SP GROUP OF INSTITUTE

M1-R5.1 Information Tech. Tools & Networking basics

Chapter:2 Operating System

Operating System:-

Operating system:

An Operating system (OS) is a software program that controls the internal activities of the computer hardware and provides user interface, Application programs need to interact with the operating system for using hardware resources

Operating system acts as an interface between computer hardware and user. It manages and controls all the hardware and flow of data, instructions-and information to and within the system.

Functions of Operating system:

An OS performs the following function-

i.Processor Management

ii. Memory Management

ili Input/Output Management

iv. File Management

v. Security Management

vi. Time Sharing/Sheduling

1. Processor Management-

In multiprogramming environment, the OS decides which process gets the processor when and for how much time. This function is called process

scheduling. An Operating System does the following activities for processor management-

a. Keeps tracks of processor and status of process. The program responsible for this task is known as traffic controller.

b. Allocates the processor (CPU) to a process.

c. De-allocates processor when a process is no longer required.

ii. Memory Management-

Memory management refers to management of Primary Memory or Main Memory, Main memory is a large array of words or bytes where each word or byte has its own address

a. Keeps tracks of primary memory, ie, what part of it are in use by whom, what part are not in use

b. In multiprogramming, the OS decides which process will get memory when and how much

c. Allocates the memory when a process requests it to do so

d. De-allocates the memory when a process no longer needs it or has been terminated.

iii. Input/Output Management-

An Operating System manages device communication via their respective drivers. It does the following activities for device management-

a. Keeps tracks of all devices. Program responsible for this task is known as the

b. Decides which process gets the device when and for how much time

c. Allocates the device in the efficient way.

d. De-allocates devices

iv. File Management-

A file system is normally organized into directories for easy navigation and usage These directories may contain files and other directions.

An Operating System does the following activities for file management -

a. Keeps track of information, location, uses, status etc. The collective facilities. are often known as file system.

b. Decides who gets the resources

c. Allocates the resources

d. De-allocates the resources.

Types of Operating System:-

All operating system can be classified into many categories.

1. single user OS

il. Muiti User OS

iii. Single Tasking OS

Iv. Multi Tasking OS

V. Batch OS

vi. Time Sharing OS

vii Distributed OS

viii. Network OS

ix. Real time OS

a. Single User Operating System:-

An Operating system which allows only one user to work on computer at a time is known as single user operating system,

Example:- MS DOS

b. Multi User Operating system:-

A multi user operating system allows a number of users to work together on a single computer. Each user will be provided a terminal connected to a computer

Example:- Linux, Unix, window 7 etc.

c. Single Tasking Operating system:-

An operating system which can execute only a single task at a time is known as single tasking operating system

Example:- MS DOS

d. Multitasking operating system::

Multi tasking operating system supports execution of more than one

job at a time . Example:- UNIX, Linux, etc.

e. Batch operating system.

The users of a batch operating system do not interact with the computer directly, Each user prepares his job on an off-line device like punch cards and submits it to the computer operator. To speed up processing, jobs with similar needs are batched together and run as a group. The programmers leave their programs with the operator and the operator then sorts the programs with similar requirements into batches.

f. Time-sharing operating systems

Time-sharing is a technique which enables many people, located at various terminals, to use a particular computer system at the same time. Time sharing or multitasking is a logical extension of multiprogramming Processor's time which is shared among multiple users simultaneously is termed as time sharing.

g. Distributed operating System

Distributed systems use multiple central processors to serve multiple real-time applications and multiple users. Data processing jobs are distributed among the processors accordingly.

h. Network operating System

A Network Operating System runs on a server and provides the server the capability to manage data, users, groups, security, applications, and other networking functions. The primary purpose of the network operating system is to allow shared file and printer access among multiple computers in a network, typically a local area network (LAN), a private network or to other networks.

Examples of network operating systems include Microsoft Windows Server 2003, Microsoft Windows Server 2008, UNIX, Linux, Mac OS X, Novell NetWare, and BSD.

i. Real Time operating System

A real-time system is defined as a data processing system in which the time interval required to process and respond to inputs is so small that it controls the environment. The time taken by the system to respond to an input and display of required updated information is termed as the

response time. So in this method, the response time is very less as compared to online processing.

Operating System for Desktop and Laptop:

1. MS-DOS (Microsoft Disk Operating System):-

MS-DOS is one of the oldest and widely used operating system. DOS is a set of computer programs, the major functions of which are file management, allocation of system resources, providing essential features to control hardware devices.



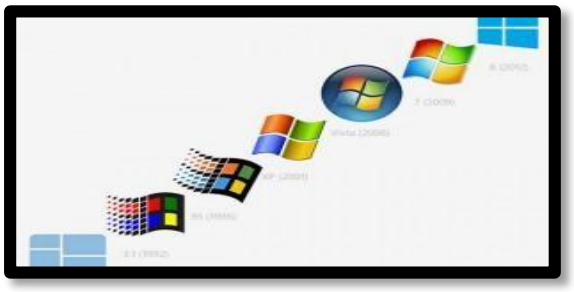
List of Internal & External DOS Command:

12	title	chkdsk
13	ver	sort
14	vol	find
15	dir	more
16	cls	telnet
17	color	mode
18	path	sys
19	chdir	diskcopy
20	echo	doskey
21	erase	backup
22	prompt	power
23	pause	print
24	lock	scandisk
25	goto	help
26	rename	
27	start	
28	unlock	
29	rmdir	

2. Windows:-

Microsoft Windows (also referred to as Windows or Win) is a graphical operating system developed and published by Microsoft. It provides a way to store files, run software, play games, watch videos, and connect to the internet

Microsoft Windows was first introduced with version 1.0 on November 10, 1983. Over a dozen versions of Windows were released after that, including the current version, Windows 10.



3. Linux:-

Linux is a multi user, multi tasking, open source operating system first developed by Linux Benedict Torvalds in the year 1991. Linux is a 32 bit operating system. It runs on a wide variety of platforms, such Intel, Sparc, Alpha, etc.

LINUX is an operating system or a kernel distributed under an open-source license. Its functionality list is quite like UNIX. The kernel is a program at the heart of the Linux operating system that takes care of fundamental stuff, like letting hardware communicate with software.



Linux Elements:-

Kernel-

Kernel is the core part of Linux. It is responsible for all major activities of this operating system, it consists of various modules and it interacts directly with the underlying hardware. Kernel provides the required abstraction to hide low level hardware details to system or application programms.

Shell-

Linux provides a special interpreter program which can be used to execute commands of the operating system. It can be used to do various

types of operations, call application programs, etc. The shell takes commands from the user and executes kernel's functions

File System-

Each file in the Linux is stored according to a particular sequence of directories. It uses forward slash(/) as a separator. All files and directories are connected to a root directory.

4. Mac Operating System:-

macOS is a proprietary graphical operating system developed and marketed by Apple Inc since 2001. It is the primary operating system for Apple's Mac computers. Within the market of desktop, laptop and home computers, and by web usage, it is the second most widely used desktop OS, after Microsoft's Windows NT.



Operating System for Mobile phone & Tablets

A mobile operating system (OS) is the software that allows mobile devices like phones, tablets and other smart devices like wearable technology to run applications and other programs. Most mobile operating systems only work on specific hardware. For example, an iPhone runs on IOS and a Google Pixel runs on Android



i. Android (Google)

Iii. iPhone OS/IOS (Apple)

iii. Bada (Samsung)

iv. Blackberry OS (Research in Motion)

v. Windows Mobile OS (Windows Phone)

vi. Symbian OS (Nokia).

vi Tizen (Samsung)

viii. MeeGO OS (Nokia and Intel)

User Interface:

1. GUI (Graphical user interface)
2. CUI (Character/command User interface)

Components of Window:

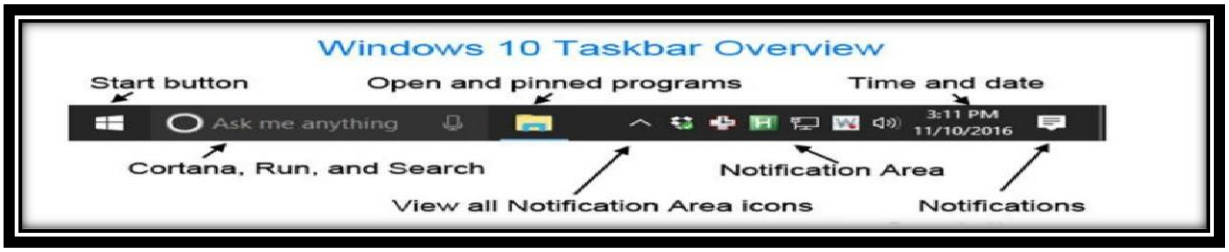
Desktop:

The desktop is the primary user interface of a computer. When we boot up our computer, the desktop is displayed once the startup process is complete.



Taskbar:-

The taskbar is an element of an operating system located at the bottom of the screen, It allows you to locate and launch programs through Start and the Start menu, or view any program that's currently open.



Icons & shortcuts:-

Icons:-

Icons are special types of buttons which include image and label given to that button are known to be object icons. There are basically three types of Icon like System Icons, User Defined Icons and Shortcuts.

Shortcuts:

Difference between the icons on the actual items on the left and the shortcuts that point to them deleting the shortcut does not delete the original item.



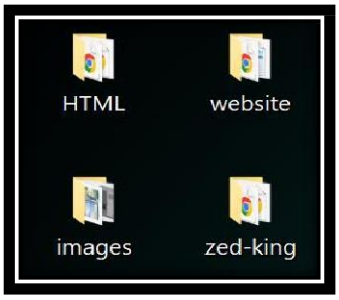
File:-

A file is any collection of related information that is given. a name and stored on a disk so that is can be read and manipulated whenever required.



Folder:-

A folder is a special kind of file that contains a list of other files or subfolders. The files on the list are said to be in the folder. Folder is also known as directory.



Types of File Extension

Image	.jpg, .jpeg, .png, .tiff, .gif
Audio	.mp3, .ra, .wav,
Video	.mp4, .3gp, .dat, .avi, .flv, .mpeg
Setup/Software	.exe
Winrar	.rar
Corel Draw	.cdr
Photoshop	.psd
Adobe reader	.pdf
Writer Document	.odt
Writer Template	.ott
Cal Spreadsheet	.ods
Cal Template	.ots
Impress Presentation	.odp
Impress Template	.otp