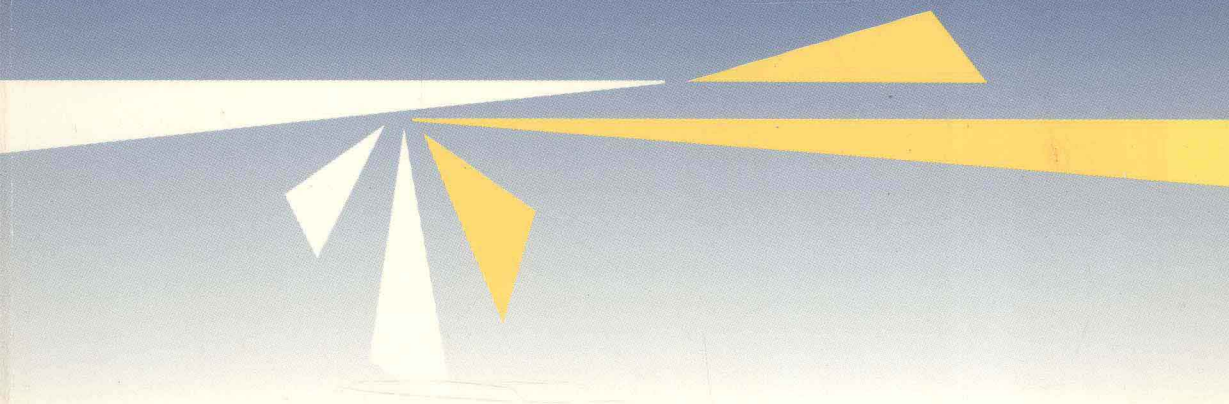
# Quick Start in Visual Basic



by Forest Lin

# Quick Start in Visual Basic

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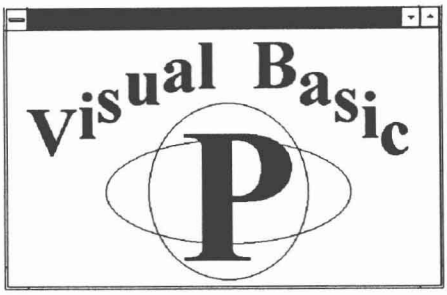


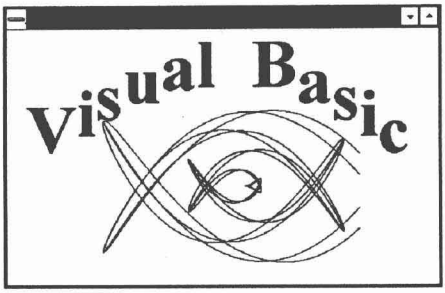

# Preface

This book is intended for beginners who have little or no knowledge of Windows or programming. It provides a relatively broad but not very deep coverage of Visual Basic 3.0 for Windows, Standard Edition. It is a slimmed-down version of its fuller (850-page) incarnation, *The Visual Basic Coursebook.*

Chapter 0 supplies the basic information on Windows 3.1. Since Visual Basic is used to write programs for Windows, you need some knowledge of Windows to be productive with Visual Basic.

The remainder of the book is divided more or less equally between Visual (designing user interface) and Basic (programming language). By the time you finish, you should be fairly proficient in Visual Basic.

Compared to a similar-sized book, this book covers much more Visual Basic features. To provide room for breadth in limited available space, depth is often sacrificed. Fortunately, there is ample online help supplied by Visual Basic. You'll be pointed out on proper occasions how to tap into this vast and helpful resource at your fingertip. So the book should get you started on a solid footing and help launch you to a higher altitude.

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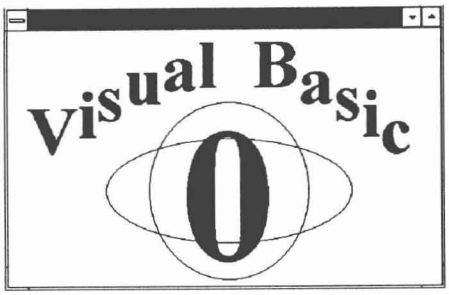


# PC, DOS, and Windows

This chapter tries to accommodate the complete novice who knows little or nothing about computers. Think of the 0 in the chapter number as a non-credit remedial course you have to take before you can enroll in a credit course. You need to know what is covered here before you can effectively learn to use Visual Basic. If you already know this stuff, you can simply ignore this chapter and move on to the next.

When you turn on your **PC** (personal computer), **DOS** (disk operating system) is booted (started). Windows then runs on top of DOS. A Windows-compliant program like Visual Basic then runs on top of Windows. As a Visual Basic user, you need to know a little about what lies underneath it. This chapter will concentrate mostly on Windows because you are likely to have more interaction with it than the layers below.

## PERSONAL COMPUTER

A PC consists of the main parts shown in Figure 0.1 The **system unit** contains a **CPU** (central processing unit, the electronic brain), **RAM** (random-access memory) for temporary storage of data, a motherboard to integrate all the parts, controller cards (boards) with electronic circuitry to connect to peripherals such as modem (for sending and receiving electronic messages), printer, keyboard, and so on. Inside the system unit, there is usually a hard disk (also known as a hard drive) and one or two floppy drives, which have openings for you to insert floppy disks (diskettes) to save data.

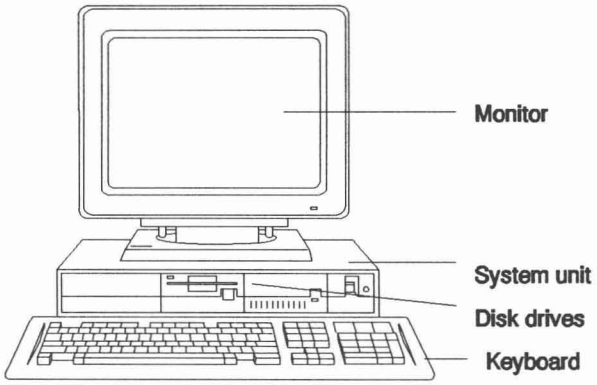


**Figure 0.1 A personal computer**

The **keyboard** is an input device. You type something and press Enter to give an instruction to the PC. The PC keyboard has a row of 12 function keys marked F1-F12. These keys are used by different programs for different purposes. The Caps Lock key turns on/off uppercase letters. The Num Lock key turns on/off the numeric keypad on the right side of the keyboard. When on, pressing a key here displays a number on the screen; when off, the arrow (cursor-control) keys are activated. The Shift, Ctrl, and Alt keys are combined with other keys for a variety of purposes.

The **monitor** is an output device. It displays what you have done and what the PC is doing in response. In a graphical program, the objects on the screen can be maneuvered with a **mouse**, which is another input device like a keyboard.

To store your own data, you need to be equipped with floppy disks. These come in two sizes, 5.25 inch (Figure 0.2) and 3.5 inch (Figure 0.3). These are not compatible; a 3.5-inch disk cannot be used by a 5.25-inch drive. If your PC has two different floppy drives, you can use either type of disks. If it has only one drive, you must have the exact matching type of floppy disks.

Each floppy disk has a write-protect device, shown at the top right of the two figures. On a 5.25-inch disk, you cover this hole with an adhesive tape to prevent writing data to the disk or erasing the existing data. On a 3.5-inch disk, you slide the built-in tab to the edge to show a see-through hole to write-protect the disk.

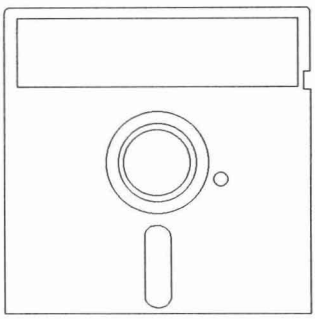

**Figure 0.2 A 5.25-inch diskette**

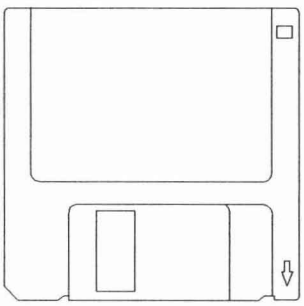

**Figure 0.3 A 3.5-inch diskette**

Most floppy disks for sale today come preformatted; they are ready to store data without your having to do anything. If they are not formatted, you need to use the DOS FORMAT command to format it; see the next section.

# DISK OPERATING SYSTEM

Each PC has a BIOS (basic input/output system) chip that contains instructions. When the PC is turned on, the instructions load DOS into memory. The DOS system prompt then appears as below:

```
C:\>_
```

This is the DOS **command line**. The blinking underscore character known as the **cursor** is where you can enter a command to tell DOS what to do next.

The **system prompt** usually consists of the drive's letter (C:), the current directory (\ represents the root directory) and the > sign. The first two will change if the current drive or **directory** (also known as a folder) is changed. For example, you can enter this command (type the command shown and press the Enter key) to show the result in the second line:

```
C:\>cd \dos
C:\DOS>_
```

To return to the root (the highest) directory, enter this:

```
C:\DOS>cd \
C:\>_
```

You can change the current drive by entering a drive letter followed by a colon. Put a disk in drive A and enter this:

```
C:\>a:
A:\>_
```

To show the files (data) stored in a disk directory, use the **DIR** command, like this:

```
A:\>dir
```

DOS has numerous commands. The following are commonly used:

| | |
|---|---|
| ATTRIBUTE | Shows or changes file attributes. |
| FORMAT | Prepares a disk for use by DOS. |
| CD | Changes directory. |
| COPY | Copies one or more files. |
| DEL | Deletes disk files. |
| DIR | Shows directory information. |
| DISKCOPY | Copies an entire disk. |
| MD | Makes (creates) directories. |
| PROMPT | Shows or changes command-line prompt. |
| RD | Removes directories. |
| SCANDISK | Diagnoses and repairs disks. |
| TYPE | Displays a text file's contents. |
| UNDELETE | Restores deleted files. |

**WARNING** FORMAT, COPY, DEL, and DISKCOPY can destroy data stored on a disk. Before you use these commands, make sure you know what you are doing. Never use FORMAT on a hard disk unless you are absolutely sure.

DOS since version 5 comes with an **online help**. If you are not familiar with DOS, you should take full advantage of it. To get an abbreviated help, enter this:

```
C:\DOS>dir /?
```

The above command consists of a DOS command name followed by a slash and a question mark. To get the full help, enter this:

```
C:\DOS>help dir
```

If you don't know a command's name, just enter HELP alone. The resulting screen will show you all the names, which you can choose to show a series of related screens. When you are done, select Exit from the File menu and you will be returned to the DOS command line.

# WINDOWS DESKTOP

If your hard disk has Windows installed, turning on the PC will boot DOS, and the batch file named AUTOEXEC.BAT will automatically load Windows. If this is not the case, you need to go to the C:\WINDOWS directory and load Windows like this:

```
C:\>cd \windows
C:\WINDOWS>win
```

After a while, the initial Windows screen appears, as shown in Figure 0.4. This is the **Windows desktop**.

The central theme of Windows is to let the user open a series of windows and switch from one to another to perform different tasks. All these begin from the Windows desktop. Your monitor screen is treated as a desktop and objects are displayed and arranged as you would on your desktop.

Keep in mind that the Windows desktop is like a chameleon. It can be changed many ways. What is shown here may not resemble what your screen will show. If you wish, your screen can be made to look like this.

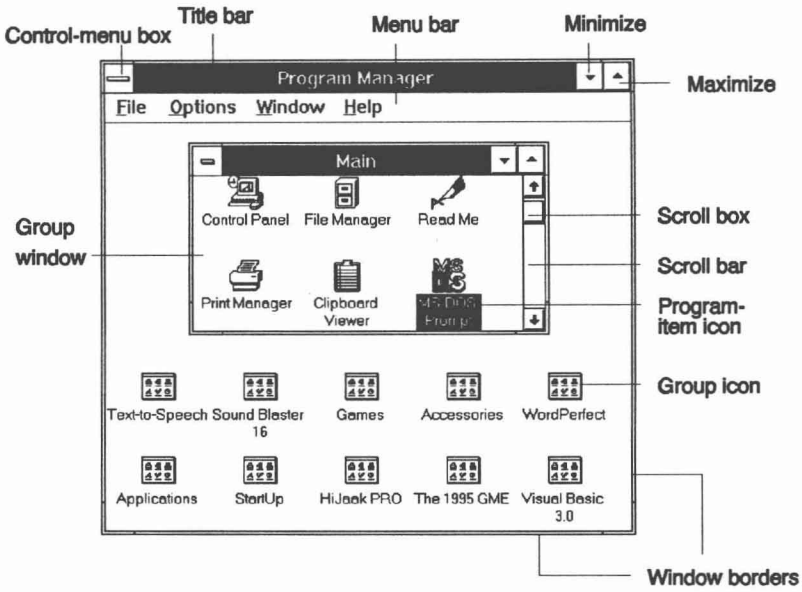


**Figure 0.4 The Windows desktop**

The outer window is the Program Manager window. It can contain other windows, icons, menus, and other objects. Here are the major components and what you can do with them:

**Title bar** Each window has a title bar. You can drag this bar to move the entire window. This is the easiest way you to move a displayed window.

**Menu bar** Some windows contain a menu bar. In that case, you can choose a menu option to execute a command.

**Control-menu box** Each window has a control box at the top left corner. Double-clicking it closes the window. You may be prompted to save data or with a Yes/No prompt. Clicking the control box displays a menu, which will be explained shortly.

**Minimize/Maximize button** You can click these triangles to reduce a window to an icon or expand it to fill up the entire screen. When a window is maximized, a restore button (combining both triangles) appears; you can click it to restore the window's original size.

**Borders** The borders are marked by double lines. When you move the pointer over a border, the pointer becomes double-headed. You can then drag it to change the window's size. When the pointer is over a corner, the double head becomes slanted. You can then drag it to resize the window both horizontally and vertically.

**Group window** A group (or program-group) window, such as Main, contains a group of related programs. It has no menu bar. Such a window can be created by the user or by a program during its installation. You can use the File menu to modify or delete such a window.

**Group icons** When a group window is minimized, it becomes an icon. All group icons are identical. A label directly below each icon distinguishes it from another. You can double-click a group icon to expand it to its original size. A group icon can be dragged to any location inside the Program Manager window. It will stay where you put it. If this window becomes messy, you can choose Arrange Icons from the Window menu. All the icons will then be neatly rearranged.

**Program-item icon** Each program in a group window is represented by a distinct program-item icon. Each icon can be dragged to a new location inside the same window; some items may be automatically rearranged. You can double-click such an icon to run a program. That program then appears in a separate window with a menu bar and other accessories.

**Scroll bars** A window may have a horizontal and/or vertical scroll bars when items are only partially displayed. If all the items are fully displayed, then no scroll bar appears. You can drag the displayed scroll box to display more items. You can click the up and down arrows to move by small increments or the area above or below the scroll box to move by larger increments (faster).

**NOTE** You can double-click a window's title bar to toggle (switch) between the normal size and the maximized size. Each time you double-click, the window is switched to the opposite size.

When multiple windows are open, only one can be active. Its title bar is highlighted. It may also cover up other windows. You can make a window active by clicking any exposed area of that window. This will bring it to the

top (foreground) of multiple overlapping windows. To switch to hidden windows, use the techniques discussed in the next few sections.

## TIP: Mousing Around

If you are new to a graphical user environment, you need to get familiar with some of the basic terms and techniques of using a mouse, which is commonly used to control that environment.

- The **pointer** or mouse pointer is an arrow that appears on the screen. You can roll the mouse ball to move the pointer.
- **Clicking** an object means moving the pointer to the specified object, pressing the left mouse button and releasing it.
- **Double clicking** requires pressing the same button twice in rapid succession.
- **Dragging** requires holding down the left button and rolling the mouse to a desired location. The involved object will move as you drag it. Release the button when the object arrives at the desired location.

# Two Types of Windows

There are two types of windows, **application window** and **document window**. The latter is a subsidiary (child) of the former. When you run a program, a word processor for example, an application window is opened. When you open different windows to write different letters, you open document windows.

There are two ways to distinguish these two types of windows. An application window has a menu bar, but a document window does not. An application window's control-menu box has a horizontal bar that is longer than the counterpart in a document window.

Figure 0.4 shows Program Manager as an application window and Main as a document window. If you click Main's Minimize button, it will be reduced to an icon inside its application (Program Manager) window.

If you maximize a document window, it fills up its the application window. Figure 0.5 shows Main maximized. The combined title bar—Program Manager - [Main]—clearly shows the merger. The Restore button also appears. If you click it, the Main window will be restored to the size before maximizing.

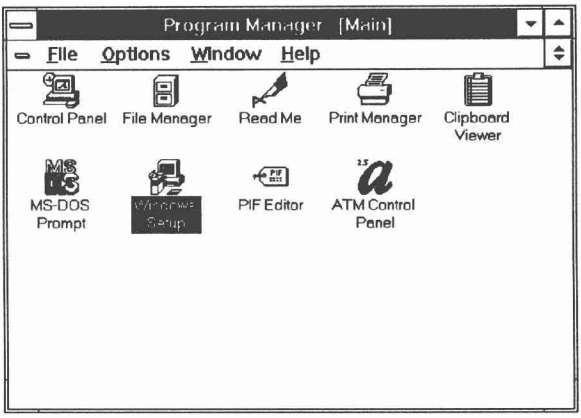


**Figure 0.5 A maximized application window**

As stated earlier, only an application (not document) window has a menu bar. The sole menu system can be applied to everything inside the application window. So if you want to do something to the Main window, use the menus in the Program Manager window.

When an application window is minimized, it is reduced to an **application icon**. Each application icon has a unique picture and a unique label. Figure 0.6 shows three application icons at the bottom of the screen. Notice that they are outside the Program Manager window. If we minimize the Program Manager window, its icon will be added to the bottom and the screen will be mostly empty.

A minimized application icon is initially placed at the bottom. You can drag an application icon to anywhere on the screen except inside another window. It will stay there even after you activate the application and minimize it again. To activate a minimized application, just double-click it.