1.1 OVERVIEW OF OPERATING SYSTEM

An Operating System is a master software that acts as an intermediary between the users of a computer and the computer hardware. It controls the internal activities of the computer hardware and provides user interface. In fact, it can be looked upon as enveloping the hardware.

1.1.1 Types of Operating Systems

Operating Systems may be classified into the following types:

(a) Single-user Operating System
(b) Multiuser Operating System
(c) Single-tasking Operating System
(d) Multitasking Operating System
(e) Real-time Operating System
(f) Network Operating System
(g) Distributed Operating System

Single-user Operating System

Operating system which allows only one user to work on a computer at a time is known as single user operating system. Examples include Windows 9x, Windows 7 etc.

Multiuser Operating System

A Multiuser operating system allows a number of users to work together on a single computer. UNIX is a multiuser operating system. It is not that all users will bump on a computer at the same time. Each user will be provided with a terminal and all such terminals will be connected to the single computer system.

☞ *Multiuser operating system running on a computer will manage the work of all users, without letting them know that they all are actually working on a single computer.*

Single-tasking Operating System

Operating system which can execute a single job at a time is known as Single-tasking operating system. For example, MS-DOS is a single tasking operating system because you can open and run only one application in DOS, at one time.

Multitasking Operating System

Multitasking operating system allows the user to perform more than one job at the same time on a computer. Most of today's operating systems such as Windows 9X, OS/2, UNIX, LINUX etc. support multitasking. For example, when you open MS-Word and Internet Explorer at the same time, the Windows operating system is doing multitasking. The operating system is able to keep track of where you are in each of these applications and switch from one to another without losing track.

Real-time Operating System

Real-time Operating Systems work towards providing immediate processing and also responding to user's commands in a very short time. Such an operating system is more commonly used in chemical industry for process control and scientific processing like airplane control and space vehicle control operations. Success of a real time system does not depend only on the correctness of the result, but also on the timeliness of the result. A correct answer obtained after the expiration of time limit is as bad as a wrong answer. Some examples of real time operating systems are HP-RT and VTWorks.

Network Operating System (NOS)

Network Operating System (NOS) is an operating system specifically designed to support interconnection of several computers. NOS provides support for multiuser operations as well as administrative, security and network management functions. Some examples of NOSs are Novell's Netware, Windows 2003, Artisoft's LANtastic etc.

☞ *A network operating system has to acknowledge and respond to requests from many workstations, managing network access, resource allocation and sharing, data protection as well as error control. It provides for printer, file-system, database and application sharing.*

Distributed Operating System

A Distributed Operating System hides the existence of multiple computers (interconnected by a network) from the user. That is, the user remains unaware of the fact that many computers are being used to process data. These computers may be located at many places around the globe. Distributed Operating System provides single-system image to its users. Each computer in a distributed computing system processes a part of the global distributed operating system. All these computers work in close coordination with each other. Processes and system resources are managed globally, and controlled from specific locations.

☞ *Users view the complete system as a "virtual uniprocessor" and not as a collection of machines. The distributed operating system works towards generating this illusion.*
