

CHAPTER 3

COMPUTER SOFTWARE

3.1 Software

As you are aware, computer cannot do anything on its own. It is the user who instructs computer; what to do, how to do and when to do. In order to perform any task, you have to give a set of instructions in a particular sequence to the computer. These sets of instructions are called **Programs**. **Software** refers to a set of programs that makes the hardware perform a particular set of tasks in particular order. Software can be classified mainly into following categories and sub-categories are shown in Figure 1

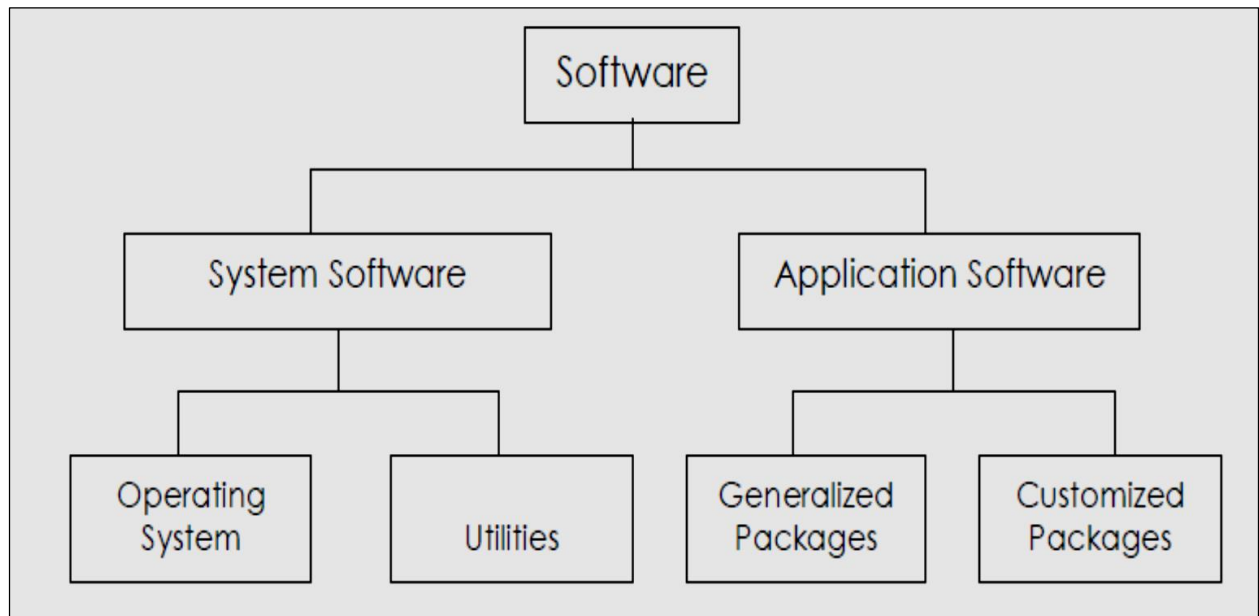


Figure 1

3.1.1 System Software

When you switch on the computer the programs stored in ROM are executed which activates different units of your computer and makes it ready for you to work on it. This set of programs can be called system software.

System software are sets of programs, responsible for running the computer, controlling various operations of computer systems and management of computer resources.

➤ Operating System (OS)

Operating System (OS) is a system software that provides an interface for a user to communicate with the computer, manages hardware devices (disk drives, keyboard, monitor, etc), manages and maintains disk file systems and supports application programs. Some popular Operating systems are UNIX, Windows and Linux.

Operating system set up the computer environment. A personal computer requires a single-user environment. Many operating systems are available for personal computers. They include MS DOS, 05/2, MAC for Apple Macintosh computers, XENIX which is the microcomputer version of UNIX from the Microsoft Corporation and MS Windows. A multi-user system environment is provided by operating systems like UNIX, Windows NT or Linux. A networked computer system requires a network operating system like Novell NetWare.

Functions of Operating System:

An operating system performs the following functions:

1. Resource management

Allocation of computer resources such as memory to various jobs is done by the operating system. It manages hard disk storage, the CPU, main memory and other peripheral devices.

2. Data management

Operating system provides data management facilities such as data organization and retrieval from secondary storage devices. Files are created, named, read, deleted and renamed by the operating system.

3. Job management

In multi-user systems, it selects new jobs for execution according to the priority fixed.

4. Input/output management

It manages the flow of data and instructions between the input/output devices and primary storage. It allocates and manages I/O devices. It provides I/O instructions to start printing, stop printing etc. If user intervention is required, for example, when printer is run out of paper, the operating system sends an appropriate message to the user.

5. Maintaining Security

Maintain security, communication of error and error control messages to the users, etc. are the other functions of the operating system.

6. Conflict resolution

When two or more programs call for the same resource simultaneously, it results in conflict. Conflict resolution is another major function of the operating system in

multi-user systems. In resolving conflict between applications, the operating system takes into account factors like criticality of applications, priority of the user etc. and allocates resources accordingly. Many operating systems have a set of modules that can be tailored for the requirements of users.

3.2.2 Application Software

Application software is a set of programs, which are written to perform specific tasks, for example: An application package for managing library known as library information system is used to manage information of library such as: keeping book details, account holder details, book issue details, book return details etc. Another application package for managing student details is called student's information system, manages student's roll no, name, parents name, address, class, section, processing of examination results etc. Application software can be broadly classified into two types:

(a) Generalized packages.

(b) Customized packages.

(a) Generalized packages.

These are user friendly softwares written to cater to user's very general needs such as preparing documents, drawing pictures, database to manage data/information, preparing presentations, play games etc. It is a group of programs that provide general purpose tools to solve specific problems. Some of the generalized packages are listed below.

- 1. Word Processing Software(for preparing documents):** Word Perfect, MS-Word, OpenOffice.org Writer

2. **Spreadsheets (Data Analysis):** Lotus Smart suites, MS-Excel OpenOffice.org Calc, Apple Numbers
3. **Presentations** : Presentation Graphics, MS-PowerPoint, OpenOffice.org Impress
4. **Database Management System:** MS-Access, OpenOffice.org Base, MS-SQL Server, ORACLE
5. **Graphics Tools:** Paint shop pro, Adobe Photoshop

(b) Customized packages.

These are the applications that are customized (or developed) to meet the specific requirements of an organization/institution. For Example: Student information details, Payroll packages, inventory control etc.

These packages are developed using high-level computer language.

3.2 COMPUTER LANGUAGES

Languages are a means of communication. Normally people interact with each other through a language. On the same pattern, communication with computers is carried out through a language. This language is understood both by user and the machine. Just as every language like English, Hindi has its grammatical rules; every computer language is bound by rules known as SYNTAX of that language. The user is bound by that syntax while communicating with the computer system.