CHAPTER 1, SECTION 2

Computers Today

Today computers are everywhere. Both large and small businesses use computers for everything from word processing and bookkeeping to desktop publishing. Computers are used at home for personal finance, correspondence, education, entertainment, and more. Because computers have become inexpensive to make, they have also become a part of many products we buy. Special purpose computers are usually made to carry out a specific task, whereas other computers are made to be programmed for a variety of tasks.

COMPUTERS FOR SPECIFIC PURPOSES

Computers can now be found in our wrist watches, cameras, televisions, and VCRs. In automobiles, computers control fuel injection and the spark plugs. Computers monitor everything from fuel efficiency to the comfort of the passengers. Computers tell automatic transmissions when to shift gears. Computers can also help you quickly change from one radio station to another.

Specific purpose computers can be used for little else other than for what they are designed to accomplish. For example, the computer in a camera calculates the settings and exposure time required for a perfect photograph, but it can't help you with your math homework. The computer in your VCR will remember to record your favorite show Tuesday night at 8 PM, but it can't remind you that you have a project due tomorrow.

GENERAL PURPOSE COMPUTERS

The kind of machine most people think of when they hear the term *computer* looks something like Figure 1-7. What makes this computer system so popular is that it can perform a wide variety of tasks. Computers like the one in Figure 1-7 are general-purpose computers and can be programmed to perform many different tasks. General purpose computers can balance checkbooks, perform calculations, schedule events, help you write letters, store important information, and (of course) play great games. Try to do all that with the computer in your car's transmission.

SYSTEM COMPONENTS

The equipment that makes up a computer is called ***hardware.*** Each piece of hardware is involved in one of four tasks: input, output, processing, or storage.

INPUT AND OUTPUT

All computers, whether on your wrist or on your desk, ***interact*** with someone or something. Interaction involves getting information and giving a response. In a computer, this interaction is called ***input*** and ***output.*** For example, input could be a user entering customer names and addresses into a database program. An example of output would be the printing of mailing labels from a database.

A desktop computer interacts primarily with people. A typical desktop computer interacts using a keyboard, a mouse, speakers, a monitor, and a printer. Some desktop computers may also have other input and output devices, such as

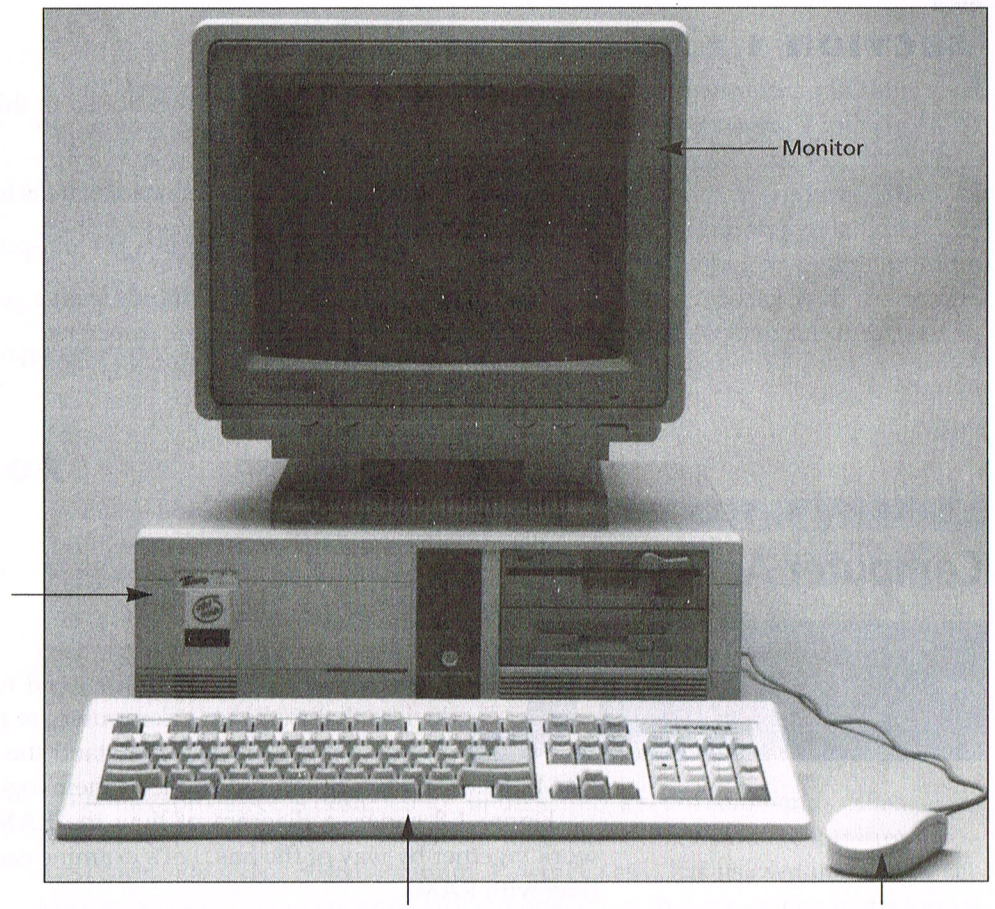

FIGURE 1-7
A typical microcomputer system includes a monitor, keyboard, mouse, and system unit.

a microphone or modem. A ***modem,*** which is a device that allows interaction to occur between computers over the telephone, is capable of both input and output.

The keyboard, mouse, and microphone are input devices. The computer uses these devices to get information and instructions from the person using the computer (the user). The computer gives information back to the user via output devices, such as the monitor, printer, and speakers.

You may not have thought about speakers as an output device, but they have become an important way for the computer to give information to the user. Early computers were incapable of sophisticated sound output. They could only beep. Now multimedia computers speak, play music, and have sound cards that add realism to games.

When you think of computer input and output, you may think of data going in and answers coming out. For example, a program might receive the temperature in Fahrenheit as input and then convert it to provide the temperature in Celsius as output. But even a game has input and output. The keys you strike, or the movement of a mouse or joystick is the input. The image on the monitor and sound through the speakers is the output.

PROCESSING AND STORAGE

At the heart of the computer, the inputs are processed and stored, and output is created. This is accomplished using a variety of devices such as a microprocessor, RAM, ROM, a bus, and disk drives. In the next section, you will learn more about these devices and how they work together.