UNIT 4

What is booting process?

The process of turning on the system and loading operating system in memory (RAM) is known as booting.

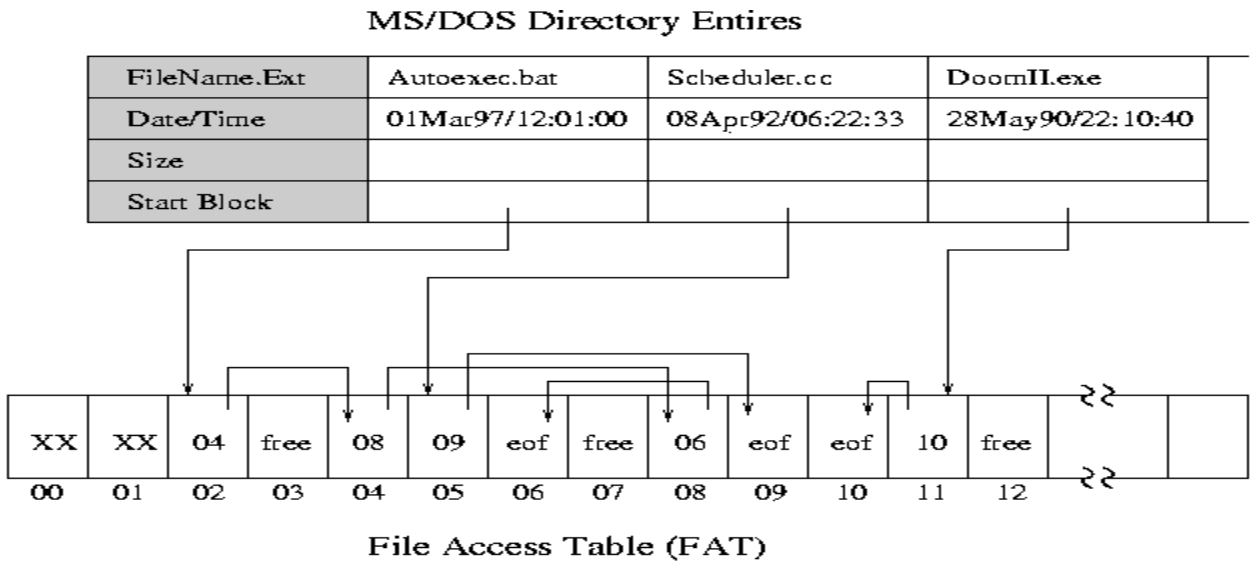
THE BOOTING PROCESS:

When the machine is switched on you will not be able to work directly as the operating system has to be loaded. In fact there are five processes that take place within the computing when the computer power is switched on. The processes are not seen by the user. These processes are:

1. P.O.S.T (Power On Self Test)
2. Counting of RAM (Random Access Memory)
3. Searching O/S in FDD (Floppy Disk Drive) or HDD(Hard Disk Drive)
4. Loading of the IO.SYS and MSDOS.SYS
5. Loading of COMMAND.COM
6. Configuring the system by reading the CONFIG.SYS file.
7. Executing AUTOEXEC.BAT file

The sixth and the seventh process is optional it take place only when the file CONFIG.SYS and AUTOEXEC.BAT is present on the root directory of the storage device from where the booting take place.

FAT : **FAT** stand for **File Allocation Table**. It is a table that an operating system maintains on a hard disk that a map of the cluster that a file has been stored. Short for File Allocation Table, FAT is a method of keeping track the content of the hard drive used by early Microsoft operating system. The table is a chart of numbers that correspond to cluster addresses on the hard drive. Below is a listing of the different types of FAT that have been used and the operating system using them. File Allocation Table (FAT) is computer file system architecture and a family of industry-standard file system utilizing it. A file allocating table (FAT) is a table that an operating system maintains on a hard disk that provides a map of the cluster that a file has been stored in. The FAT file allocation system is named for it methods of organization, the file allocation table, which resides at the beginning of the volume.



Directory Structures :

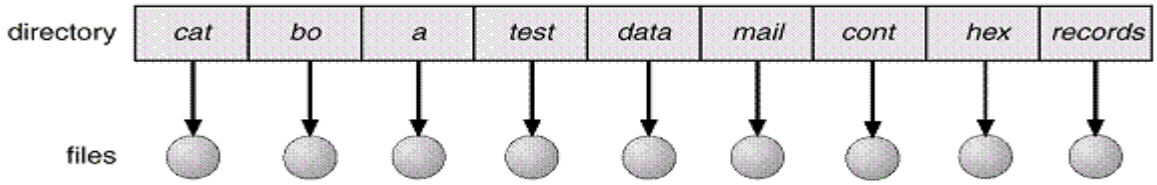
Information in a Device Directory:

1. Name
2. Type
3. Address
4. Current Length
5. Maximum length
6. Date lat accessed
7. Date last update
8. Owner ID
9. Protection information

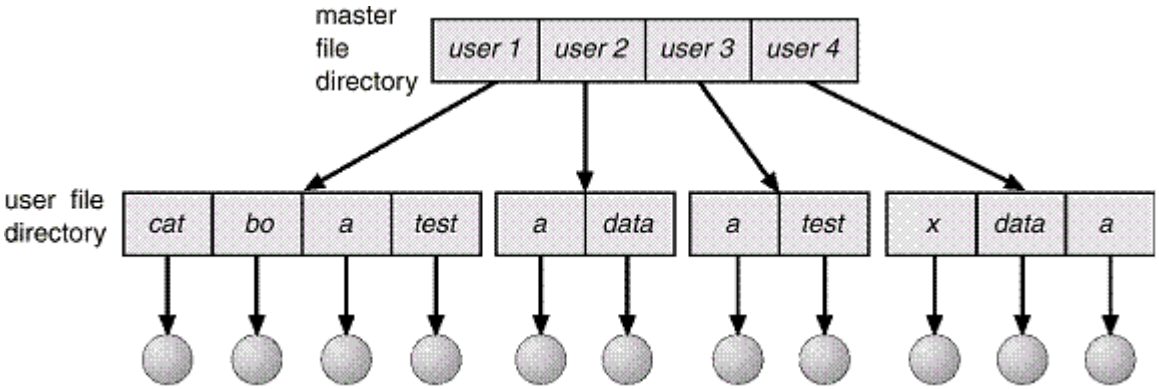
Operating Performed on Directory:

1. search for a file
2. Create a file
3. Delete a file
4. Lit a directory
5. Rename a file
6. Traverse the file system

1. Single-Level Directory :



2. Two-Level Directory : Separate directory for each user.



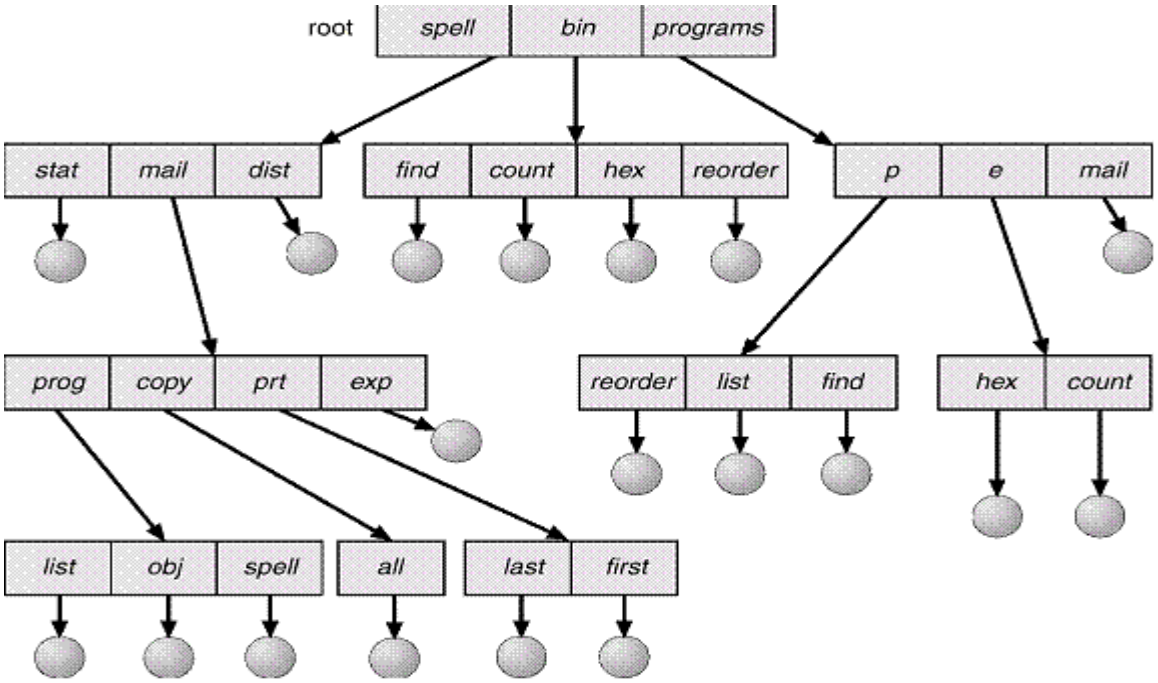
•Path name

•Can have the same file name for different user

•Efficient searching

•No grouping capability

3. Tree-Structured Directories:



Disk Operating System :

DOS consists of a number of programs which can be broadly classified into three categories.

1) The I/O processor
2) The Command processor.
3) The Utilities.

1) The Input /Output System :

The Input/Output system handles every character that is typed form the keyboard, displayed on screen or Printer. The I/O System of DOS is divided into two parts

i) BIOS (Basic Input Output System)
ii) The Filing System

i) BIOS:

The part of the DOS that communicates with the different peripherals is called the BIOS, which stands for Basic Input Output System. The computer BIOS is located in two places one is on the computers mother board, in the form of a ROM (Read Only Memory) chip. The other part of the Computer BIOS is stored in the file IO.SYS.

ii) The Filing System (MSDOS.SYS):

This is the part of the I/O system that holds the routines for controlling information passed between the computer and its peripherals.

b) The Command Processor:

This part of the DOS is stored in file Command.Com. The Command.Com is the program through which the user communicates & it in turn tells the rest of DOS what to do. When computer is started for the first time Command.Com is loaded in memory of the computer as indicated by a A:\> prompt or C:\> prompt. When the command is typed the COMMAND.COM intercepts the commands & takes appropriate action.

c) The Utilities:

Optional functions are available in the form of separate files called the DOS Utilities each of which is a program to do a specific task requested by user, for example For formatting a disk, it is required that FORMAT.COM should be available, without which it is not possible to format a disk. These optional functions which come along with the DOS operating system are known as the External Commands of DOS.

DOS commands:

DOS commands are of two types: Internal commands and External commands.

1. Internal Commands:

Internal commands are available in command.com file and while booting these commands are automatically loaded in the computer's memory. Commonly used internal commands are DATE, TIME,CLS,COPYCON, TYPE ,DEL,REN,MD,CD,RD,VER,DIR,VOL,COPY, etc.

2. External Commands:

To execute these commands e have to provide the programs from outside, commonly used external commands are FORMAT,XCOPY,CHKDSK, PATH,ATTRIB.

Internal Commands:

1.DATE Command:

The DATE command is used to display or change the data known to DOS. The general format form of this command is as follows:

Syntax: C:\>DATE [mm-dd-yy]

Example: C:\>TIME

mm indicates the month number

dd indicates the day number

yy indicates the year in the date

2. TIME Command:

The TIME command is used to display or change the time known to DOS. The general format of this command is as follows:

Syntax: C:\>TIME [hh:mm:ss:xx]

Example: **C:\>TIME**

Where, hh indicates the hour number

mm indicates the minute number

ss indicates the second

xx indicates the fraction of seconds in the time

3. **CLS Command:**

This command clears the screen. The general format of this command is as follows:

Syntax: C\:>CLS

Example : C\:>CLS

4. **COPY CON Command:**

This command can be used to create a new file from the keyboard. The general way of using this command is a given below:

Syntax: COPY CON filename

Example: To create a new file First.txt in the current directory, the following command should be executed

C:\> COPY CON First.txt

Whatever you type will be saved in the file, when you indicate the end of file by typing (^Z) Ctrl+Z, and then pres Enter Key.

5. TYPE Command:

This command is use to display the contents of an existing on the screen. The general format of this command is given below:

Syntax: Type [d:] [path] filename [.ext]

Example: C:\>Type ABC

This command will display the contents of a file ABC on the screen.

6. **DEL or ERASE Command:**

The Del and Erase commands are use to delete or remove one more existing file. The general format of this command are given below:

Syntax: C:\>DEL file-name [/p] or C:\>ERASE file-name [/p]

Where, / p option can be specified to ask and confirm before deleting each file.

Example: All the files starting with character "C" which re present on the current directory can be deleted by the command;

C:\>DEL C*.*

This command is used to delete all files from c:\>

C:\>ERASE C:\DOS\TEMP.TXT

It will remove a file TEMP.TXT which is present under the path C:\DOS

7. **REN or RENAME Command:**

This command is use to change the name of the specified file in the first parameter to the name and extension given in the second parameter. The general format of this command

Syntax: C:\> REN old-name-of-file new-name-of-file

Example:

C:\>RENAME MADRAS CHENNAI

Renames the file Madras to Chennai

C:\>REN *.DAT *.LST

This Will rename all the file having the 'DAT' extension, to the named file (corresponding name) having extension as "LST".

8. **MD or MKDIR Command:**

This command is use to create a subdirectory on the specified disk. The general format of this command of this format is as follows:

Syntax: C:\>MKDIR [D:] OR C:\>MD [D:]

Where "D:"indicates the drive letter of the disk, you want to create the subdirectory on. If it I committed the default drive is assumed.

Example:

C:\>MD LEVEL 1

Creates the subdirectory called LEVEL 1 in the current directory.

C:\>MD C:\LOTUS\FILES

Under the subdirectory FILES under the subdirectory LOTUS of the root directory of default drive (Drive c).

9. **CHDIR or CD COMMAND:**

This command can be used to change the DOS current directory of the specified or default drive. This command can also be used to display current directory path of a drive This command can be entered in the following format:

Syntax: CHDIR [d:][path] or CD[d:][path]

Example: C:\>CD

Display the current directory path of default drive.

C:\>CD C:\LOTUS\WK1

Changes the current directory of c the path\LOTUS\WK1.

C:\>CD..

The parent directory of current directory becomes the current working directory.

10. RMDIR or RD command:

This DOS command is used to remove a subdirectory form the specified disk. The format or this DOS command is as below:

Syntax: C:\>RMDIR [d:] path or C:\>RD [d:]path

Example: C:\>RD D:\LEVEL1\LEVEL2

The entry for LEVEL2 from the directory LEVEL1 will be removed.

If the subdirectory AMPLE I to be removed from the current directory them can use the following command:

C:\>RD SAMPLE

11. **VER command:**

Display the MS-DOS version number that e are working with on the screen. The format of this command I a follow:

Syntax: C:\>VER

The result may be a: (MS-DOS version 6.22)

12. VOL command:

Display the disk volume label of the specified drive. The format of this command is as follows:

Syntax: C:\>VOL [d:]

Observe that drive specification is optional. If it is omitted the default drive is assumed.

Example: The command

C:\>Vol

This will display the volume label of drive C. If the diskette in drive C has on label, the result will be this volume in drive A has no label.

13. COPY command:

This command is use to copy of an existing file into another file. The format of the copy command is as follows:

Syntax: COPY<source-file-name><target-file-name>

When copy command is given, DOS reads the contents of the source-file and copy them into the target-file.

Example:

C:\>COPY ABC PQR

By the above command, the existing file ABC can be copied into the file name PQR BY the command

C:\>COPY C:\DOS*.COM D:

All the file with extension .com is copied from DOS subdirectory of root directory of diskette in drive C are copied under the root directory of diskette in default drive D.

External Commands:

1. Format Command:

When a new disk is purchased from the market then it is not in such a condition (state) that it can be used to store the information on it. Before using this new disk for storing data, it should first prepare (formatted) by drawing tracks and sectors onto it. The FORMAT command can be used to format a newly purchased disk (or an old disk also if required)

Syntax: FORMAT : DRIVE [/S][/V][/Q][/U]

/S : To make disk bootable.

/V: To give disk volume label.

/Q : For quick formatting of disk.

/U : To format the disk unconditionally.

Example:

C:\> Format a:/s

This command is used to format a disk and make it bootable also.

2. XCOPY Command:

This command is used to electively copy group of file and file from the lower level subdirectory also if desired. The format of using this command is as follows:

Syntax: C:\> xcopy [source] [destination][/P][/S][/W][/E]

Hence source specifies the files(s) to copy and destination specifies the location and/or name of new files

/P Prompt you before creating each destination file.

/S Copies directories and subdirectories expect empty one.

/W Prompt you to pre a key before starting the copy producer.

/E Creates parallel subdirectories on the destination even if created subdirectory is empty.

Ex: To copy all the files from under the path A:\dos and XCOPY should at us to pres any key from the keyboard before starting the COPY procedure, the command is:

A:\>XCOPY *.* B:\New /P

3. CHKKDSK command(check disk):

This DOS command analysis the directories, files and the file Allocation Table on the designated or default drive and produces a disk and memory status report. The format as follows:

Syntax: C:\> CHKDSK [DRIVE][PATH][FILENAME][/F][/V]

/F to have CHKDSK fix errors that are found in the current directory or file allocation table.

/V to display all file and their paths on then default or specified drive.

Example: A:\>CHKDK B:/F will check the disk in drive B.

4. PATH command:

This dos command can be used to set a path for reaching specified directories In it, for commands or batch file that were not found by a search of the current directory this command can be entered in the following term:

PATH with only no parameters displays the current path.

Syntax: PATH=C:\directory\subdirectory

Instruct dos to look in the current directory of the specified drive, followed by

Example: PATH=C:\LEVEL3\LEVEL2

To reset the path setting to Null, the following command should be given

C:\>PATH

5. **ATTRIB command :** Allows us to set or reset file attributes, or to display their current setting. This can be used in the following format:

Syntax: ATTRIB [-A|+A][+R|-R] [+H|-H] [+S|-S] [drive] [path] [file name]

'+A' can be specified to set the archive bit of file(s).

'-S' can be include to reset the archive bit.

'+R' can be specified to make the file read only.

'-R' can be specified to remove the read only file attribute.

'+H' can be specified to make the file hidden.

'-H' can be specified to unhide the hidden file.

'+S' can be used to set attributes of file(s) as system file(s).

'-S' can be used to remove the system file type attribute.

Ex: The command A:\> TTRIB +R FILE1.TXT

set the attribute of the named file1.txt to read only.

Assignment Questions based on UNIT-4

Q.1. What is DOS? Explain with its five features. 5

Q.2. What is Booting? Explain Complete booting process & their types. 6

Q.3. What is Directory structure? Explain with proper example. 4

Q.4. What is FAT? Explain. 4

Q.5. What is Internal DOS commands & Explain any three commands with their syntax and proper example. 6

Q.6. What is External DOS commands & Explain any three commands with their syntax and proper example. 6

Q.7. Write any five difference between COPY & XCOPY Commands. 5

Q.8. Write any five difference between DEL & FORMAT Commands. 5

Q.9. What is COPY CON Command explain with proper example. 5

Q.10. Explain RD command with their rules and give proper example. 5