

Paradox for Windows

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2 3 4 5 6 7 8 9 0 BAN BAN 9 0 9 8 7 6 5 4

ISBN 0-07-048892-4

Library of Congress Catalog Card Number 93-78722

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A word processor helps you enter and manipulate text. An electronic spreadsheet helps you enter and analyze numerical data. A computerized database helps you enter and manage information or data in record format.

Databases have been in existence for many years. Paper records organized in a filing cabinet by name or department are a database. The information in a telephone book, organized alphabetically, is a database. A school's records of teachers, classes, and students are collectively a database.

Before computers, most database records were kept on paper. With computers, the same data is entered and stored on a disk. The big difference is that an electronic database can manipulate—sort, analyze, and display—the data quickly and efficiently. What took hours of time to pull from the paper files can be extracted in a matter of seconds using a computerized database.

Definition of a Database

A *database* is an organized collection of related data that is stored in a file. The data is entered as a record that consists of several fields of data. Each record contains the same fields. For example, a school has a database of student records. Each record may contain the following fields of data: name, address, Social Security number, phone number, classes, and grades. All the records for each student in the school are stored in a file.

Some database programs only access and manipulate the data in a single file. Others allow the user to access and relate several files at one time. For example, the school may have a second database file containing data for each student's current class schedule. At the end of the semester the grades are posted in this file for each student. The data in one file can then be linked to the data in another file by using a common field, such as the student's name. The ability to link database files creates a relational database. Relational databases allow you to create smaller and more manageable database files, since you can combine and extract data between files.

The database program contains commands that allow the user to design the structure of the database records and enter the data for each record into the file. This is the physical storage of the data. How this data is retrieved, organized, and manipulated is the conceptual use of the data.

Advantages of Using a Database

A computerized database system does not save time by making the data quicker to enter. This, as in most programs, is a function of the typing speed of the user and his or her knowledge of the program.

One of the main advantages of using a computerized database system is the ability to quickly locate specific records. Once data is entered into the database file, you can quickly search the database to locate a specific record based on the data in a field. In a manual system, a record can usually be located by knowing one key piece of information. For example, if the records are stored in a file cabinet alphabetically by last name, to quickly find a record you must know the last name. In a computerized database, even if the records are sorted or organized by last name, you can still quickly locate a record using information in another field.

A computerized database also makes it easy to add and delete records from the file. Once a record is located, you can edit the contents of the fields to update the record or delete the record entirely from the file. You can also add new records to a file. When the record is entered, it is automatically placed in the correct organizational location within the file.

Another advantage of using a computerized database system is its ability to arrange the records in the file according to different fields of data. The records can be organized by name, department, pay, class, or whatever else is needed at a particular time. This ability to produce multiple file arrangements helps provide more meaningful information. The same records can provide information to different departments for different purposes.

A fourth advantage is the ability to perform calculations on different fields of data. Instead of pulling each record from a filing cabinet, recording the piece of data you want to use, and then calculating a record for the total field, you can simply have the database program sum all the values in the specified field. Additionally, you can instruct the program to select only certain records that meet specific conditions to be used in the calculations. Information that was once costly and time-consuming to get is now quickly and readily available.

Another advantage of database programs is the ability to quickly produce reports ranging from simple listings to complex, professional-looking reports. A simple report can be created by asking for a listing of specified fields of data and restricting the listing to records meeting specified conditions. A more complex professional report can be created using the same restrictions or conditions as the simple report. But the data can be displayed in different layout styles, and can display titles, headings, subtotals, and totals.

In manual systems, there are often several files containing some of the same data. A computerized database system can allow access by more than one department to the same data. Common updating of the data can be done by any department. The elimination of duplicate information saves both space and time.

Database Terminology

Database: An organized collection of related data.

Delete: To remove a record from the database file.

Edit: To change or update the data in a field.

Field: A collection of related characters, such as last name.

File: A database of records.

Record: A collection of related fields, such as class time, class name, or grade.

Relational database: Database files that have a common field and can be linked to extract and combine data from multiple files.

Report: A listing of specified fields of data for specified records in the file.

Search: To locate a specific record in a file.

Sort: To arrange the records in a file in a specified order.

Case Study for Labs 1–4

Lab 1 As a recent college graduate, you have accepted your first job with The Sports Company, a chain of sporting goods stores located throughout the United States. The company has recently purchased Paradox for Windows version 1 and you have been assigned the job of updating their current recordkeeping system for employee records.

In the first lab you will learn how to design and create the structure for a computerized database and how to enter and edit records in the database. You will also print a simple report of the records you enter in the database file.

Lab 2 You will continue to build, modify, and use the employee database of records. You will learn how to sort and index the records in a database file to make it easier to locate records. Additionally, you will create a customized data entry form to make it easier to enter and edit data in the database file.

Lab 3 In this lab you will learn how to query the database to locate specific information. Additionally, you will learn how to use and link multiple tables, create calculated fields, and to create a multitable form.

Lab 4 In this lab you will learn how to use Paradox for Windows to create weekly and monthly employee status reports. You will use multiple files to create several different reports. The reports will display selected fields of data for the records in the database. It will also include a report title, subgroupings of data, and descriptive text to clarify the meaning of the data in the report. Additionally, you will learn how to create mailing labels.

Before You Begin

The following assumptions have been made:

- Paradox for Windows version 1 has been properly installed on the hard disk of your computer system in the directory PDOXWIN and the default program settings are in effect.
- The data disk contains the data files needed to complete the series of labs and practice exercises. These files should be on the root directory of your disk and are supplied by your instructor.
- The drive you are using for your data disk is drive A.

- You have completed the DOS and Windows labs or you are already familiar with basic DOS and Windows terminology and procedures.

This text uses the same instructional conventions as were used in the Windows manual.

Reminder: The command sequences you are to issue will appear on a single line following the word “Choose.” Each command selection will be separated by a >. If the menu command can be selected by typing a letter of the command, the letter will appear bold and underlined. Anything you are to type will also appear in bold text. You can use either the keyboard or mouse to enter the commands. If there is a keyboard shortcut for the command, it will appear below the command preceded by a ➤ symbol. If there is a mouse alternative to the command, it will appear following the word “Click.”

1

Creating a Database Using Paradox for Windows

CASE STUDY

As a recent college graduate, you have accepted your first job as a management trainee with The Sports Company. This company consists of a chain of sporting goods stores located in large metropolitan areas across the United States. The stores are warehouse oriented, discounting the retail price of most items 15 percent. They stock sporting goods products for all the major sports: basketball, football, tennis, aerobics, and so on.

Your training program emphasis is on computer applications related to retail management. You have been assigned to the Southwest regional office as an assistant to the Regional Manager. The company has recently purchased Paradox for Windows version 1.0, a database applications program. Your primary responsibility is to use Paradox to update the current system of maintaining employee records.

In this lab you will learn how to design a database for the employee records and create the structure for the database table using Paradox for Windows.

Competencies

After completing this lab, you will know how to:

1. Plan a database.
2. Change the default drive.
3. Create a table structure.
4. Use the Help facility.
5. Define and save a table structure.
6. Enter data.
7. Use Form view.
8. Print a report.
9. Exit Paradox for Windows.

Loading Paradox for Windows

Note: The directions below assume that the Paradox for Windows program has been properly installed on your computer and that you know how to use Microsoft Windows.

You must start Paradox for Windows from the Windows 3.1 (or later) environment.

Start Windows. If necessary refer to Lab 1 in your Windows tutorial for startup instructions or consult your instructor.

The Windows Program Manager should display the Paradox for Windows group icon.

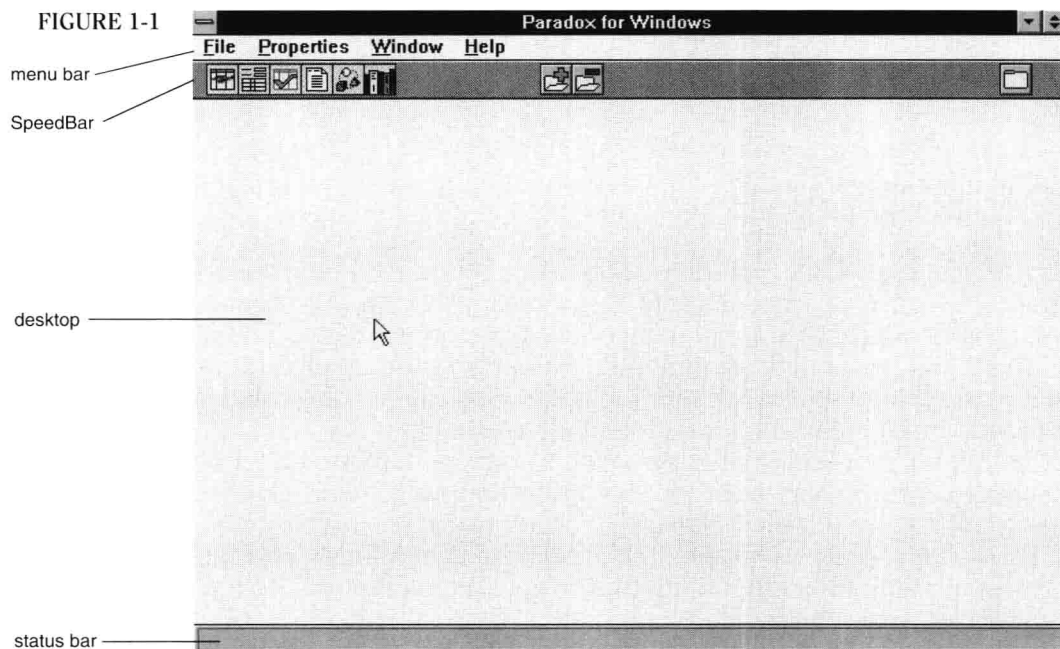
Note: If your system is set up differently, your instructor will provide alternative instructions.

Put your data disk in drive A (or the appropriate drive for your system). Open the Paradox for Windows group window. Choose the Paradox for Windows program-item icon.

Note: If a System error box appears indicating that the program cannot read from a drive, press (ESC) to choose Cancel, then press (↩) to choose OK.

A title screen is displayed while the computer loads the Paradox for Windows program into memory. The title screen will display the percentage loaded. After a few moments, the Paradox desktop is displayed. If necessary maximize the Paradox for Windows application window.

Your screen should be similar to Figure 1-1.



Exploring the Paradox for Windows Desktop

When you start Paradox, the **desktop** is displayed. The desktop is the central working area in Paradox. You start all tasks from the desktop. As you can see, there are many Paradox for Windows features that are common to the Windows environment. Among those features are a title bar, menu bar, control-menu boxes, Minimize and Maximize buttons, icons, and mouse compatibility. You can move and size Paradox windows, select commands, use Help, and switch between files and programs just like in Windows. Your knowledge of how to use Windows makes learning about and using Paradox for Windows much easier.

The **menu bar** contains commands you can choose to open windows, configure your desktop, and work with your data. The menu bar contains only the menus you

need at the moment. If a menu is not appropriate for a given task, it does not appear on the menu bar.

In addition the window displays a **SpeedBar**. The SpeedBar contains icons that represent shortcut buttons for common menu commands and faster methods for navigating through information in the database. The SpeedBar buttons can only be used if you have a mouse.

The last line on the screen is the **status bar**. It provides information about the task you are working on and the current state of operation or **mode** that Paradox is using. Like the menu bar and the SpeedBar, the appearance of the status bar changes as you work. The status bar is currently blank.

If you have a mouse attached to your computer, a white arrow is displayed on the screen. The mouse also operates just as in Windows. You will learn about using the mouse specifically in Paradox for Windows throughout the labs.

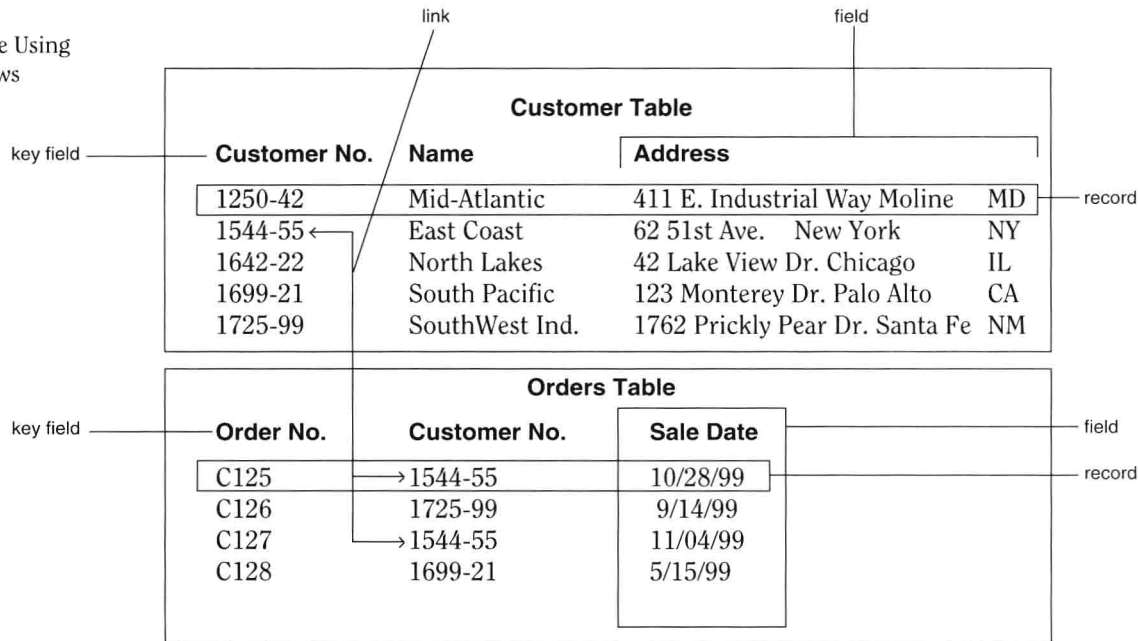
Planning a Database

A **database** is an organized collection of information. For example, the information in your address book is a database. Paradox stores the information in **tables**. A table consists of vertical columns and horizontal rows of information. A row in a table contains data about an individual person, place, or thing. Each row is called a **record**. A record is a collection of related information, such as a person's name, address, and phone number.

Each piece of related information in a record is contained in a column. Each column is called a **field**. A field is a collection of related characters, such as all the persons' names. Most tables have at least one field that is selected as the **key field**. The data in the key field must be unique for each record and is used to control the order in which data is sorted in the table. For example a table that contains the Social Security number for each employee could be selected as the key field because the data in that field is unique for each employee. The records in the table would be displayed in order by Social Security number.

Paradox is a **relational database**. This means that you can define a relationship or **link** between tables. The link is created by having a common field in the tables. The common field lets you extract and combine data from multiple tables. You will learn more about relational databases in the next lab.

A simple example of a database is shown below. This database consists of two tables of data, a Customer table and an Orders table. The Customer table contains information about the customers, such as their names and addresses. It also contains a field called Customer No., which contains a number that uniquely identifies each customer. This is the key field for this table. The Orders table contains data about the orders placed by each customer, such as the date of order, order number, and customer number. The Order Number field in this table is the key field. The Customer Number field is the common field used to create a link between the two tables.



The Sports Company plans to use Paradox to maintain several different types of databases. The database you will create will contain information about each Sports Company employee. Other plans for using Paradox include keeping track of preferred customers and inventory. To keep the different types of files separated into different groups, a database for each group will be created.

Your first step is to plan the design of your database: how many tables, what data they will contain, and how they will be related. You need to decide what information each table in the employee database should contain and how it should be structured or laid out.

This information can be obtained by analyzing the current recordkeeping procedures used throughout the company. You need to understand the existing procedures so that your database tables reflect the information that is maintained by different departments. You should be aware of the forms that are the basis for the data entered into their records and of the information that is taken from their records to produce periodic reports. You also need to find out what information they would like to be able to obtain from the database that may be too difficult to generate using their current procedures.

After looking over the existing recordkeeping procedures and the reports that are created from the information, you decide to create several tables of data that have the employee number as the key field. Creating several smaller tables of related data rather than one large table makes it easier to use the tables and faster to process data. This is because you can link several tables together as needed.

You decide to include all the data currently maintained in the personnel folder on each employee in one table. After having carefully considered the data currently maintained on each employee, you decide to include the following fields:

Employee #
Hire Date
Last Name
First Name
Street
City
State
Zip Code
Birth Date

Changing the Default Drive

Now that you have decided upon the fields of data you want to include in the table, you are ready to specify the characteristics of the table.

As you create the table, Paradox stores it as a file to a disk. You need to tell Paradox where you want the file stored. Initially the default setting is to store files to a directory on the C drive (your school may have changed this setting). You want to store the files on your data disk. Therefore before you begin, you may need to change the default drive.

The command to change the default drive is in the File menu. As in Windows, you can enter commands by choosing items from a menu with the mouse, or by pressing (ALT) or (F10) to activate the menu and then moving the highlight to the command and pressing (←) or typing the underlined letter of the command to choose it.

Note: Command sequences will appear here on a single line following the word "Choose." Each command selection will be separated by a >.

Using either method, change the default drive:

Choose: File>Working Directory

Your screen should be similar to Figure 1-2.

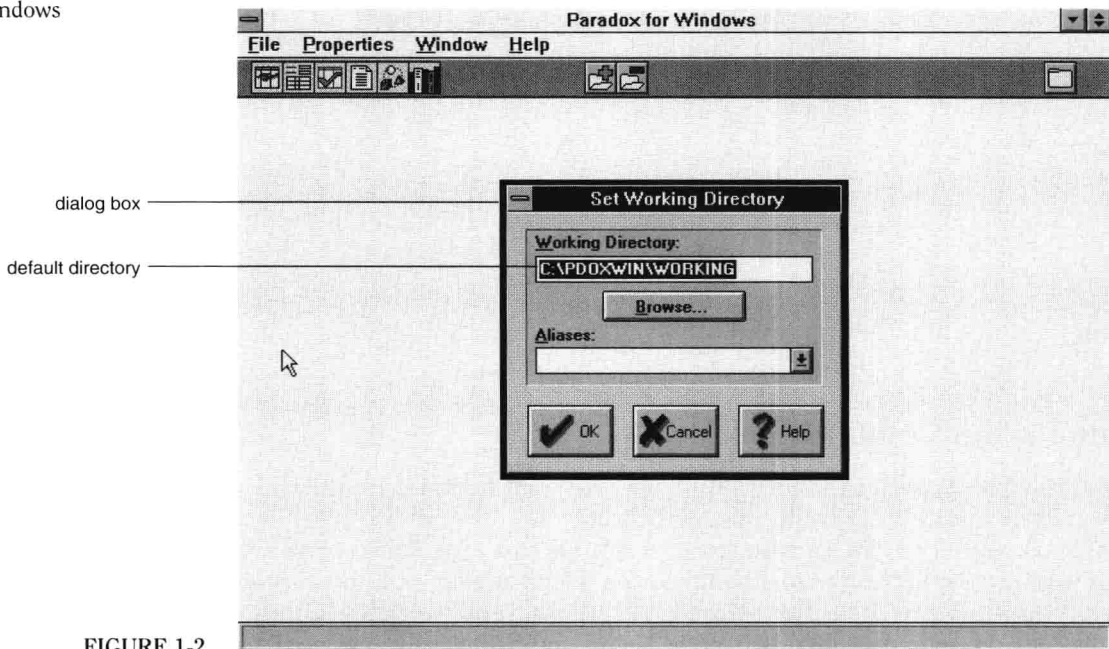


FIGURE 1-2

A dialog box appears on the screen. As in Windows, dialog boxes are displayed whenever Paradox needs more information to complete the command. Dialog boxes consist of option buttons, check boxes, text boxes, list boxes, and command buttons, and they operate in the same way. You can click on your choices with the mouse, or use **(TAB)** to move from one area to another and the arrow keys to move within an area to make a selection.

The default directory is displayed in the Working Directory text box. You need to change it to the drive containing your data disk.






Note: If the default directory is already set appropriately, choose Cancel and skip to the next section.

The insertion point is already in the text box and the text is highlighted. Whenever text is highlighted, it indicates that it is selected. As soon as you type a character, the selected text will be replaced by the text you type.

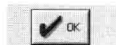
Note: The following command assumes that the drive containing your data disk is drive A. If your setup is different, substitute the appropriate drive and/or directory in the directions below.

To change the working directory to drive A,

Type: **a:** (or the appropriate drive for your system)

The command buttons allow you to accept  or cancel  the command. You can choose these buttons as you would any other dialog box features, or you can press  to choose  or **(ESC)** to choose .



Choose:



The dialog box is cleared, and you are returned to the blank desktop. The drive and path you specified have been changed permanently until you change to another. You will not need to change them each time you load the Paradox program. However, you must have a disk in the default drive before loading Paradox.

The next time you load Paradox, the default drive will be the drive that is in effect at the time it was last exited. If the default drive is A or B, you need to have a disk in the drive when loading Paradox.

Creating a New Table

To create a new table, the File>New>Table command is used. If you do not have a mouse, follow the keyboard instructions below (). If you have a mouse, follow the procedure in the mouse instructions ().



Choose: **File>New**

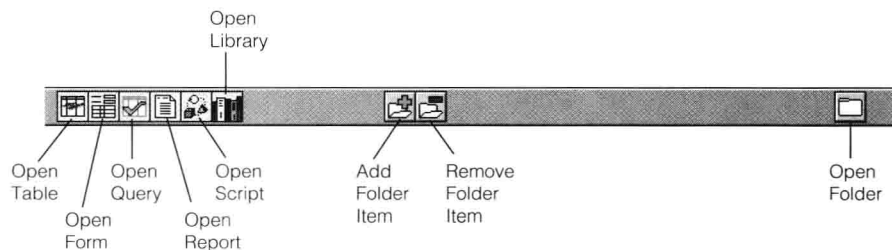
There are six types of windows you can create, modify, and run with your database. To create a new database table,


Choose: **Table**



The SpeedBar buttons allow you to use the mouse to activate many Paradox commands without using the menu. To find out what each button does,

Point to each button on the SpeedBar and read the short description in the status bar.



The first button on the left of the SpeedBar is the  Open Table button. It can be used to open an existing table by clicking on it with the left mouse button, or to create a new table by clicking on it with the right mouse button. To create a new table,


Right-click on the  Open Table button.

A drop-down menu of two options is displayed. From the menu,

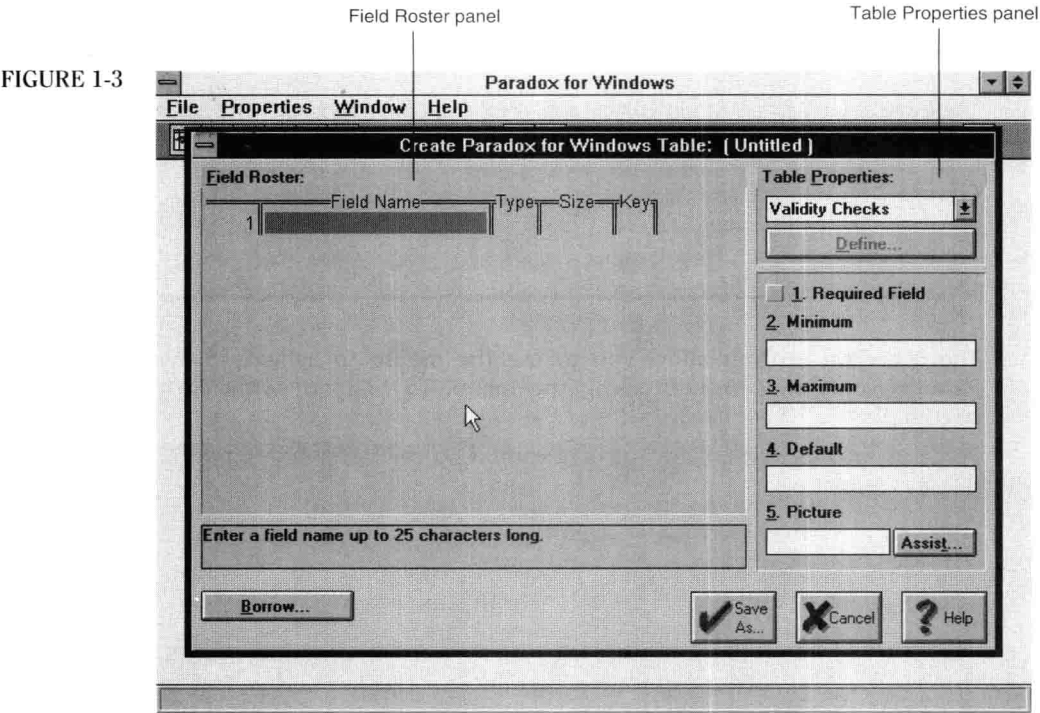
Choose:  New

Note: SpeedBar command alternatives will appear following the word "Click."

The Table Type dialog box is displayed. Paradox supports several Paradox and dBASE file formats that allow you to create tables in formats that are accepted by other database programs, such as dBASE IV. To select the default table type format, Paradox for Windows,

Choose: 


After a few moments the command is carried out and the Create Paradox for Windows Table dialog box is displayed on the desktop.
Your screen should be similar to Figure 1-3.



Using Help

This dialog box is used to define the table **structure** or arrangement of the fields. The dialog box is made up of two main panels. The Field Roster panel on the left is where you define each field. The Table Properties panel on the right is used to define the **properties** of the table. Properties are the attributes and behaviors associated with **objects**. An object is any one of the many Paradox parts, such as the desktop, a table, or a field. In this case the object would be each field or the entire table, depending upon your selection from the panel.

The first step is to specify the fields in the Field Roster panel. Each row in this panel represents a field and each column shows the field's attributes. The field attributes include a field name, a field type and size, and an identification if it is to be used as a key field. Notice the message box below the Field Roster panel. It provides brief instructions on how to proceed.

For more information about field names, you will use the Paradox Help facility. As in Windows, the Help facility is context-sensitive. This means Paradox will display Help information about the currently highlighted menu command or screen. Since the Field Name text box is selected, Help will provide information on this topic. Help can be accessed by choosing the Help button  with the mouse or by pressing the Help key, **(F1)**.

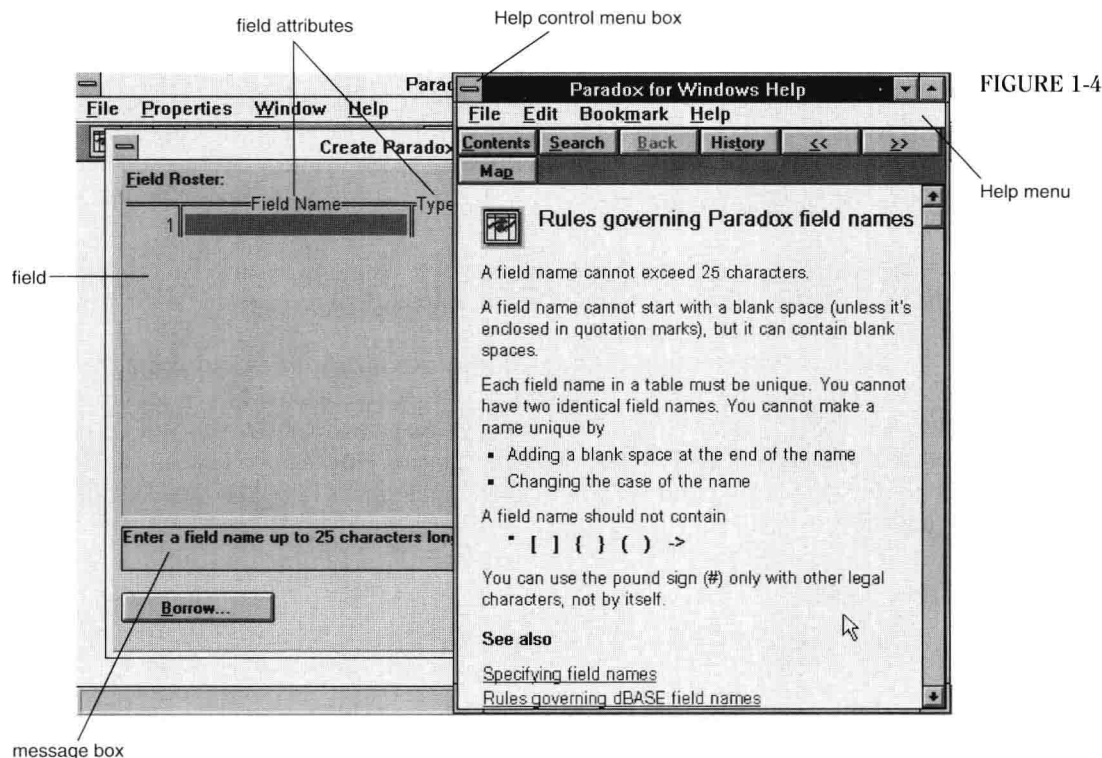
For Help on field names,

Choose: **Help**

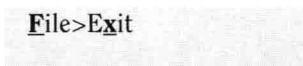
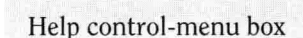


(F1)

Your screen should be similar to Figure 1-4.



The Help screen presents information about the rules governing Paradox field names. The Help system in Paradox for Windows works the same as Help in Windows. The menu reflects commands that can be used in Help. Read the information on this screen. Then,

Choose:  **File>Exit**
or
Double-click:  Help control-menu box

The Help window is closed.

Defining a Table Structure

As you learned from Help, a field name should be descriptive of the contents of the data to be entered in the field. It can be up to 25 characters long and can consist of letters, numbers, and underscores.

The first field of data you will enter in the table is the employee number. The employee number field will contain a four-digit number that is assigned to each employee when hired. Each new employee is given the next consecutive number, therefore no two employees can have the same four digits.



You have decided to name the first field "Employee number." The name can be typed in either uppercase or lowercase letters. Paradox will display the first character of the field name in uppercase and all other characters in lowercase unless you type them all as uppercase.

Mouse note: If you used the mouse to select the Help button, you must reselect the Field Name column.

The highlight is on the Field Name column, indicating it is selected. To enter the first field name,

Type:  **employee number**

As soon as you begin to type, an insertion point (blinking vertical bar) appeared to show your location in the column. Paradox automatically converted the first character of the field name to uppercase.

Since the data you will enter in this field is a maximum of four characters, you decide to shorten the field name to Employee #, so the field name is closer in size to the data that will be entered in the field. To correct the entry, you will delete the word "number" and type in the new character, #. The  key will delete the characters to the left of the insertion point. To do this, use  to erase the word "number."

Type:  **#**