filled into the form from another file that you select at the time you print the report.

The rules for creating a report form are more structured than those for creating other forms with Ensemble. You still create a new file, then use the DECORATE, LAYOUT, and PASTEUP icons and associated menus in the DESIGN window to design and decorate the form. Copy pictures and artwork from MacPaint or from the Ensemble graph feature, by using the CLIPBOARD or the SCRAPBOOK. You can use the COMPUTATION window to redefine the value of fields in the report form as the value of fields in the source file. However, when creating the form for an integrated report, keep in mind the following:

Guidelines for designing the report:

- Choose the information that you want to present. If necessary, sketch the design on paper.
- Use standard form design tools described in Chapter 3 for designing and decorating the form.
- Use the COMPUTATION window to redefine fields in the report form as fields in one of the other files open on the desktop. The following example shows how to redefine the customer name in the report form as the first name field and last name field from a file on the desktop with a space between the first and last names.

!COMPUTE [Customer] = [First name] + ''Sp'' + [Last name]

> NOTE: When you define a field in the report form that you intend to redefine as a field in another file, you must give it a different name, but the same characteristic, that is, alphanumeric, numeric, or date.
>
> You define the characteristics in the CHARACTERISTIC dialog box. For a complete description of how to define the characteristics of a field, see Chapter 3.

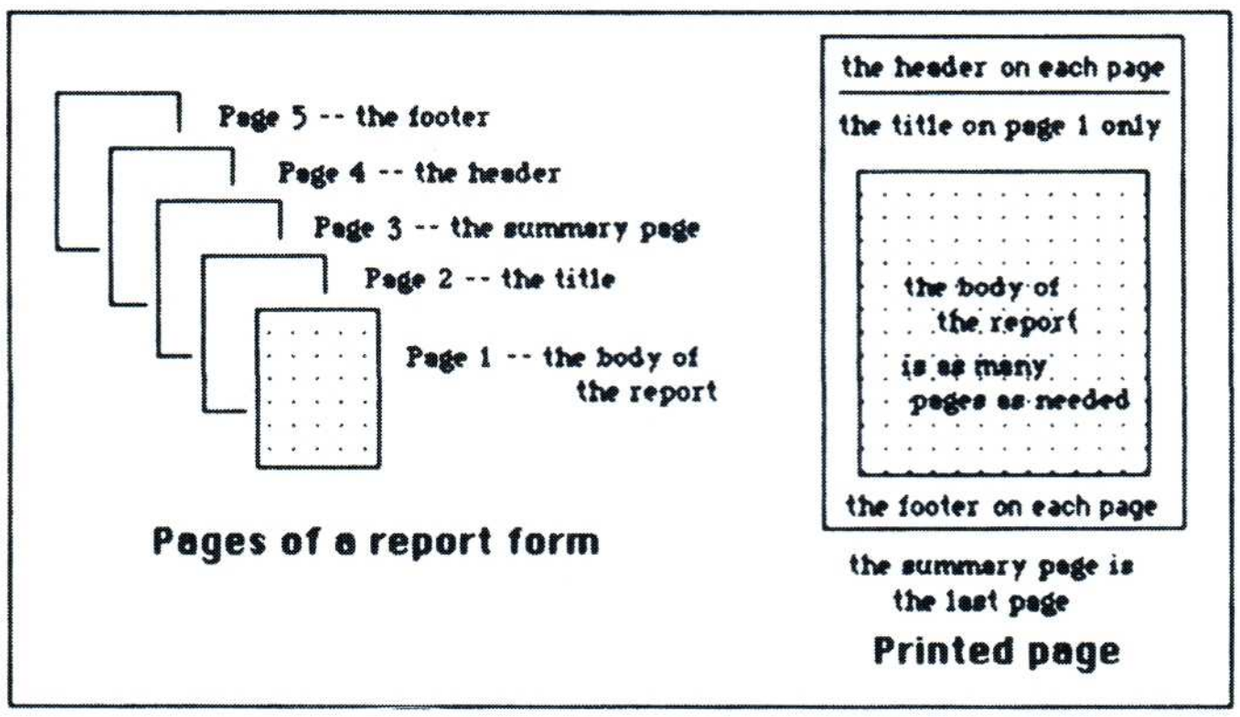
- The **body** of the report must be designed ONLY on page 1 of the form.

NOTE: This does not mean the body of the report will be only one page in length; Ensemble prints what appears on page 1 of the form once for each record in the source file. If the body is an entire page, then one page will be printed for each record in the source file. However, if the body is the size of the screen, one printed page will show three records from the source file.

- If specified, the **title** of the report is designed on page 2 of the form. Ensemble prints what appears on page 2 of the form ONCE at the beginning of the report.
- If specified, the **summary page** of the report is designed on page 3 of the form. Ensemble prints what appears on page 3 of the form once at the end of the report, then stops printing.
- If specified, the **header** is designed on page 4 and the footer is specified on page 5 of the form. Ensemble prints what appears on page 4 of the report form at the top of each page of the body of the report and prints what appears on page 5 of the report form at the bottom of each page of the report body.

NOTE: If you do not want to include one of the pieces, leave the corresponding page of the form blank.

The following illustration shows the relationship between the order in which you must define the pieces of a report and the order in which Ensemble assembles the pieces during printing.



Using Information from Other Files

Since you can redefine fields in a report form as fields in another file by using the COMPUTATION window, you should open the source files on the Ensemble desktop before creating a new file for a report form. However, remember that the report form is one of the three files, so you can open two other files on the desktop.

If you need more information about opening a file onto the desktop, see Chapter 3.

Creating a New File for a Report Form

You use the same steps to create a new file for a report form as for any other form, with the following restrictions.

To review:

- At the Ensemble desktop, select NEW from the FILE menu **OR** press the ⌘-n keys.

The FORMAT and WIDTH dialog box appears. For most forms you can choose a paper-sized form or a screen-sized form. If you choose a page-sized form for a report form, one record is printed per page. If you choose a screen-sized form, a new page is started only after filling the current page.

- Click the FORMAT and WIDTH of your choice.
- Click OK.

When you have completed these steps, the ENTRY window appears.

Doing a Test Run

You can stop the printing process at any time by pressing ⌘ ".". However, you can create a test run that allows you to make sure the report is structured correctly. One method includes using these steps:

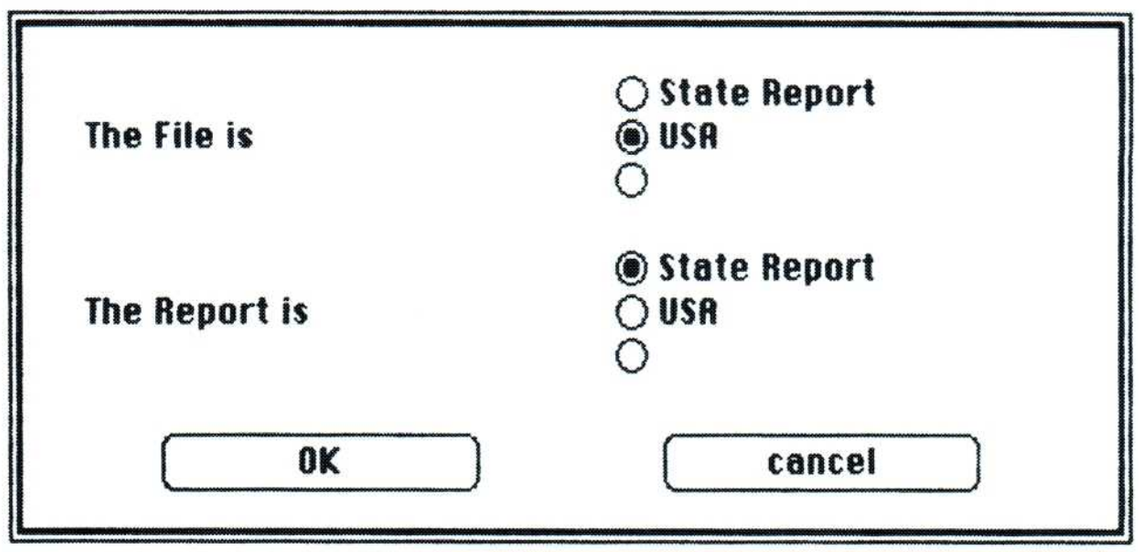
- Create a test source file with three to six records.
- Follow the instructions for printing the report (below) using the test source file and the report form.
- Edit the report form as needed.
- Retest until the report is in the form you want.
- Do a final printing using the actual source file.

Printing an Integrated Report

You give the command to print a report at the Ensemble desktop. First make sure the source file, the report form file, and any file that you have used to redefine or total fields with instructions in the COMPUTATION window are on the desktop. Next, check the printer to make sure the paper and ribbon are correctly positioned. Then use the following steps:

- Double click the REPORT icon.

The dialog box for selecting source file and a report form appears.



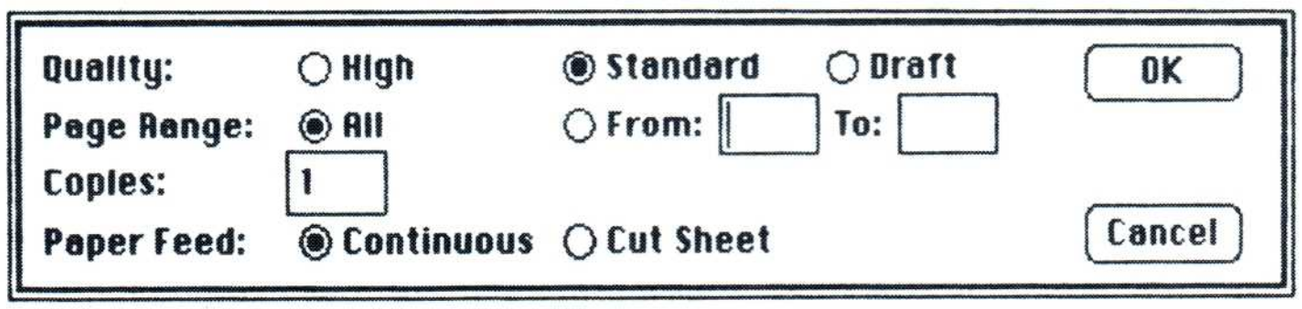
- For FILE, click the circle to the left of the source file.
- For REPORT, click the circle to the left of the report form file.
- Click OK.

A dialog box for choosing the paper size appears.

HINT: The tall adjusted selection assures that a picture is printed in the dimensions in which it is stored.

- Click the appropriate page size, if not already selected.
- Click the appropriate method of printing, if not already selected.
- Click OK.

A final dialog box appears.



- For other than STANDARD print quality, click HIGH or DRAFT.
- For more than one copy of the report, click the COPIES box and type the number.
- Click CONTINUOUS or CUT SHEET.
- Click OK to begin printing.

Ensemble displays a picture of each page of the report as it is printed.

When the report is complete, the Ensemble desktop returns.

Application

This example uses the USA file to show the integration of text, graphics and decoration.

As you know, an integrated report form consists of five parts. On page 1 you design the body of the report, on page 2 you format the title, on page 3 you format the summary page, and on pages 4 and 5 you design the header and the footer. In this example, you present information from the USA file that

you created in Chapter 1. The report form for this integrated report includes a body (page 1 of the form), the title (page 2 of the form), and a header and footer (pages 4 and 5). There is no summary for this report, so you would leave page 3 of the report form blank.

When you are finished, you can print a report whose first page will look something like the one shown here.

March 1985

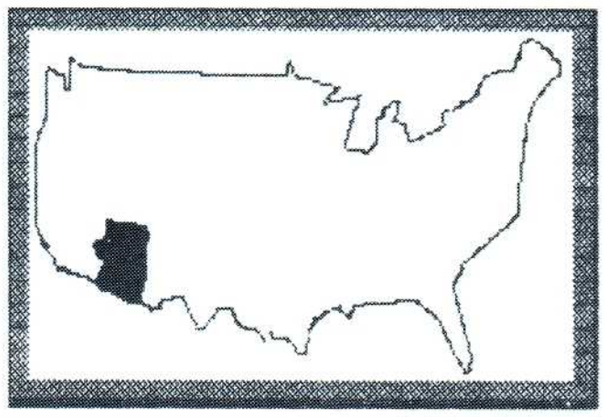
State Report

Arizona

Capital:

Phoenix

Arizona ranks 3rd in the nation in irrigation and farming. Despite its arid climate, irrigation provides water for cotton, barley and melon crops.

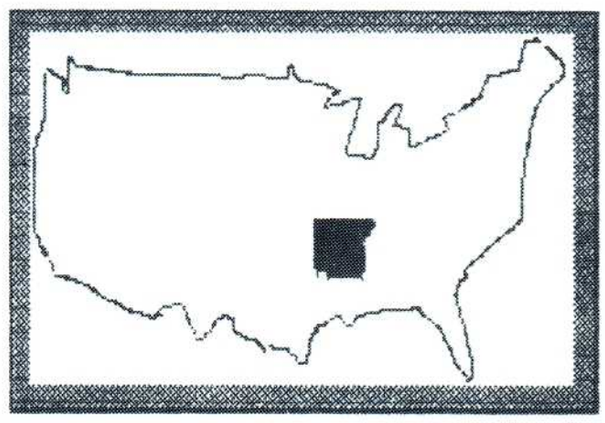


Arkansas

Capital:

Little Rock

Arkansas has a variety of terrain, from flatlands to the Ozark Mountains.

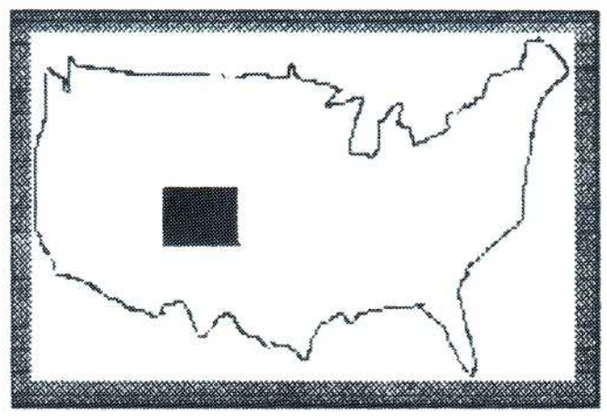


Colorado

Capital:

Denver

Colorado is extremely mountainous in its western part, and is marked by extreme variations in its climate.



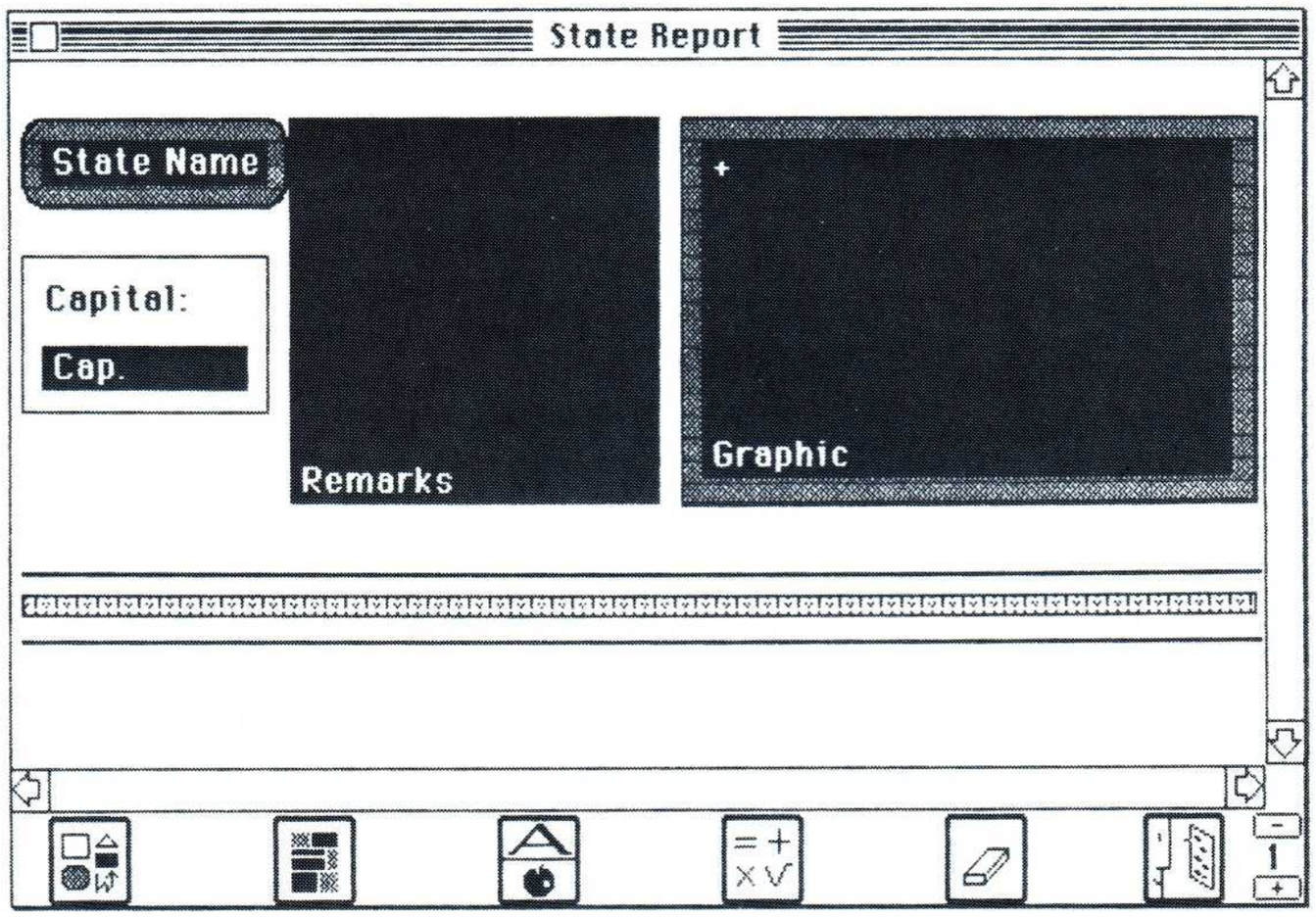
Prepared by G. Smith

NOTE: When you create the form for an integrated report you use all the techniques you learned about designing a form in Chapter 3.

To create the form for this integrated report:

- Make sure the USA file is open on the Ensemble desktop.
- Then, create a new file for the report form.
- When the DESIGN window appears, design the body of the report as shown below on page 1 of the form.

NOTE: This example consists of a TITLE, STATIC TEXT, and FIELDs. You can also add STATIC PICTURE areas and then use the CLIP-BOARD to add drawings or graphs to the report form.

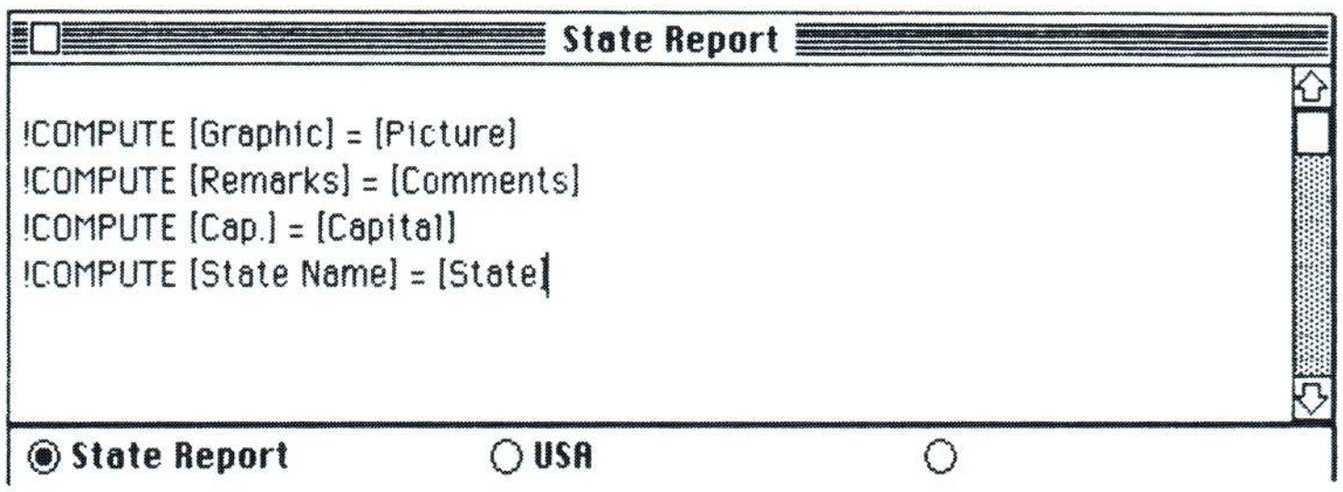


- Click the + sign of the CHANGE PAGE icon to display page 2.
- On page 2, create a TITLE or FIXED TEXT field at the center top of the page, and type in it STATE REPORT. This will appear at the top o the first page of your report.

- Click the + sign of the CHANGE PAGE icon to display page 4, so you can design the header.
- To enter the header that will appear at the top of every page of your report, create another TITLE or FIXED TEXT field at the top right corner of the screen, and type in it March 1985.
- Then, click the + sign of the CHANGE PAGE icon to display page 5, so you can design the footer.
- To enter the footer that will appear at the bottom of every page of the report, create another TITLE or FIXED TEXT field, and in it type Prepared by and your name.
- You can decorate the header and footer with lines or shapes as you wish.

When you have finished designing the form, you need to enter the computations into the COMPUTATIONS window, as follows:

- Click the COMPUTE icon, and enter the COMPUTE statements shown below.



The first COMPUTE statement defines the map area in the report (called Graphic) as the map area in the USA file (called Picture). The second COMPUTE statement does the same thing for the block of text about each state, the third for Capital and the fourth for the state name.

- If you haven't already done so, select SAVE AND CONTINUE from the FILE menu.
- Check your design and make any necessary or desired changes.

As soon as you are done designing the report form, you print the form by using the steps outlined above in Printing the Report.

- First, close the DESIGN window by clicking the CLOSE BOX.
- When the Ensemble desktop appears, double click the REPORT icon and follow the instructions.

Once you have mastered this type of report, go on to experiment with reports that integrate graphs, graph tables and numeric fields. As you learn to do each of these, you will discover the myriad of possibilities that Ensemble presents, and begin creating your own unique applications.

Chapter 9

Creating and Printing Labels and Mailings

You have seen how to create a form, select documents, incorporate computations, add records, and search for information, among other activities. In this chapter you will use this knowledge to learn how to create and print labels, form letters, and form documents for mass mailings.

The following topics and activities are discussed.

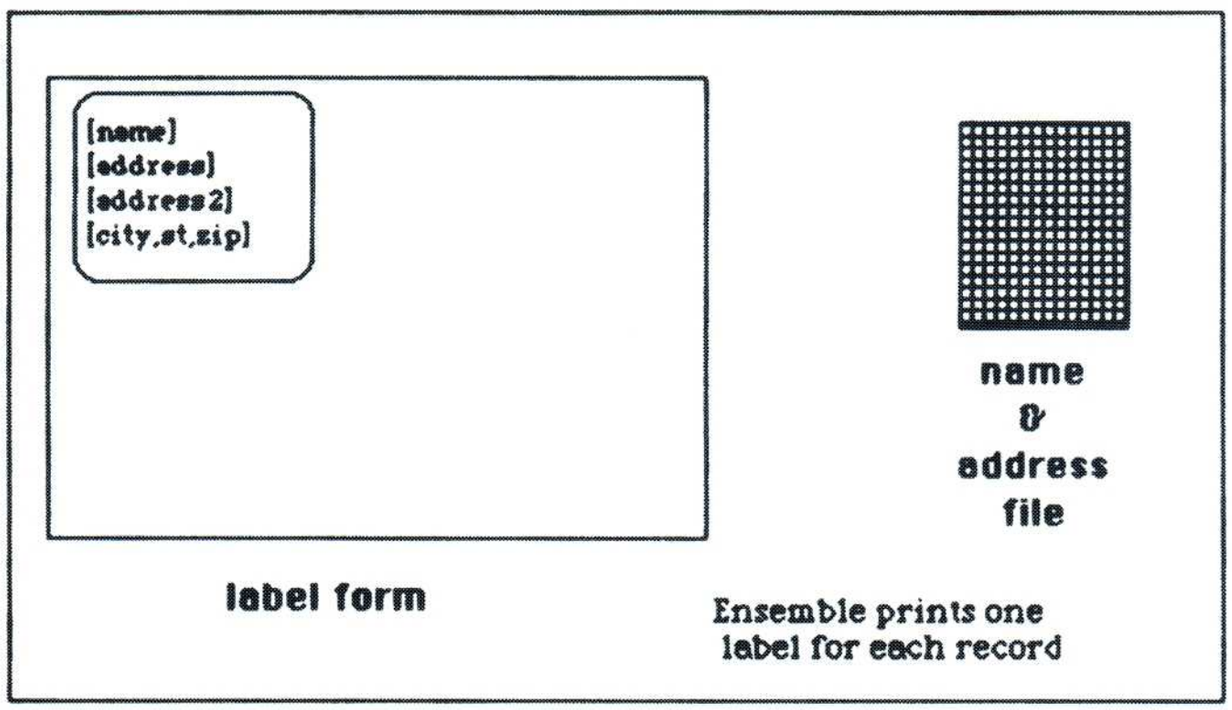
- Introduction to the Label Feature
- Creating a Label Form
- Creating a New File for a Label Form
- Designing a Label Form
- Closing the Label Form and Preparing the Source File
- Doing a Test Run
- Printing a Label
- Introduction to the Mailing Feature
- Creating a Mailing Form
- Creating a New File for a Mailing Form
- Designing a Mailing Form
- Closing the Mailing Form and Preparing the Source File
- Doing a Test Run
- Printing a Mailing
- Transferring Variable Information at Time of Data Entry

Introduction to the Label Feature

The purpose of the label feature is to allow you to design a label and fill it in with names, addresses, and other information from another file called a *source file,* such as a customer file. One label is printed for each record in the *source file.*

> NOTE: Although you create a label form in a file, you do not add data to that file; instead, you use the data from another file. You can add information to the label file, but that defeats the benefits of using information already in a file.

The relationship between the label form and the file that fills each label is shown here.



The label feature is particularly useful for creating labels for sending mail orders and subscriptions, labeling books or equipment, and creating price tags. You can print the labels on prepared continuous form labels available from an office supply house or print the labels on standard continuous form paper and then run them through a plain-paper copier to copy the printout onto a sheet of labels.

Once you know how to create a form, there are only a few additional steps used to create a label. Use the following steps to create and print a label:

- Create a form for the label
- Specify the selection criteria by which Ensemble chooses the names and addresses to print
- At the Ensemble desktop double click the LABEL icon to select printing instructions

Creating a Label Form

The rules for creating a form for a label are nearly the same as for any other Ensemble form. You create a new file, then use the DECORATE, LAYOUT, and PASTEUP icons and corresponding menus in the DESIGN window to design and decorate the form. You can copy pictures and artwork from MacPaint or clip art documents by using the CLIPBOARD or the SCRAPBOOK. You use the COMPUTATION window to redefine the value of fields in the label form as the value of fields in another form, such as a client file or address book.

Guidelines for creating a label form:

- Make sure the source file is on the desktop before beginning. You need it to redefine fields in the label form as fields in the source file.
- In the FORMAT and WIDTH dialog box, click SCREEN for the FORMAT and SCREEN for the WIDTH.
- **Make sure you design the label in the upper left corner of the DESIGN window.**

Creating a New File for a Label Form

You use the same steps to create a new file for a label form as for any other form, with the following restrictions.

To review:

- At the Ensemble desktop, select NEW from the FILE menu **OR** press the ⌘-n keys.

The FORMAT and WIDTH dialog box appears. For most Forms you can choose a paper-sized form or a screen-sized form, but to create a label form you must use a screen sized form.

- Leave the preset choices of SCREEN for both FORMAT and WIDTH.
- Click OK.

When you have completed these steps, the DESIGN window appears.

Designing a Label Form

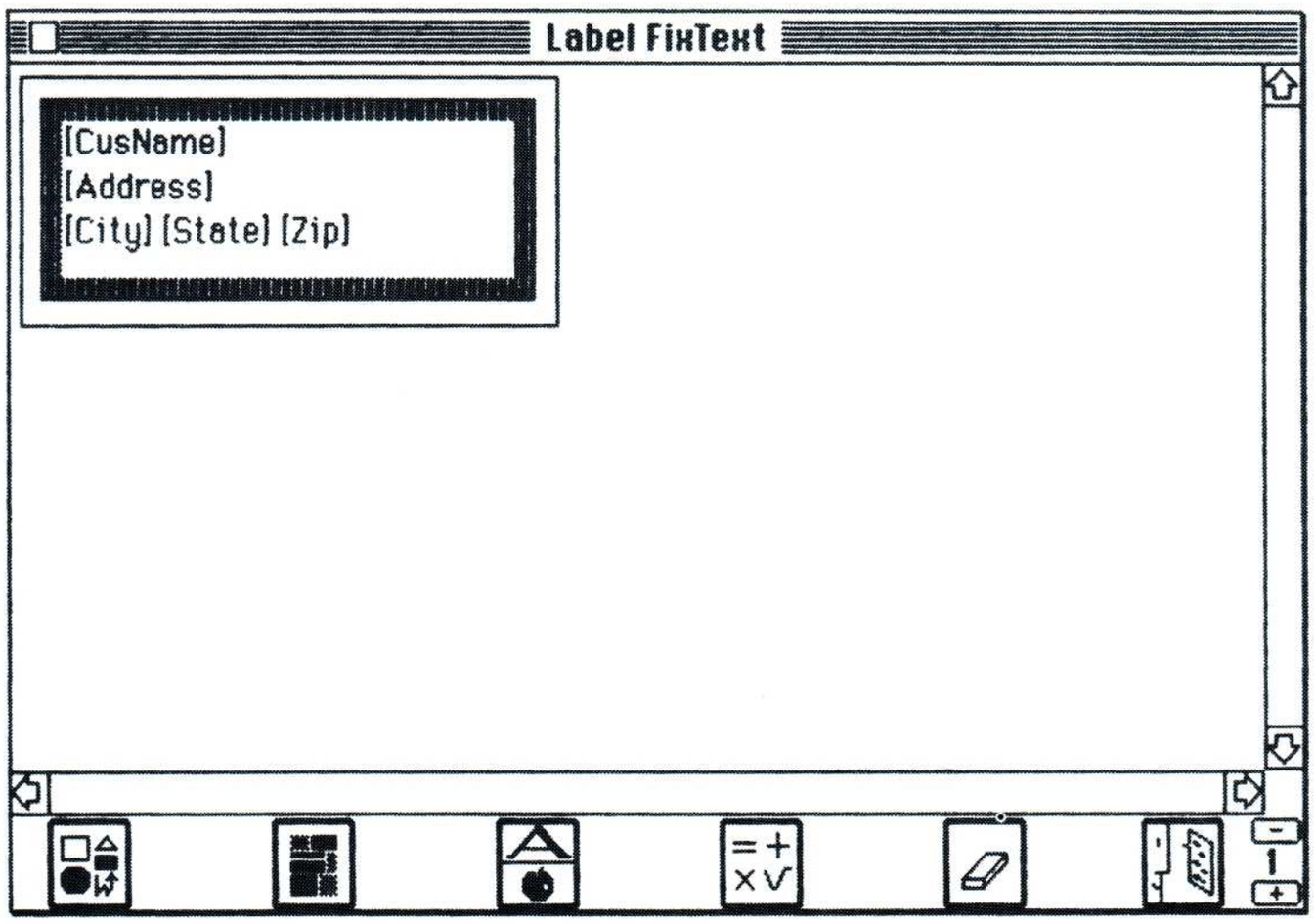
As you know, designing a form means using icons and menus of the ENTRY window and fields, operations, and functions of the COMPUTATION window. For a label form you use the LAYOUT icon with the AREAS menu to specify where names and addresses should appear on the label; the PASTEUP icon with the STYLE menu to add text and pictures; and the DECORATE icons and SHAPES, PEN, and PATTERN menus to decorate the label.

When specifying the information to be printed on the label you can use either of two methods:

- Create a STATIC TEXT area, then type the field names of the source file between square brackets [ ] inside the area.
- Create FIELD areas: for each component of the name and address use the COMPUTATION window to redefine the FIELDs that you use in the label form as the value of the FIELDs in the data file for names and addresses.

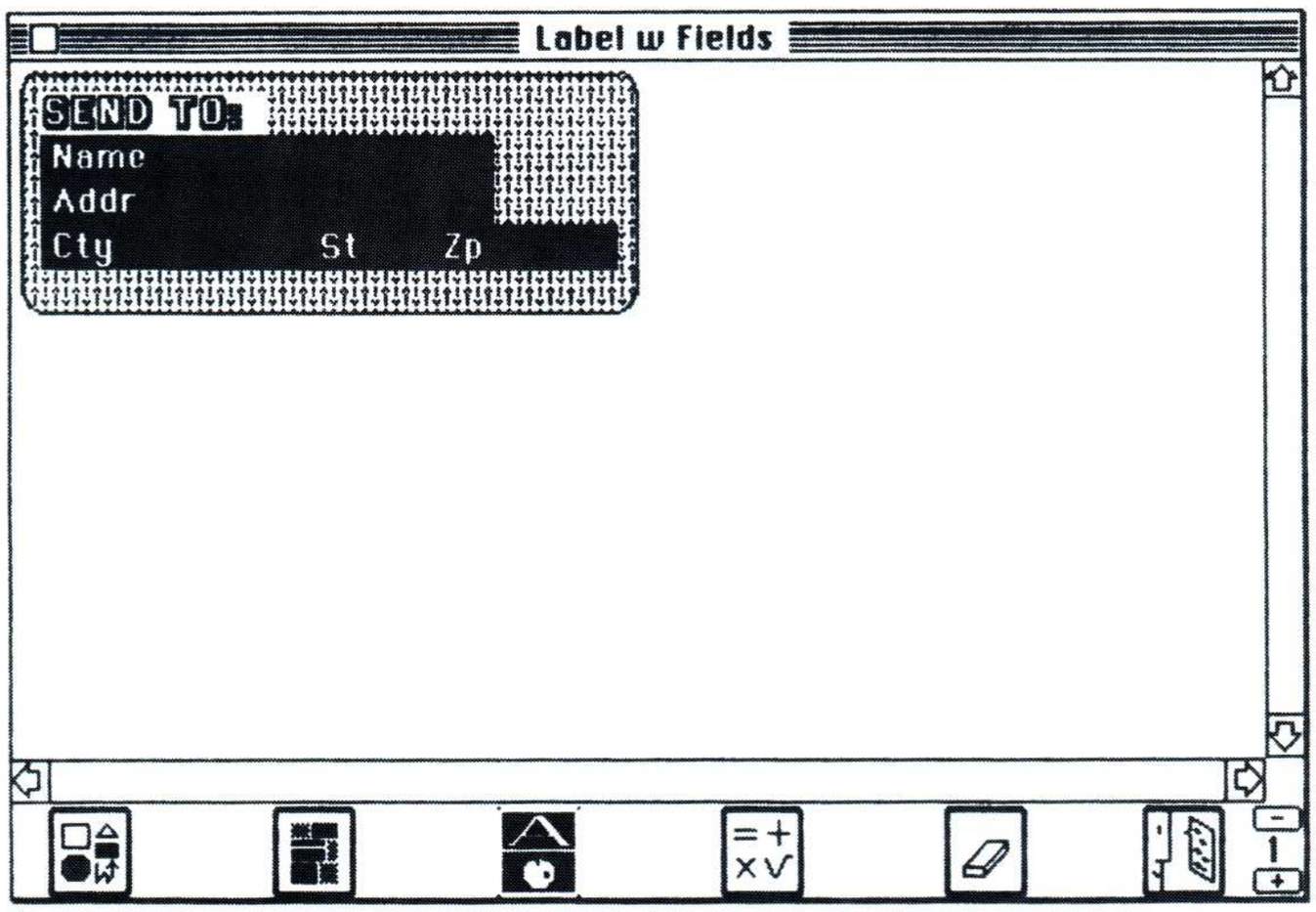
Example #1 — Using STATIC TEXT Area to Identify the Location of Information

This example shows a label created to use the names and addresses in a customer or address file. It is decorated, but has no pictures. Notice that it is in the upper left corner of the window.

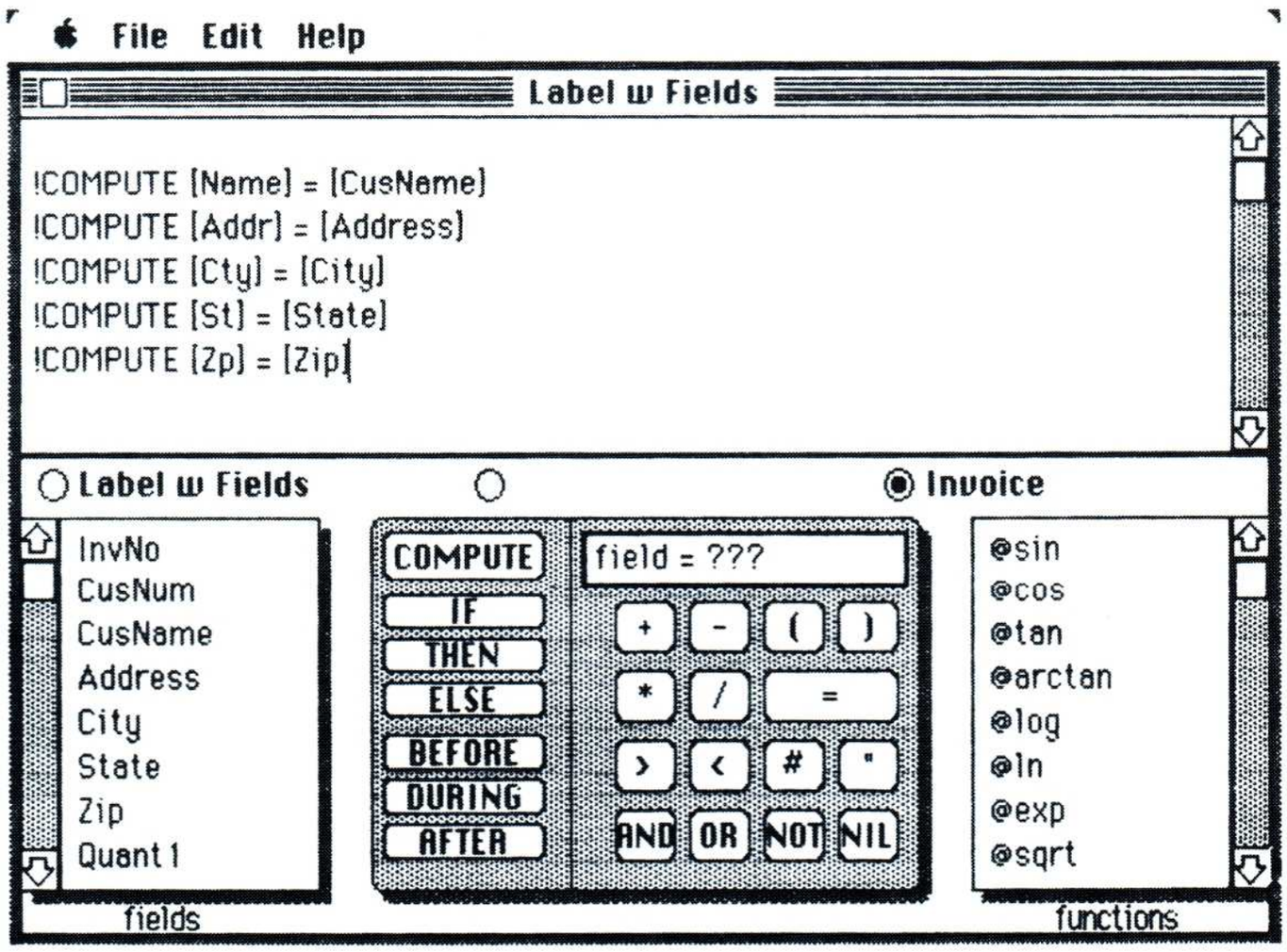


Example #2 — Using the COMPUTATION Window to Redefine FIELDs

This example is similar to example #1, except you use the FIELDs instead of STATIC TEXT areas.



The COMPUTATION window shown here includes COMPUTE instructions for redefining each field in the label form as a field in the source file.



Closing the Label Form and Preparing the Source File

When you have completed designing the label form, you need to close it and save it, if not saved recently. Then before creating labels from a source file, check to make sure the source file has current names and addresses or other information.

Doing a Test Run

Although you can stop the printing process at any time by pressing ⌘ ".", you may want to do a test run that allows you to make sure the label looks as you hoped it would, the label design fits on the label, and the information fits within the space you allotted in the label design. One method to do a test run includes doing the following steps:

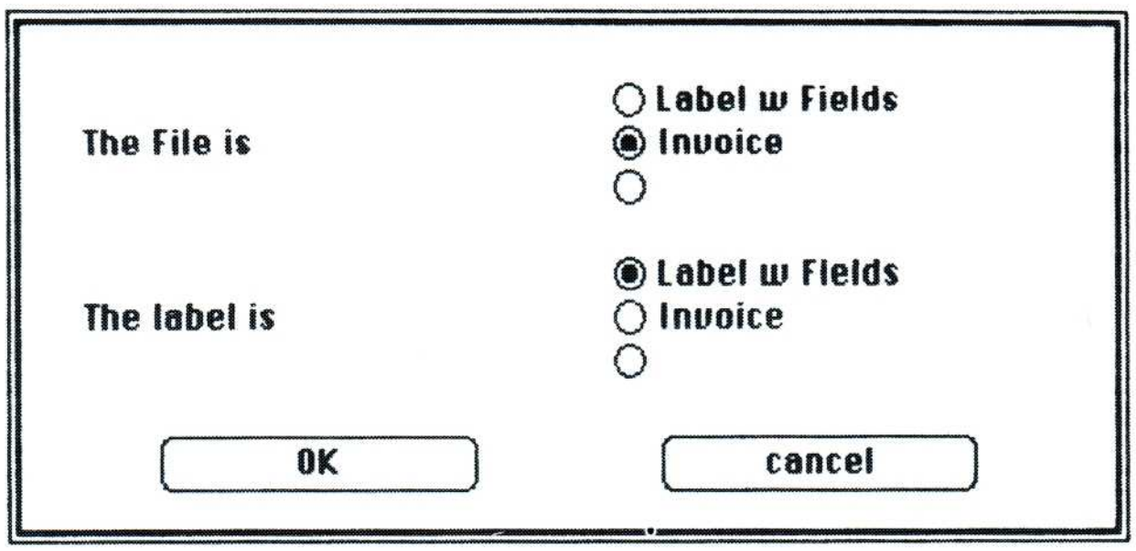
- Create a test source file with only three or four records
- Follow the instructions for printing labels [below] using the test source file and the label form
- Edit the label form as needed
- Retest until the printed labels match your needs
- Do a final print run using the actual source file

Printing a Label

You give the command to print labels at the Ensemble desktop. First make sure the source file and the label form are open on the desktop. Check the printer to make sure the labels or paper are correctly positioned. Then use the following steps:

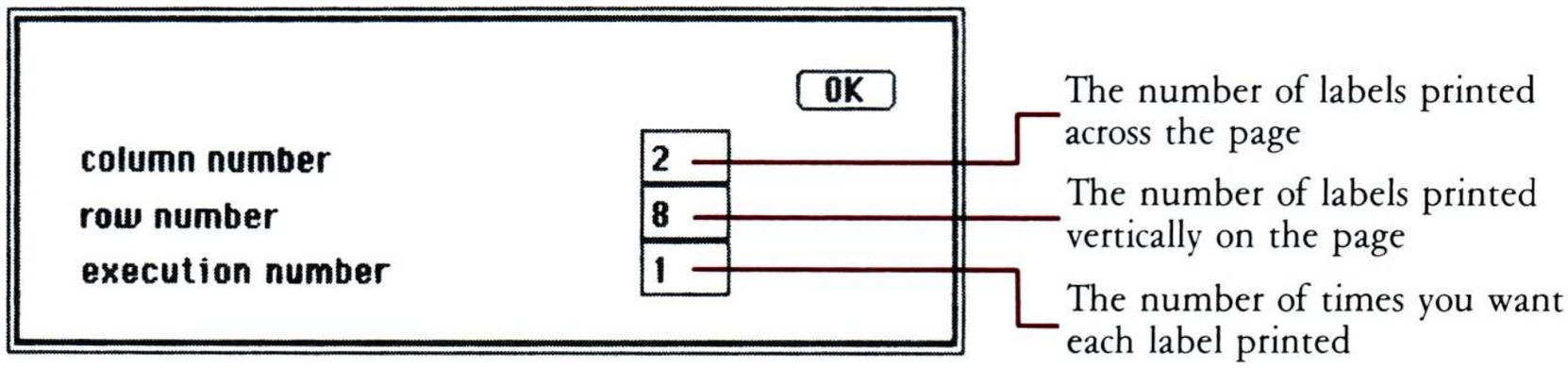
- Click the LABEL icon.

The dialog box for selecting a source file and a label form appears.



- For the source file, click the circle to the left of appropriate file.
- For the label form, click the circle to the left of appropriate file.
- Click OK.

A dialog box for selecting the position of the label and the number of labels appears.



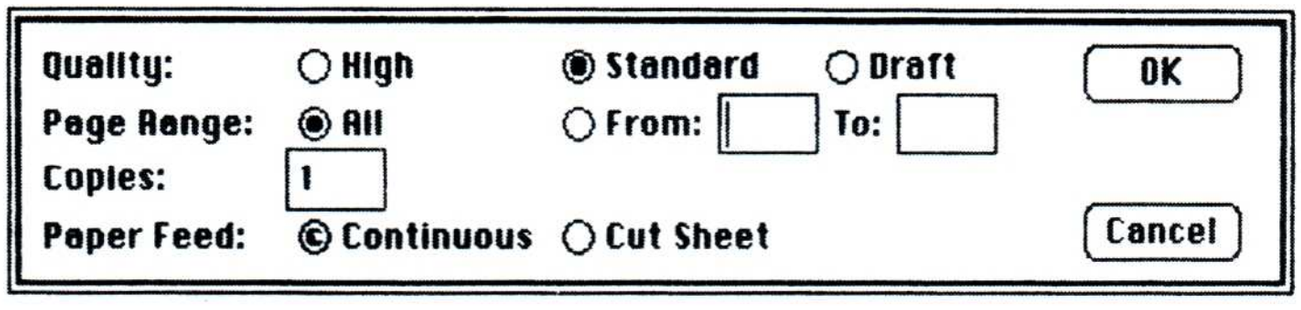
- Click OK.

A dialog box for choosing the paper size appears.

HINT: Continuous form labels are usually prepared on the same length paper as US letter-sized paper. The tall adjusted selection assures that the picture is printed in the dimensions in which the picture is stored.

- Click the appropriate page size, if not already selected.
- Click the appropriate method of printing, if not already selected.
- Click OK.

A final dialog box appears.



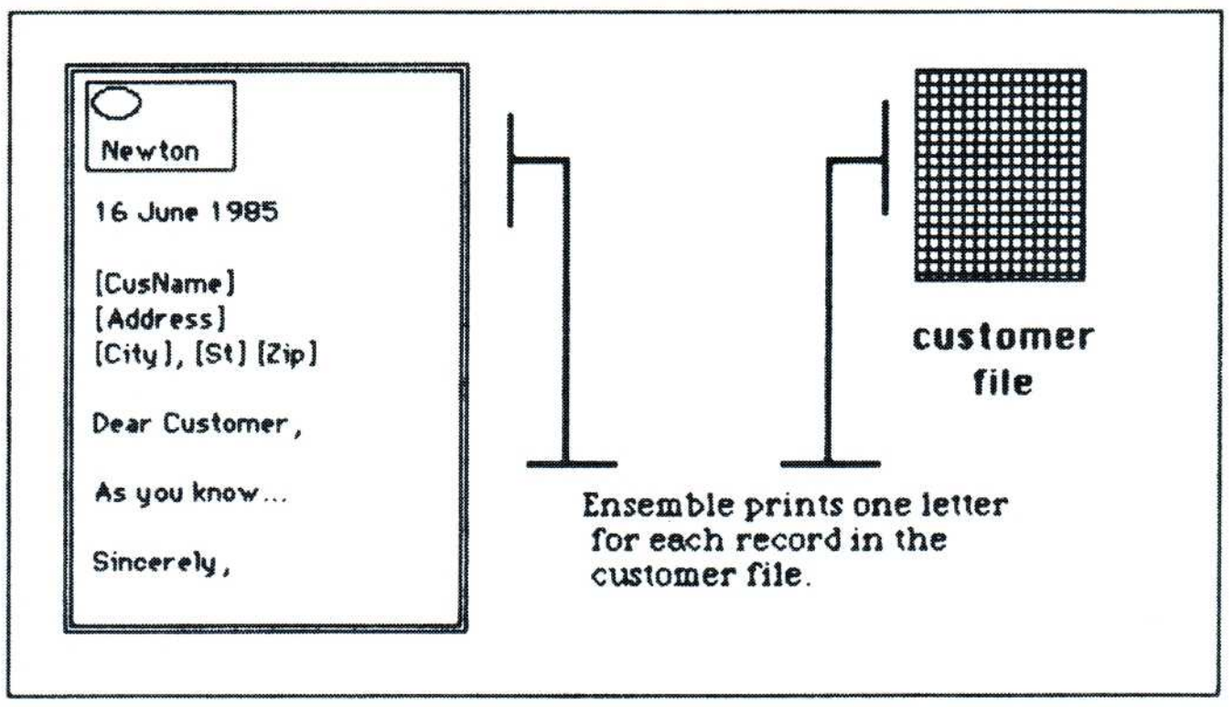
- For other than STANDARD print quality, click HIGH or DRAFT.
- For more than one copy of each print run, click COPIES box and type the number.
- Click CONTINUOUS or CUT SHEET, as appropriate.
- Click OK to begin printing.

Ensemble displays a picture of each label with information from the source file as it is printed.

When all the print run is complete, the Ensemble desktop reappears.

Introduction to the Mailing Feature

The purpose of the mailing feature is to allow you to create a form letter or other type of document and select information from another file, called a source file, that is merged at print time. One form letter or document is printed for each record in the file that you select. The relationship between the mailing form and the file that fills the blanks is shown here.



The mailing feature is particularly useful for personalizing otherwise rote correspondence to clients, distributors, branch offices, and contributors.

Much like creating a form for a label, once you know how to create a form, there are only a few additional steps used to create a form letter or document form. Use the following steps to create and print a mailing:

- Create a form for the mailing
- Specify the selection criteria by which Ensemble chooses the records to merge when it is time to print

- At the Ensemble desktop click the MAILING icon to select printing instructions

Creating a Mailing Form

The rules for creating a form for a mailing are nearly the same as for any other Ensemble form. You create a new file, then use the DECORATE, LAYOUT, and PASTEUP icons and their related menus in the DESIGN window to design and decorate the form. You can copy pictures and artwork from MacPaint or clip art documents by using the CLIPBOARD or the SCRAPBOOK. You use the COMPUTATION window to redefine the value of fields in the mailing form as the value of fields in another form, such as a client file or address book.

Guidelines for creating a mailing form:

- Make sure the source file is on the desktop before beginning. You need it to redefine fields in the mailing form as fields in the source file.
- In the FORMAT and WIDTH dialog box, choose a page size for the FORMAT and SELECTED or W<=>H for the WIDTH.

Creating a New File for a Mailing Form

You use the same steps to create a new file for a mailing form as for any other form, with the following restrictions.

To review:

- At the Ensemble desktop, select NEW from the FILE menu **OR** press the ⌘-n keys.

The FORMAT and WIDTH dialog box appears. You can choose a paper-sized form or a screen-sized form, but to create a mailing form for a letter or other letter-sized document, you must select a paper-sized form.

- Select a page size for FORMAT.
- Click SELECTED or W<=>H for WIDTH.
- Click OK.

When you have completed these steps, the ENTRY window appears.

Designing a Mailing Form

As you know, designing a form means using icons and menus of the DESIGN window and fields, operations, and functions of the COMPUTATION window. For a mailing form you use the LAYOUT icon with the AREAS menu to specify where names and addresses should appear in the letter or document; the PASTEUP icon with the STYLE menu to add text and pictures; and the DECORATE icons and SHAPES, PEN, and PATTERN menus to decorate the letter or document.

Specifying the information to be printed consists of the following steps:

- Create a STATIC TEXT area the size of the page.
- Type the letter or document.

> HINT: If you are using letterhead stationery, leave space at the top of the form.

- To insert variable information, such as names, addresses or amounts, drawn from another file, place field names from the source file between square brackets [ ].

> NOTE: Each field that you place between brackets must have the exact spelling as in the source file.

Here are some examples of information that you might want to merge:

- Name and address
- Name and description of product that customer inquired about
- Name of product on backorder or discontinued
- Amount overdue
- Message thanking customer for prompt payment
- Message asking customer to pay promptly
- Amount member has contributed most recently
- Message thanking member for contribution

The following example shows part of a one-page form letter.

16 June 1985

[CusName]
[Address]
[City], [State] [Zip]

Dear Customer,

Our records indicate that we have not yet received your payment of our last invoice in the amount of $[TotAmt].

We look forward to receiving this payment as soon as possible.

Please call us at (617) 555-0146 if you need to discuss payment arrangements or have any questions about your account.

Thank you for your attention to this matter.

Sincerely,

Sharon Newton, President

Closing the Mailing Form and Preparing the Source File

When you have completed the design of the mailing form, you need to close it and save it. Then before printing, check to make sure the source file has the current names and addresses or other information.

Doing a Test Run

You can stop printing at any time by pressing ⌘ ".". However, you can do a test run that allows you to make sure the information appears in the form as you hoped it would. One method of doing a test run includes these steps:

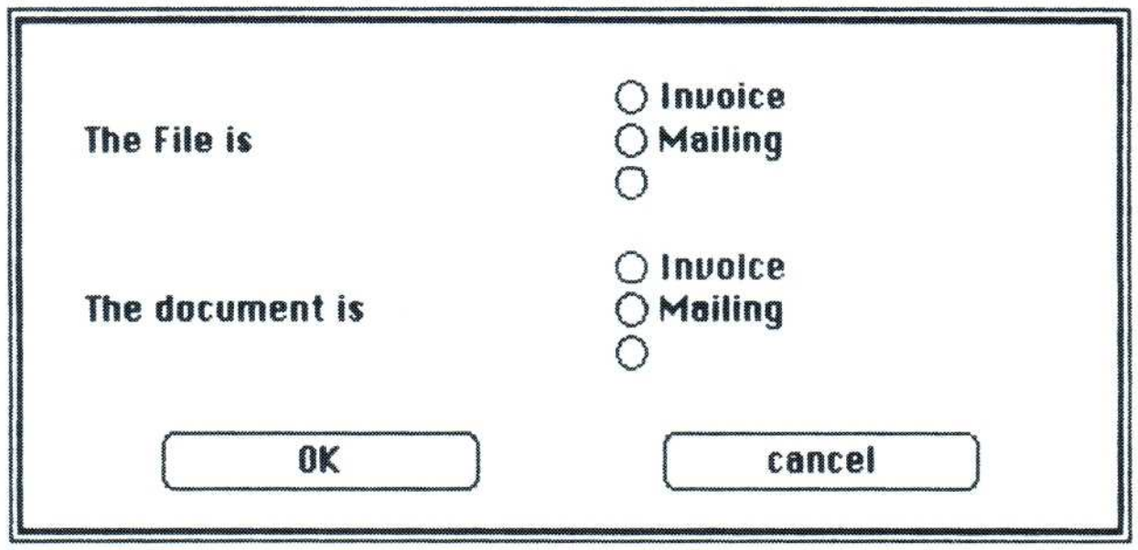
- Create a test source file with only three or four records
- Follow the instructions for printing a mailing [below] using the test source file and the mailing form
- Edit the mailing form as needed
- Retest until the printout matches your needs
- Do a final print run using the actual source file

Printing a Mailing

You give the command to print a mailing at the Ensemble desktop. First make sure the source file and the mailing form are open on the desktop. Check the printer to make sure the paper and ribbons are correctly positioned. Then use the following steps:

- Double click the MAILING icon.

The dialog box for selecting a source file and a mailing form appears.



- For the source file, click the circle to the left of appropriate file.
- For the mailing form, click the circle to the left of appropriate file.
- Click OK.

The dialog box for choosing the paper size and the printing method appears.

HINT: The tall adjusted selection assures that a picture is printed in the dimensions in which the picture is stored.

- Click the appropriate page size, if not already selected.
- Click the appropriate method of printing, if not already selected.
- Click OK.

The paper quality box appears again.

- For other than STANDARD print quality, click HIGH or DRAFT.
- For a mailing form of more than one page, type the pages that should be printed if less than all.
- For more than one copy of each letter or document, click the COPIES box and type the number.
- Click CONTINUOUS or CUT SHEET, as appropriate.
- Click OK to begin printing.

Ensemble displays a picture of each letter or document with information from the source file as it is printed.

When the printing run is complete, the Ensemble desktop reappears.

Transferring Variable Information at Time of Data Entry

Ensemble has one additional feature that easily transfers variable information from one file into another at the time of data entry. For example, if you are entering names and addresses for a form letter, and want to draw on the names and addresses from your invoice file, instead of having to type each one, follow these steps:

- Make sure that the name and address fields in your form letter have names that are different from those in the invoice file;
- Open both the form letter file and the invoice file on the desktop at the same time;
- Double click the form letter form to open it to its ENTRY window.
- Now, instead of typing in the name of the customer, simply type the name of the field of the corresponding information in the invoice file, in brackets [ ].
- Press ENTER. The name is automatically transferred into the form.

This accomplishes the same thing as redefining fields in the computation window, but has additional advantages. You can view on the screen, and save, a form letter with the name, address or any other variable information on it. You can use this feature to imbed any block of text in a variable field. It can be used for numeric or alphanumeric information.

It can also be used within one file; to bring variable data from one field on a form to another field on the same form at the time of data entry, simply type the field name of the source field **in brackets** [ ], press enter, and the information will automatically be transferred.

Part IV

Appendices

The appendices included to help you are as follows.

Appendix A: Operations Table

Appendix B: Functions Table

Appendix C: Selections Table

Appendix D: Notes about Memory

Appendix E: Relationship between Ensemble Desktop, ENTRY window, and DESIGN window

Appendix A: Operations Table

Operations are performed on values. You can instruct Ensemble to do three types of operations with three types of operators: arithmetic, relational, and logical. Operations and corresponding operators are shown in the following table.

For more information about specifying operations in computations and selections see Chapter 4 and Searching for One or More Records in Chapter 5.

ARITHMETIC OPERATIONS	OPERATOR
Addition	+
Subtraction	–
Multiplication	* (asterisk)
Division	/ (slash)
RELATIONAL OPERATIONS	**OPERATOR**
Greater than	>
Less than	<
Equal to	=
Greater than or equal to	> =
Less than or equal to	< =
Not equal to	#
LOGICAL OPERATIONS	**OPERATOR**
Both true	AND
Either or both true	OR
Is false	NOT

OTHER USES OF ARITHMETIC OPERATIONS

FUNCTION	SIGN	EXAMPLE
Percentage Computation	*/	!COMPUTE [Tax] + [Subtotal]*5/100
Cumulative Total of Numeric Fields	+	!COMPUTE [Cum. Purchases] = [Cum. purchase] + [Net amount payable]
Default Values	=	!COMPUTE [Product] = Macintosh !COMPUTE [Invoice Date] = 5/1/85
Computations on Dates	–	!COMPUTE [No. of Days] = [Payment Date] – [Invoice Date]
Computations on Alpha-numeric Fields	+	!COMPUTE [Full Name] + ''Sp'' + [Name]

Date entry format: 12/11/85
Number entry format: 1500.5 (no spaces, no commas)
Sp = space bar

Appendix B: Functions Table

You can use functions to create variables and constants. Ensemble has two types of functions: alphanumeric functions and arithmetic functions, as follows.

ALPHANUMERIC FUNCTION	PURPOSE	ENSEMBLE SYMBOL
All capital	Finds all capitals	@CAP
Initial capital	Finds initial capitals	@1Cap
Audible signal	Triggers Macintosh tone Follow this syntax: IF [FIELD] = NIL THEN @ beep	@beep
Chain length	Finds word or phrase of given length Follow this syntax: !COMPUTE [FIELD1] = @Long [Field2]	@Long
Key words	Finds keywords in given field Follow this syntax: !SELECT [keyword you seek] ^in^ [FIELD]	^in^
Start of chain	Finds word or phrase starting with given letters or numbers !SELECT [FIELD] ^..Fd^ = [letter/numbers]	^..Fd^
End of chain	Finds word or phrase ending with given letters or numbers !SELECT [FIELD] ^Fd..^ = [letter/numbers]	^Fd..^

ARITHMETIC FUNCTION TABLE

FUNCTIONS	SYMBOL	SYNTAX	NOTES
Sine	@sin	!COMPUTE [Res] = @Sin ([arg])	[arg] must be expressed in Radians
Cosine	@cos	!COMPUTE [Res] = @Cos ([arg])	[arg] must be expressed in Radians
Tangent	@tan	!COMPUTE [Res] = @Tan ([arg])	[arg] must be expressed in Radians
Arc tangent	@arctan	!COMPUTE [Res] = @Arctan ([arg])	[Res] is given in Radians
Logarithm to base 10	@log	!COMPUTE [Res] = @Log ([arg])	with ([arg]) > 0
Naperian Logarithm	@ln	!COMPUTE [Res] = @ln ([arg])	with ([arg]) > 0
Exponential	@exp	!COMPUTE [Res] = @exp ([arg])	
Square root	@sqrt	!COMPUTE [Res] = @sqrt ([arg])	with ([arg]) ≥ 0
Integer	@Int	!COMPUTE [Res] = @Int ([arg])	with ([arg]) = 24.4, [Res] = 24
Decimals	@Dec	!COMPUTE [Res] = @Dec ([arg])	with ([arg]) = 24.9, [Res] = 0.9
Power of 10	@10PX	!COMPUTE [Res] = @10PX ([arg])	with ([arg]) = 4, [Res] = 10000
X to power Y	^XPY^	!COMPUTE [Res] = [arg1]^XPY^[arg2]	[Res] = [arg1] [arg2]
Compound interest	^comp^	!COMPUTE [Res] = [rate]^comp^[Periods]	[Res] = (1 + rate)[periods]
Annuity	^ann^	!COMPUTE [Res] = [rate]^ann^[Periods]	$[Res] = 1 - \frac{1}{1 + [rate]^{[periods]}} \Big/ [rate]$

Res indicates Results field; **arg** indicates arguments and designates a field, a constant or an expression: Sin (2 * 3.14 * [x]).
Do not omit parentheses from functions preceded by @.

Appendix C: Selections Table

When using the SPECIFICATION window to specify records that you want Ensemble to find you can use a combination of operations and functions after the SELECT statement, as listed in this table.

FIND RECORD IF:	SIGN	EXAMPLE
The information is equal	=	!SELECT [STATE] = Arizona !SELECT [Inv No.] = 30412 !SELECT [Price] = 29.95
There is no information (the field is blank)	= NIL	!SELECT [STATE] = NIL
The information does not equal	#	!SELECT [STATE] # Arizona
The field is not empty	# NIL	!SELECT [STATE] = # NIL
The information is greater than given	>	!SELECT [STATE] > Arizona !SELECT [Inv No.] > 30412 !SELECT [Price] > 29.95
The information is greater than or equal to given	> =	!SELECT [STATE] > = Arizona !SELECT [Inv No.] > = 30412 !SELECT [Price] > = 29.95
The information is less than given	<	!SELECT [STATE] < Arizona !SELECT [Inv No.] < 30412 !SELECT [Price] < 29.95
The information is less than or equal to given	< =	!SELECT [STATE] < = Arizona !SELECT [Inv No.] < = 30412 !SELECT [Price] < = 29.95
The given keyword is in the field	^in^	!SELECT good ^in^ [HEALTH]
The information in the field starts with given letters or numbers	^..Fd^	!SELECT [ZIP] ^..Fd^ = 06
The information in the field ends with given letters or numbers	^Fd..^	!SELECT [SS#] ^Fd..^ = 8433

FIND RECORD IF:	SIGN	EXAMPLE
Information matches all criteria	AND	!SELECT [WEIGHT] = 140 AND [AGE] < 25
Information matches one or more criteria	OR	!SELECT [WEIGHT] = 140 OR [AGE] < 25
Information does not appear	NOT	!SELECT NOT [WEIGHT] = 140

NOTE: Selection instructions with OR must be written on a single line. Selection instructions with AND must be written on a single line or on different lines that begin with the !SELECT instruction.

Appendix D: Notes about Memory

Ensemble's processing speed and limits are affected by the amount of memory and type of storage devices of the Macintosh on which you run Ensemble. The greater the amount of memory and number of storage devices, the faster Ensemble will respond to your commands.

Ensemble can be used with the following variations of memory and storage devices:

- 512K Macintosh with hard disk
- 512K Macintosh with external drive
- 512K Macintosh
- 128K Macintosh with hard disk
- 128K Macintosh with external drive
- 128K Macintosh

On a 512K Macintosh, Ensemble remains entirely in RAM leaving 384K of memory for forms, lists, graphs, and pictures. Because with this much memory Macintosh does not need to read the Ensemble program disk, processing is generally speedy.

The size of a file stored on a 3.5″ disk is limited to the 400K capacity of the disk. With a 512K and an external drive, the program generally works as quickly as with a hard disk, except that searching a 400K disk is slower.

With the 128K Macintosh, the Ensemble program is loaded into temporary memory in parts. Time spent returning to the program disk for other parts of the Ensemble program results in slower processing of files, but does not reduce the number of features. You can do the same things with a 128K Macintosh as with a 512K Macintosh, except slower.

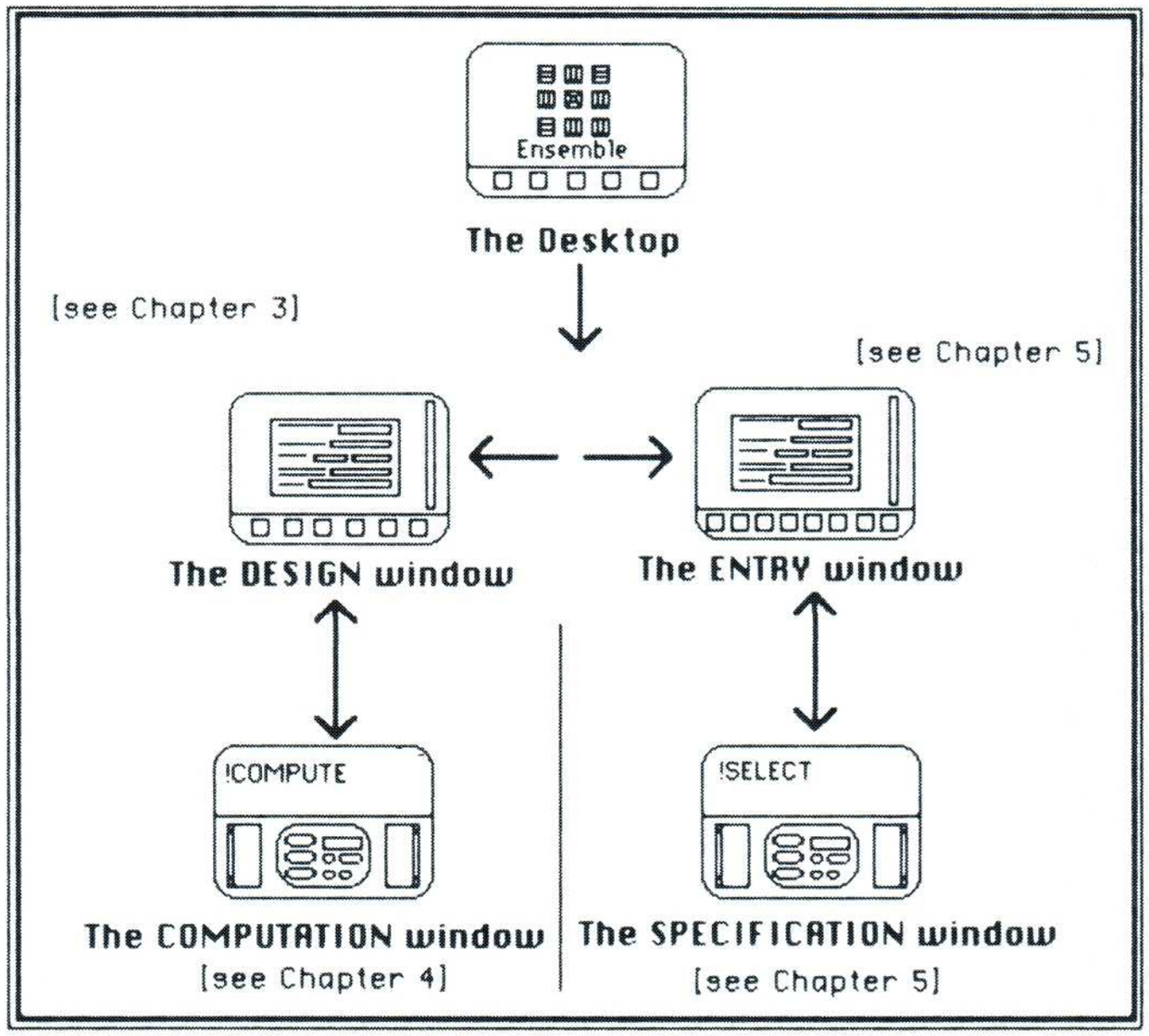
To preserve memory on a 128K Macintosh:

- Use fewer pictures.
- Create lists with fewer fields from fewer records.
- Keep only the lists or graphs you are working on in memory. Otherwise, save them to disk. [See Chapters 6 and 7 for information about saving lists and graphs on disk.]
- Clear from the Ensemble desktop files that you are not currently using. [See Chapter 3 for information about closing a file.]
- Keep forms and data files on a separate work disk as described at the beginning of the tutorial in Chapter 1.

NOTE: An external disk drive or hard disk is highly recommended. If you do not have one you can still keep the Ensemble program on one disk and data files on a work disk. However, you will need to swap disks frequently.

- Periodically check the amount of memory used by each open file by selecting MEMORY DISPLAY from the HELP menu. If the lighter icon has moved halfway across the screen you should clear unneeded files from the desktop.

Appendix E: Relationship between the Ensemble Desktop, the DESIGN Window, and the ENTRY Window



This figure shows the relationship between the Ensemble desktop, the DESIGN window and the COMPUTATION window, and the ENTRY window and the SPECIFICATION window.

Index

Ensemble Index

To receive a backup copy of your program, send the certificate below, the completed Warranty Registration Card, and your payment of $10.00 to Hayden Software Company, Inc., 600 Suffolk St., Lowell, MA 01854

BACKUP PROGRAM CERTIFICATE

This certificate grants the original purchaser the right to buy one (1) copy of the program for backup use.

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Original Purchaser Signature:_____

YOU MUST RETURN YOUR WARRANTY REGISTRATION CARD BEFORE YOU CAN OBTAIN A BACKUP PROGRAM.

INDEX BY ENSEMBLE FUNCTION

This Functional Index will enable you to look at Ensemble's features by function. For example, refer to this if you want to see all references to the Word Processing feature.

Please refer also to the file on your disk entitled ENSEMBLE UPDATE. It contains the most current information about the Ensemble program disk.

REPORTS

SYNTAX FOR COMPUTATION

SYNTAX FOR SPECIFICATIONS

SYSTEM MANAGEMENT

USING THE LIST

WINDOWS

WORD PROCESSING

HAYDEN
SOFTWARE

600 Suffolk Street
Lowell, MA 01854
(800) 343-1218
(617) 937-0200