

5

Software

By the end of this unit you should be able to:

- Distinguish between operating software and application software
- Identify various types of application software

Unit at a glance

- **Operating system software (OS)** are programs that coordinate all the activities among computer devices. The OS contains instructions that allow the user to run application software.
- Examples of common operating systems include Windows, Mac OS, OS/2, Warp, UNIX, Linux and Apple.
- **Application software** are programs that perform specific tasks for users, such as games, Internet browsers and antivirus software.
- Examples of common application software include word-processing software, spreadsheet software, database software, presentations software and graphics software.

As you have already learnt, a computer is able to perform tasks automatically, under the direction of a program. A program is a set of instructions, written in a logical sequence. All computer programs are known as software. The term hardware is used to refer to all of the physical parts of the computer system. Every tangible part of the computer (including the disks) is hardware. The programs that are stored on the disks are called software. Because a computer is a programmable machine, it needs software before it can do any useful work.



Figure 5.1 *As a programmable machine, a computer needs software before it can do any useful work*

The software that a computer needs falls into two categories: an operating system and application software.

Operating systems software

Operating systems (also called systems software) are programs that control various parts of the machine and allow them to communicate with each other and work in unison. DOS (Disk Operating System) was the most popular and widely used operating system. Microsoft programs such as Windows XP, Windows Vista and Windows 7 are now most commonly used. UNIX is a multi-user operating system developed to run on almost any computer, from PCs to mainframes. The Macintosh Operating System (Mac OS) is designed to run on Apple computers. Other examples of operating systems include OS/2, Warp and Linux.

An operating system runs the whole time that a computer is switched on. It manages all of the operations of the computer system. For example, it controls the transferring of data between the main memory of the computer and the peripheral devices. The operating system allocates memory to programs and schedules the running of programs on the central processing unit. The OS converts the various hardware parts into a single functioning unit that is able to perform the tasks required by the user. The operating system tells the computer how to:

- Transfer files from main memory to the disks and vice versa.
- Execute an application program.
- Keep a record of all the files that are stored on the hard disk.
- Keep a record of all the used and available space on the hard disk.
- Copy programs and data to and from the computer.
- Find out what is stored on a disk.
- Organise the contents of disks into folders or directories.
- Delete unwanted files from the hard disk.
- Manage the input and output devices that make up the hardware components of a computer.
- Recognise keystrokes and mouse clicks that the user makes and display them on the screen as output.
- Send screen contents to the printer when a user gives a command.

The hardware of a computer may be compared to an automobile. Without a driver the automobile is useless. The operating system may be called the 'driver' of the computer system. The system becomes functional when the OS is loaded onto the computer. An operating system works in the background to make operating the computer hardware a straightforward task.

The OS loads when the computer is booted or started. This means that at start-up the OS must be taken from storage and placed in the computer's main memory. This process is called **booting**.

Windows is one type of systems software that works with DOS to make the computer more user friendly. Before Windows was developed, the PC user had to memorise and type in all commands. Windows is a **graphical user interface** (GUI). A GUI is a program that uses graphical display (icons and menus) as a means of interaction between the user and the computer. Windows issues the DOS commands to the computer when the user performs actions such as clicking on the icon or menu item with the mouse.

DID YOU KNOW?

A window is a section of the screen that is used to display an open program, file or folder. You can open several windows at the same time. For example, you can open your email in one window, type a letter using a word processor in another, and use an encyclopedia CD in another window. The name of each window is displayed on the **taskbar** at the bottom of the screen. You can switch from one window to another by clicking on its name in the taskbar.

To do

- 1 Explain the purpose of operating system software.
- 2 Differentiate between a disk operating system and a graphical user interface.

Applications software

Applications software is the software that is used to actually perform specific tasks on the computer. This means that you use applications software to perform a variety of tasks such as drawing a picture, playing a game or recording music. These tasks would have to be carried out even if computers did not exist.

Applications software is created by an individual or a corporation and sold or given away as **freeware**. A **licence agreement** between you and the creator of that software generally allows you to use the software, but prohibits you from making copies of it to sell. The copying of software is called **piracy**. It is illegal and punishable by law.

You will be using application programs such as word processing, spreadsheet, database management and presentation software. These are discussed in detail in Section II, Units 8 to 11. Some other commonly used applications are discussed below.

Accounting programs

Accounting programs are designed to keep and organise financial information. This information includes employee payrolls, sales and purchases ledgers, bank transaction records and records of suppliers. It is easy to print the information as financial reports.

Stock control

Stock control software allows businesses to keep organised records of the quantities of items they have in stock. Most stores and supermarkets now use electronic scanners

at their checkouts. The data is input directly into their stock control system so that they are notified when it is time to order new supplies. Some stock control systems automatically place orders with suppliers when stocks fall below a predetermined level.

Desktop publishing

Desktop publishing (DP) programs are used for the design, layout and printing of publications such as documents, books, magazines, flyers and newsletters. These programs combine word processing, graphics, design and printing into a single program. They allow you to define the size and shape of a page, to position text and pictures, and manipulate the appearance of the text. Desktop publishing allows you to display information in a wide variety of formats similar to those used by professional typesetters and designers.

Graphics software

Graphics programs enable artists to create pictures, and engineers and architects to create designs. Some graphics programs contain pre-stored drawings (clipart), photographs and background designs. Many word-processing and spreadsheet programs now include graphic elements in them.

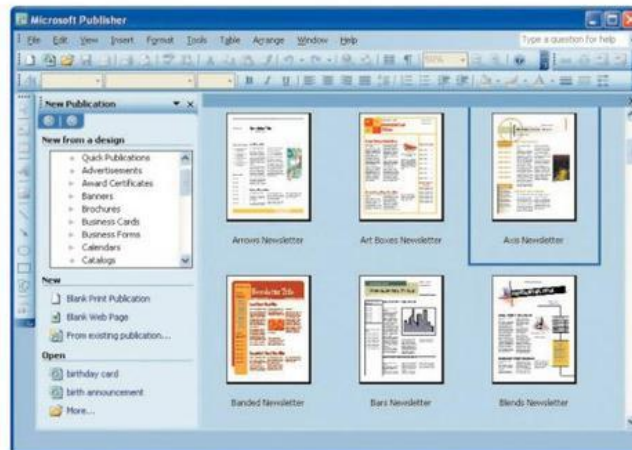


Figure 5.2 Microsoft Publisher: a DP program

Computer-aided design (CAD) allows you to produce two- and three-dimensional designs on a computer screen. These designs can then be easily altered when necessary. CAD is now used in clothing design, interior decorating and manufacturing, to name a few examples.

Communications programs

Communications programs allow computers to 'talk' to each other. Browsers are programs that allow you to access and search through the Internet. Other communication programs are used to send and receive electronic mail (email) and to chat with other computer users in different locations.

My glossary

Write definitions of the following terms.

Accounting program
 Applications software
 Communication program
 Computer-aided design
 Desktop publishing program
 Graphical user interface
 Graphics program
 Operating system
 Stock control program



Figure 5.3 Windows Messenger: a communication program

Examination-type questions

- 1 Define the term 'software'. (2 marks)
- 2 Explain each of the following terms:
 - a Freeware
 - b Software piracy
 - c Graphical user interface (6 marks)
- 3 Clearly explain the difference between operating systems software and applications software. (3 marks)
- 4 Name three examples of operating system software. (3 marks)
- 5 Identify three types of applications software, clearly stating the purpose of each. (6 marks)