3.5 Software

Software is a general term used to denote a set of programs that help us to use the computer system and other electronic devices efficiently and effectively. If hardware is said to form the body of a computer system, software is its mind or soul. There are two types of software:

- System software
- Application software

3.5.1 System software

It is a set of one or more programs designed to control the operations of a computer. They are general programs designed to assist humans in the use of computer system by performing tasks such as controlling the operations, move data into and out of a computer system and to do all the steps in executing application programs. In short, system software supports the running of other software, its communication with other peripheral devices. It helps users to use computer in an effective manner. It implies that system software helps to manage resources of the computer. Figure 3.12 depicts how system software interfaces between user and hardware.

Fig.3.12: Software with user and hardware interface

System software is a set of system programs which aids in the execution of a general user's computational requirements on a computer system. The following are the components of system software:

a. Operating system
b. Language processors
c. Utility software

a. Operating system

Operating system is a set of programs that acts as an interface between the user and computer hardware. The primary objective of an operating system is to make the computer system convenient to use. Operating system provides an environment for user to execute programs. It also helps to use the computer hardware in an efficient manner.

Operating system controls and co-ordinates the operations of a computer. It acts as the resource manager of the computer system as shown in Figure 3.13. Operating system is the most important system software. It is the first program to be loaded from hard disk in the computer and it resides in the memory till the system is shut down. It tries to prevent errors and the improper use of computer.

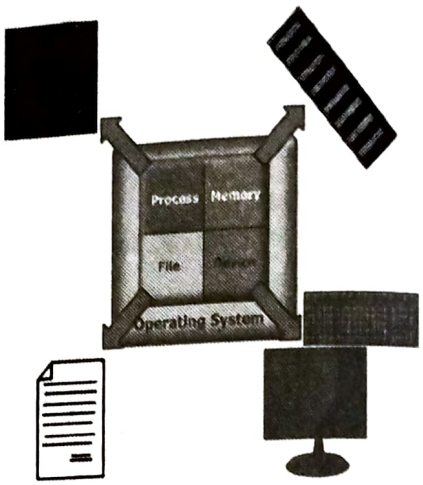

Fig. 3.13 : Operating System as a resource manager

The major functions of an operating system are process management, memory management, file management, security management and command interpretation.

i. Process management

By the term process we mean a program in execution. The process management module of an operating system takes care of the allocation and deallocation of processes and scheduling of various system resources to the different requesting processes.

ii. Memory management

Memory management is the functionality of an operating system which handles or manages primary memory. It keeps track of each and every memory location whether it is allocated to some process or it is free. It calculates how much memory is to be allocated to each process and allocates it. It de-allocates memory if it is not needed further.

iii. File management

The file management module of an operating system takes care of file related activities such as organising, naming, storing, retrieving, sharing, protection and recovery.

iv. Device management

Device management module of an operating system performs the management of devices attached to the computer. It handles the devices by combining both hardware

and software techniques. The OS communicates with the hardware device via the device driver software. Examples of various operating systems are DOS, Windows, Unix, Linux, Mac OS X, etc.

c. Language processors