Computer Fundamentals

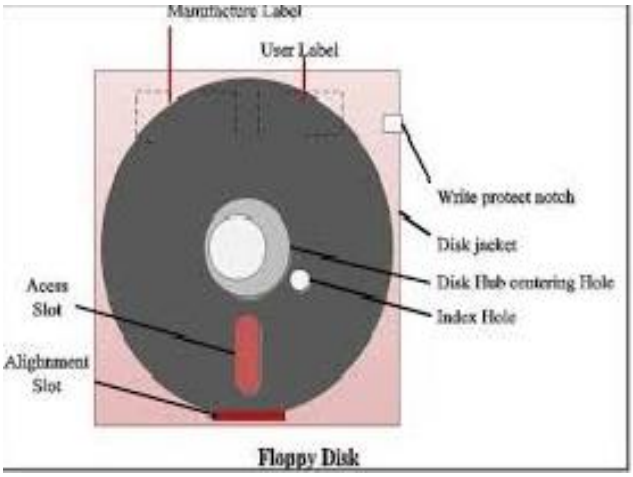
Unit-V

Mrs. Kiran Bala Dubey
Assistant Professor
Department of Computer Science
Govt. N. P. G. College of Science,
Raipur

UNIT - V Introduction to MS DOS & Windows

- **Introduction to DOS:** History and versions of DOS. Fundamentals of DOS: Physical Structure of the Disk, Compatibility of drives, Disks & DOS versions, Preparing Disks for use, Device Names. Getting Started with DOS: Booting Process (DOS, Windows, Unix), System Files and Command.com, Internal DOS Files & Directories, Elementary External DOS Commands, Creating a Batch Files, Additional Commands.
- **Microsoft Windows:** Operating system-Definition &functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel–display properties, adding and removing software and hardware, setting date and time, screen saver and appearance. Using windows accessories.

Physical Structure of the Disk




Spindle
Read/Write head
Saved file
Actuator
Disk
Arm
Front
Circuit board

Introduction to DOS

- DISK OPERATING SYSTEM (DOS) is a system software.
- It is called so because it resides on Floppy or Hard disk and provides command level interface between user and the computer hardware.
- functions of DOS -
  - Coordinates the input/output devices such as monitor, printers, plotters, disk drivers, etc.
  - Configures the computer hardware for required purposes.
  - Maintains an orderly system of files on the disk.
  - Manages computer's memory.
  - Enables the user to load and execute the programs

History & Versions of DOS

- DOS was an variant of CP/M (Control Program/Monitor) which ran for the first time on IBM-PC in 1981.
- As DOS was written by Microsoft Corporation, usually it is called MS-DOS.
- IBM has been licensed to use and sell the same DOS with their computer. In that case, when it marketed by IBM, the DOS is called PC-DOS.
- The different versions of MS-DOS have evolved over a period of time with Microsoft introducing new features in each new releases. Starting with MS-DOS1.1, the latest version was MS-DOS6.22 released in 1994.
- There are various versions of DOS like MS-DOS(Microsoft), PC-DOS(IBM), Apple DOS, Dr-DOS etc.

- Microsoft PC-DOS 1.0, the first official version, was released in August 1981. It was designed to operate on the IBM PC.
- Microsoft PC-DOS 1.1 was released in May 1982, with support for double-sided disks.
- MS-DOS 1.25 was released in August 1982. It was the first version titled "MS-DOS.“
- MS-DOS 2.0 was released in March 1983, designed for the IBM PC XT. It introduced support for hard disk drives.
- MS-DOS 3.0 was released in August 1984, designed for the IBM PC AT.
- MS-DOS 3.1 was released in April 1985. Marketed as "MS-DOS for networks," it was the first version of DOS that supported local area networks.
- MS-DOS 3.2 was released in April 1986, featuring support for 3 1/2 inch, 720 KB floppy disk drives.
- MS-DOS 3.3 was released in April 1987, designed for the IBM PS/2. It featured support for 3 1/2 inch, 1.44 MB floppy disk drives, and extended (non-primary) disk partitions.

- MS-DOS 4.0 was released in July 1988, featuring multitasking. It was used primarily in Europe, and is sometimes referred to as European MS-DOS 4.0.
- MS-DOS 4.01 was released in November 1988, introducing support for volume serial numbers. Unlike MS-DOS 4.0, version 4.01 did not feature support for multi-tasking.
- MS-DOS 5.0 was released in June 1991. It featured support for 3.5 inch 2.88 MB floppy disks, and a full-screen text editor, "edit."
- MS-DOS 6.0 was released in August 1993. It featured a help system in QBASIC, disk compression .
- MS-DOS 6.2 was released in November 1993.
- MS-DOS 6.21 was released in March 1994.
- MS-DOS 6.22 was released in April 1994. It was the last stand-alone version of MS-DOS to be released.

Booting process

- When the computer is switched on, the firmware program in Read Only Memory(ROM) also called Basic Input-Output System(BIOS) reads programs and data i.e. Operating System and loads it into memory (RAM). This process is known Bootstrapping(Booting).
- The OS once loaded takes control of the computer, handles user interaction and executes application programs.
- During Booting process, computer loads the operating system into its memory.
- DOS booting involves reading following files into memory namely IO.SYS, MSDOS.SYS, and COMMAND COM.
- The Basic Input/Output Program (IO.SYS): This program provides interface between the hardware devices and software of the system. It takes care of the keyboard input, character output to monitor, output to printer and time of the day.

- The File and Disk Manager Program (MSDOS.SYS) : It contains the file management and the disk buffering management capabilities. It keeps track of all the disk access of an application program and remains permanently in memory.
- The Command Processor (COMMAND.COM) : It is also called command interpreter. It is the program that displays the system prompt and handles user interface by executing the command typed in by the user using keyboard.
- The CONFIG.SYS file : This file contains reference to device drivers which are loaded when OS takes control of the computer. This device drivers are required for configuring operating system for running special devices.
- The AUTOEXEC.BAT file : This is a special batch program that is automatically executed when the system is started. It can be used to define keys, define the path that MS-DOS uses to find files, display messages on the screen etc.

- Any instruction given to the computer to perform a specific task is called command.
- The commands are of two types :
- **Internal Commands :** These are in built commands of MS-DOS i.e. these are stored in Command interpreter file (COMMAND.COM). These commands reside in the memory. To use these commands no extra /external file is required.
- **External commands :** These are separate program (.com) files that reside in DOS directory and when executed behave like commands.

Internal DOS Commands

- **DIR -** To list all or specific files of any directory on a specified disk.
  C:/> DIR
  C:/> DIR *.C

- **MD -** To make directory or subdirectory on a specified disk/drive.
  C:/>MD MYFILE

- **CD -** Change DOS current working directory to specified directory on specified disk or to check for the current directory on the specified or default drive.
  C:/> CD MYFILE
  C:/MYFILE>
  C:/MYFILE>CD..
  C:/>

- **RD -** Removes a specified sub-directory only when it is empty. This command cannot remove root directory (C:\) or current working directory.
  C:/> RD MYFILE

- **COPY -** Copies one or more files from source disk/drive to the specified disk/drive.
  C:/> COPY <source file> <target file>
  C:/> COPY P1.C D:
- **DEL -** Removes specified files from specified disk/drive.
  C:/> DEL P1.C
- **REN -** Changes the name of a file(Renaming).
  C:/> REN <old name> <new name>
  C:/> REN P1.C N1.C
- **VOL -** It is used to display the volume label.
  C:/> VOL
- **DATE -** Sets or displays system date.
  C:/> DATE
- **TIME -** sets or displays the system time.
  C:/> TIME
- **CLS -** Clear the screen.
  C:/> CLS
- **PATH -** Sets or displays directories that will be searched for programs not in the current directory.
  C:/> PATH;
  C:/> PATH [d:]path[;][d:]path[...]
- **TYPE -** Displays the contents of at the specified file.
  C:/> TYPE N1.C

External DOS Commands

- **CHKDSK -** Checks a disk and displays a status report.

  C:/> CHKDSK [volume[[path]file name]]] [/F] [/V] [/R] [/X] [/I] [/C] [/L[:size]] [/B] [/scan] [/spotfix]

- **MEM -** Displays memory usage. It is capable of displaying program size and status, memory in use, and internal drivers.

- **XCOPY -** Copy entire directory trees. Xcopy can move files and directories from one location to another.

  C:/> XCOPY <source > <destination>

- **PRINT -** The **print** command allows users to print a text file to a printer, in the background.

  C:/> PRINT [/D:device] [[drive:][path]file name[...]]

- **DISKCOPY -** A command for copying the complete contents of a diskette to another diskette.

  C:/> DISKCOPY A: B:

- **DISKCOMP -** A command for comparing the complete contents of a floppy disk to another one.

  C:/> DISKCOMP A: B:

- **DOSKEY -** A command that adds command history, macro functionality, and improved editing features to the command-line interpreter.

- **HELP -** Gives help about DOS commands.
  C:/> HELP CHKDSK

- **TREE –** This command allows the user to view an easy-to-read list of files and folders.
  C:/> TREE [Drive:[[Path] [/F]

- **SYS -** The sys command is used to copy the system files from one drive to another, allowing the second drive to be bootable.
  C:/> SYS [drive1:][path] drive2:

- **LABEL -** The label command is used to view or change the label of a computer's drives.
  C:/> LABEL [drive:][label]

- **ATTRIB -** Attrib changes or views the attributes of one or more files. It defaults to display the attributes of all files in the current directory. The file attributes available include read-only, archive, system, and hidden attributes.
  C:/> ATTRIB [+R | -R] [+A | -A] [+S | -S] [+H | -H] [+I | -I] [drive:][path][file name] [/S [/D] [/L]]

Additional commands

- **ECHO -** Displays messages or turns on or off the command echoing feature.

  echo [<message>]

  echo [on | off]

- **PROMPT -** The PROMPT command allows the user to change the prompt in the command screen.

  PROMPT [prompt text][options]

- **MODE -** The mode command is used to view or modify a port or display setting.

- **EDIT-** EDIT is a full-screen text editor, allows you to view, create, or modify any text file on your computer.

- **FORMAT -** It is used to erase information from a computer diskette or fixed drive.
- **FDISK -** It is used to create and delete partitions on the hard drive.
- **BACKUP -** It enables MS-DOS users to back up the data on their computer.
- **RESTORE -** It enables MS-DOS users to restore files from an external disk.
- **MORE-** It displays additional information one page at a time.
- **SORT -** to sort lines in the input data stream and send them to the output data stream

Creating a batch files

- A batch file is a script file in DOS and Microsoft Windows. It consists of a series of commands to be executed by the command-line interpreter, stored in a plain text file.
- When a batch file is run, the COMMAND.COM program reads the file and executes its commands, normally line-by-line.
- In DOS, batch files end with a .BAT extension.
- you can use any text editor (such as Notepad or WordPad) to create your batch files.
- In the MS-DOS prompt, type: **edit test.bat** and press Enter.
- This example batch file displays Hello World!, prompts and waits for the user to press a key, and then terminates.

```
@ECHO OFF
ECHO Hello World!
PAUSE
```

A batch file can be run in two ways:

- By double-clicking the file's icon in a Windows Explorer window.
- By typing the name of batch file in the command line.

  C:/> test

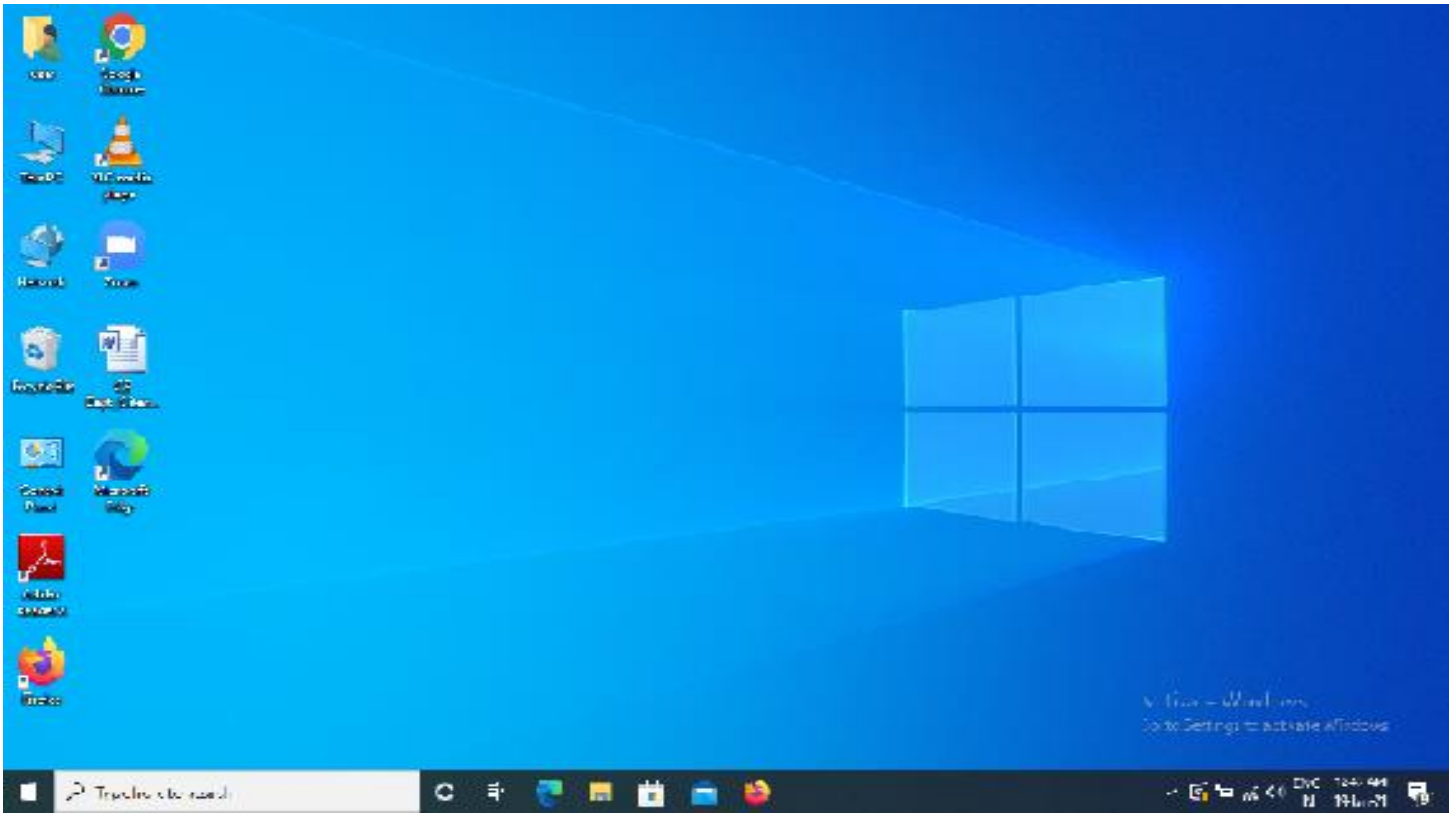
When executed, the following is displayed:

Hello World!

Press any key to continue . . .

Windows Concept

- Windows operating system is developed by Microsoft Corporation.
- It provides Graphical User Interface (GUI), multitasking capability to users.
- Features of WINDOWS OS –
  1. Speed
  2. Compatibility
  3. Lower Hardware Requirements
  4. Search and Organization
  5. Safety and Security
  6. Interface and Desktop
  7. Taskbar/Start menu



- **The following are some of the terms used to describe the Windows desktop -**
- **Desktop** refers to the background of your screen on which the various programs run. Think of your computer screen as your electronic desktop.
- **Icons** are those small pictures on the desktop and inside folders that represent various programs, specialized folders, etc.
- Icon is a small graphical representation of a program or file. When we double-click an icon, the associated file or program will be opened.
- There are 3 types of icons- System Icons, Shortcut Icons & Program folder and Document Icons.
- **Folders** are containers that can contain files, programs, data or other folders (sub-folders).

- **Title bar** refers to the bar at the top of an open window. The folder's title will tell you what the folder is used for. It contains the minimize, maximize and close buttons. You can use the title bar to move a window around.
- **Cursor** is the graphic pointer which indicates where the mouse is and what sort of action it is performing.
- **Task bar** refers to the bar usually at the bottom of your Windows screen (it is movable) containing the Start Button on the left and the clock and grouped icons on the right.
- A **Scroll Bar** appears when there is more information in the window than can be displayed. This is usually a vertical scroll bar, but a horizontal scroll bar may appear if the width of the window is too narrow. Windows 10 often hides scroll bars until you hover over them.
- The **Address Bar** tells you your location and provides the tools to navigate around your computer. These settings vary by Windows version and can be modified.

- The **Control Panel** is a collection of tools to help you configure and manage the resources on your computer. You can change settings for printers, video, audio, mouse, keyboard, date and time, user accounts, installed applications, network connections, power saving options, and more.
- The **Device Manager** lists the hardware devices installed in a computer. It allows users to see what hardware is installed, view and update hardware drivers, and uninstall hardware through the Device Manager.
- The **File Explorer**, also called Windows Explorer, provides you with a view of the files and folders on the computer. You can search for files and folders, and open, rename, or delete them from the File Explorer.
- The **Internet browser** is one of the most important applications on your computer. You can use it to find information on the Internet, view web pages, shop and buy goods, watch movies, play games, and more. Microsoft Edge is the default browser in Windows 10.

- **Microsoft Paint** is a simple image editor that you can use to create, view, and edit digital images. It provides basic functionality to draw and paint pictures, resize and rotate photographs, and save pictures as different file types.
- **Notepad** is a simple text editor. You can use it to create, view, and edit text files. Notepad is located in your Start menu under **Windows accessories**.
- **Wordpad**
- **Calculator**
- **Character map**
- **Recycle bin**