CHAPTER 3
DOS – (Disk Operating System)

MS-DOS ; acronym for **M**icro**s**oft **D**isk **O**perating **S**ystem is a discontinued operating system for x86-based personal computers mostly developed by Microsoft. Collectively, MS-DOS, it's rebranding as IBM PC DOS, and some operating systems attempting to be compatible with MS-DOS, are sometimes referred to as "DOS" (which is also the generic acronym for disk operating system). MS-DOS was the main operating system for IBM PC compatible personal computers during the 1980s and the early 1990s, when it was gradually superseded by operating systems offering a graphical user interface (GUI), in various generations of the graphical Microsoft Windows operating system.

3.1 Introduction & Features

The DOS (Disk Operating System) is the old and single user Operating System in the computer. Though it is not used by many people at present, it is better to study DOS with a view to understand how the files are created, maintained and copied in the computer. *As this operating system is mainly deals with different disks like floppy, hard disk etc., it is called as Disk Operating System (DOS).*

When we start the computer, it makes the system to work in its internal parts like RAM, ROM and other peripherals. Here it will check whether the operating system has been loaded in it or not. If it is loaded, it will start further operations. Disk operating system is thus that part of system which will co-ordinate with all the parts of a computer.

Functions of DOS (Disk Operating System)

1. It takes commands from the keyboard and interprets them.
2. It shows all the files in the system.
3. It creates new files and allots space for programme.
4. It changes the name of a file in place of old name.
5. It copies information in a floppy drive and hard disk.
6. It helps in locating a file.
7. It searchers where the file is located in the disk.
8. If we want the information in the file to be printed, it gives printout of the information.
9. It hides the files and directories so as not to be seen by others.
10. It permanently removes the file.

Features of DOS

The primitive operating system of DOS has the following features:

1. It is the **primary system** where the user will get an environment about the input and output devices, e.g. Monitor, Keyboard, Printers etc. viz. DOS provides features essential to control hardware devices such as Keyboard, Screen, Disk Devices, Printers, Modems and programs.
2. It is helpful in **performing file management** e.g., creating, editing, deleting files etc.
3. It is a **single user operating system.** One user can operate at one time in this operating system.
4. It is **Character Based** interface system. We can type letters (or characters in this operating system). DOS translate the command issued of the user in the format that is understood by the computer to execute it, also error message in the format for the user to understand.

3.2 Internal Commands – DIR, CLS, VER, VOL, DATE, TIME, COPY, TYPE, REN, DEL, CD, MD, RD
These commands are automatic loaded into the memory when operating system is loaded into the memory. Thus these are also called *memory-resident* commands. The commands available are all combined together and are stored in Command.com file, which is a executable command file. These internal commands are further grouped according to their properties.

Command	Used for	Syntax
CLS Clear the screen	This command is used to clear the screen or wipe out everything written on the screen.	C:\> CLS and press Enter
DIR Directory	Used for listing files and directories present in the current disk	C:\> DIR [/switches] Example:- C:\> DIR /D
VER Version	Version numbers indicates that which edition of DOS we are working on	C:\> VER press enter Output:- C:\>VER Windows 98 [Version 4.10.2222]
VOL Volume	Displays the disk volume label and serial number, if it exist	C:\> VOL press enter Output:-C:\>VOL Volume in drive C is JAI Volume Serial Number is 3E42-1907
DATE	Display the current Date	C:\> DATE C:\>DATE Current date is Fri 02-15-2002 Enter new date (mm-dd-yy):
TIME	Display current time	C:\> TIME C:\>TIME Current time is 8:38:47.70a Enter new time:
COPY CON	This command gives the facility to create a new text file	C:\> COPY CON <Filename> C:\>COPY CON Rose.txt A clock in a office can never get stolen Too many employees watch it all the time ^Z 1 file(s) copied ^C (CTRL+C) button to abort without saving
TYPE	This command is used to display the contents or text of any file to the display	C:\> TYPE <Filename> A:\>TYPE Rose.TXT

COPY	Copy command is used for copy any file to another location or to copy the files to another directory. This command may also be used for copying any file to another disk with different file name/device	:\> COPY <Source filename> <Target file name>
		 C:\>COPY ROSE.TXT ROSE.MSG
		      1 file(s) copied
		TO copy a file from *hard disk* to *floppy disk*
		C:\>COPY Rose.txt A:
		     1 file(s) copied
		To copy a file from *Floppy Disk* to *Hard disk*
		A:\>COPY LOTUS.TXT C:\
		1 file(s) copied

REN Rename	This command is used to change the name of any file or directory	C:\> REN <Source filename> <Target filename> C:\>REN ROSE.TXT GULBAL.TXT To changing the filename present in floppy disk C:\>REN A:\ROSE.TXT GULAB.TXT

DEL Delete	This command is used for erasing any file from the disk	C:\> DEL <Filename> C:\>DEL LOTUS.TXT
MD Make Directory	This command allows to create a new directory	C:\> MD <Dirname> C:\> MD REPORT
CD Change Directory	We can enter or exit from any directory using this command	To access any directory C:\> CD <Directory name> C:\> CD REPORT C:\REPORT> To exit from directory C:\> CD.. C:\REPORT> CD.. C:\>
RD Remove directory	This command is used when we want to remove any unusable directory form our disk	C:\> RD <Directory name> C:\> RD REPORT
PATH	This command is used for display or sets directories for executable files. This command display current path settings	C:\> PATH C:\> PATH=C:\WINDOWS\COMMAND;C:\WINDOWS\;C:\TC

3.3 External Commands - , ATTRIB, SCANDISK, TREE, MORE, EDIT

External commands are known as *Disk residence* commands, since they can be stored with DOS directory or any disk which is used for getting these commands. Theses commands help to perform some specific task. These are stored in a secondary storage device. Some important external commands are given below:-

Command	Used for	Syntax
MORE	Using TYPE command we can see the content of any file. But if length of file is greater than 25 lines then remaining lines will scroll up. To overcome through this problem we uses MORE command. Using this command we can pause the display after each 25 lines	C:\> TYPE <File name> | MORE C:\> TYPE ROSE.TXT | MORE or C:\> DIR | MORE
MEM	This command displays free and used amount of memory in the computer	C:\> MEM the computer will display the amount of memory
SYS	This command is used for copy system files to any disk. The disk having system files are known as Bootable Disk, which are used for booting the computer	C:\> SYS [Drive name] C:\> SYS A: System files transferred This command will transfer the three main system files COMMAND.COM, IO.SYS, MSDOS.SYS to the floppy disk.
ATTRIB	Sets the various type of attribute to a file. Like Read only, Archive, Hidden and System attribute.	C:\> ATTRIB [± r] [± a] [± h] [± s] <File name> here r - for read only, a- for archive, h - for hidden, s - for hidden attribute. C:\> ATTRIB +r Gulab.txt This command will change the attribute of

		file gulab.txt to read only mode. To remove the read only attribute we will follow this command. C:\> ATTRIB -r Gulab.txt
SCANDISK	This command is used to check the status of a disk and show the report of result status.	SCANDISK [d: [d: . . .]|/all][/checkonly|/autofix[/nosave]|/custom][/surface] [/mono][/nosummary] SCANDISK volume-name[/checkonly|/autofix[/nosave]|/custom][/mono] [/nosummary] SCANDISK /fragment [d:][path]filename SCANDISK /undo [undo-d:][/mono]
	• **Drive**	• The drive letter you want to scan
	• **volume_name**	• The name of the un-mounted compressed volume
	• **/all**	• Checks and repairs all local drives at once
	• **/checkonly**	• Checks drive for errors but will not make repairs
	• **/autofix**	• Fixes errors without asking you first. Saves lost clusters by default as files in the drive's root directory. Cannot be used with /checkonly or /custom
	• **/custom**	• Runs ScanDisk using the settings in [custom] section of the scandisk.ini file. Cannot be used with /autofix or /checkonly
	• **/surface**	• Automatically checks surface after other areas are tested without prompting you first. When used with /custom, will override any /surface setting in[Custom] section of scandisk.ini
	• **/fragment**	• Checks individual files for fragmentation. Must specify a drive, path, and file name; cannot use any other switches
	• **/mono**	• Uses a monochrome display instead of color
	• **/nosave**	• Deletes all lost clusters found by ScanDisk. Can be used with /autofix
	• **/nosummary**	• Prevents display of full-screen summary after each drive. Use with/autofix to prevent prompts for undo diskette
TREE	Displays directory paths and (optionally) files in each subdirectory	TREE [Drive:[[Path] [/F] [/A] /F Displays file names in each directory /A ext characters used for linking lines, instead of graphic characters. /a is used with code pages that do not support graphic

		characters and to send output to printers that do not properly interpret graphic characters
EDIT	Starts the MS-DOS editor which is a text editor used to create and edit ASCII text files /B /H /R /S /<nnn> /? [file]	EDIT [/B] [/H] [/R] [/S] [/<nnn>] [/?] [file(s)] Forces monochrome mode Displays the maximum number of lines possible for your hardware Load file(s) in read-only mode Forces the use of short filenames Load binary file(s), wrapping lines to <nnn> characters wide Displays this help screen Specifies initial files(s) to load. Wildcards and multiple file specs can be given.
XCOPY	When we need to copy a directory instant of a file from one location to another the we use xcopy command	C:\> XCOPY < Source dirname > <Target dirname> C:\> XCOPY TC TURBOC
MOVE	Move command is used for moving one file or multiple files from one location to another location or from one disk to another disk	C:\> MOVE <file name> <path name> C:\SONGS> MOVE *.MP3 C:\ SONGS\OLD SONGS\
FC File Compare	This command is capable for comparing two set of files and display difference between two files	C:\> FC <First set of file> <Second set of file> C:\> FC ROSE.TXT GULAB.TXT
SORT	This command is useful when we want to sort a file. When we run this command the result can be got to display device or file.	C:\> SORT /R < Input file name> <output file name> Suppose we have a file Player.txt which having the list of a cricket player team and we want to sort the list of players, then we use this command C:\> SORT Player.txt /R- switch is used for sorting the file in descending order like from Z to A or from 9 to 0
FIND	The FIND command is used to search a file for a text string.	C:\> FIND "String to search" <File name> C:\TEST>find "office" gulab.txt ---------- gulab.txt
DISKCOPY	DISKCOPY copies the contents of a floppy disk to another.	C:\> DISKCOPY <Drive1> <Drive2> C:\> DISKCOPY A: B: This command will be copy all contents of A drive to B drive
LABEL	If you are not happy with the volume label of hard disk, you can change it.	C:\> LABEL C:\>LABEL Volume in drive C is JAI Volume Serial Number is 3E42-1907 Volume label (11 characters, ENTER for none)? INFOWAY
FORMAT	This command creates new Track &	C:\> FORMAT [drive name] [/S] C:\> FORMAT A:

	Sectors in a disk. Every	this command will create new track & sectors. C:\> FORMAT A: /S This command will transfer system files after formatting the disk.

3.4 Wildcards (question mark? asterisk *)

Wildcard commands are used when we are working with multiple files instead of a single file at a time. These commands uses '?' and '*' symbols

The '?' wildcard character

Suppose we want to list out all the files and directories which have primary file name made of four characters and secondary name made of 3 characters, here we use DIR command with following switches

C:\> DIR ????.???

Here a '?' symbol represent that '?' can be any character or it may be special symbols.

Suppose we want to list out all the files which primary field name made of 4 characters, the first character start with 'C' and secondary name is 'EXE'. Then we use

C:\> DIR C???.EXE

The '*' wildcard character

If we want to list all the files with extension .EXE the command we give is-

C:\> DIR *.EXE

If we want to display all files with first character 'D' and extension 'EXE' in floppy disk, then we give the command

C:\> DIR A: D*.EXE

Some Internal commands with wild card

COPY:-If we have to copy the songs from our CD drive to our Hard disk. Then we suppose E:\ is our CD drive and we have to store all the songs in C:\ SONGS directory

C:\> COPY   E:\ *.MP3   C:\ SONGS

REN:- If we want to rename all the files which have extension of 'TXT' to extension 'MSG' then we give the command

C:\> REN *.TXT   *.MSG

DEL:- If we want to erase those files which have the extension of 'TMP' from our disk then we uses the command

C:\> DEL *.TMP

If we use /p switch the computer give ask every time before deleting the file. If we enter 'Y' the it will erase the file from disk either it will leave the file.