

# IT WORKSHOP I



## Operating Systems and Commands

29-Nov-22

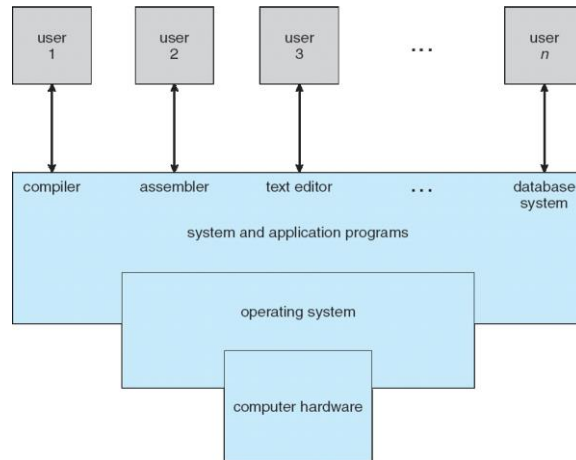


## What is an Operating System?

- An Operating System is a program that acts as an **interface between a user of a computer** and the computer hardware.
- It provides a user-friendly environment in which a user may **easily develop and execute programs**.
- Otherwise, **hardware knowledge would be mandatory** for computer programming.
- So, it can be said that an **OS hides the complexity of hardware** from uninterested users.
- OS goals:
  - Control/execute user/application programs.
  - Make the computer system convenient to use.
  - Ease the solving of user problems.
  - Use the computer hardware in an efficient manner.

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# Computer system



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# DOS

- **Disk Operating System** - run from disk drive
- The first PC Operating System (1981)
- Not a Multitasking OS, only one program could run at a time
- A command-line interface, **no GUI**.
- Early versions of Windows sat on top of DOS and used it to communicate with the BIOS.
- Windows XP onwards, OS communicates directly with the BIOS, but allows commands to be entered via a command prompt.

PCDOS and MSDOS

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## MSDOS

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- Although MS-DOS interfaces gave way to new Windows-based interfaces
- Windows still included an **MS-DOS "shell"** where users could still encounter the familiar DOS command prompt
- to **execute code, check files and directories**, and do all of the other things that were possible with the original command line systems.

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## Command Prompt

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- The DOS command prompt is a critical part of the **Microsoft Disk Operating System (MS-DOS)** command line interface.
- It is the fundamental setting for the interface, where the prompt sets the **stage for executing command** lines of code.
- Up until the emergence of new Windows-oriented graphical interfaces, the DOS command prompt was the most **common way to interact with the personal computer**.
- This is a text-based window for typing commands and receiving **text-based output**.

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## DOS Commands

- DOS commands are small programs, which are made to perform a particular job.
- Every DOS command performs different task.
- There are two types of DOS command.
  - **Internal Commands** : These commands enter into the computer memory during computer booting.
  - For example : MD, CD, TIME, DATE,
  - **External Commands** : These commands are stored in the computer list in the form of files. These Commands can be viewed, copied, changed or deleted.
  - For example : FORMAT, COPY, PRINT, SYS, EDIT, TREE, SORT, PROMPT etc.

<https://docs.microsoft.com/en-us/windows-server/administration/windows-commands/windows-commands>

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## Command Categories

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>■ Disk Commands               <ul style="list-style-type: none"> <li>■ format</li> <li>■ chkdsk</li> <li>■ diskcopy</li> </ul> </li> <li>■ Directory Manipulation Commands               <ul style="list-style-type: none"> <li>■ mkdir</li> <li>■ rmdir</li> <li>■ Chdir/cd</li> <li>■ path</li> </ul> </li> <li>■ File Copying &amp; Backup Commands               <ul style="list-style-type: none"> <li>■ copy</li> <li>■ xcopy</li> <li>■ backup</li> <li>■ restore</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>■ File Management Commands               <ul style="list-style-type: none"> <li>■ dir</li> <li>■ type</li> <li>■ del (erase)</li> <li>■ ren (rename)</li> </ul> </li> <li>■ Other Commands               <ul style="list-style-type: none"> <li>■ prompt</li> <li>■ date</li> <li>■ time</li> </ul> </li> </ul> |
|--|--|

DOS commands are case in-sensitive.

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# Basic commands

Command name

> help

clear the screen

> cls

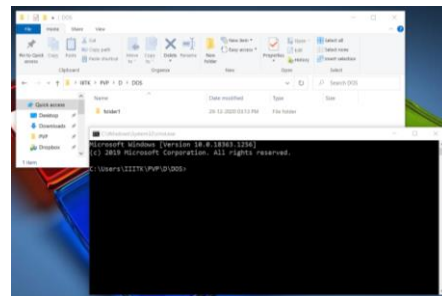
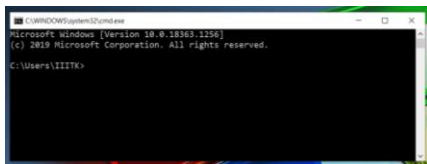
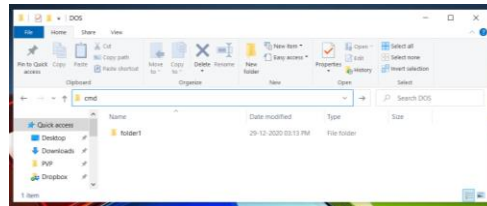
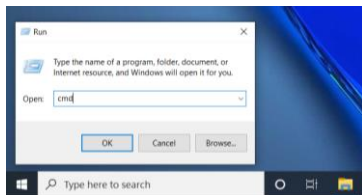
```

C:\Users\I11111\help
For more information on a specific command, type HELP command-name.
ASSOC      Displays or modifies file extension associations.
ATTRIB     Displays or changes file attributes.
BREAK      Sets or clears extended CTRL-C checking.
BIOSET     Sets properties in boot database to control boot loading.
CACLS      Displays or modifies access control lists (ACLs) of files.
CALL       Calls one batch program from another.
CD         Displays the name of or changes the current directory.
CHKDsk    Displays or sets the active code page number.
CHDIR      Displays the name of or changes the current directory.
CHKDSK     Checks a disk and displays a status report.
CHKNTFS    Displays or modifies the checking of disk at boot time.
CLS        Clears the screen.
CMD        Starts a new instance of the Windows command interpreter.
COLOR      Sets the default console foreground and background colors.
COMP       Compares the contents of two files or sets of files.
COMPACT    Displays or alters the compression of files on NTFS partitions.
CONVERT    Converts FAT volumes to NTFS. You cannot convert the
           current drive.
COPY       Copies one or more files to another location.
DATE       Displays or sets the date.
DEL        Deletes one or more files.
DIR        Displays a list of files and subdirectories in a directory.
DISKPART   Displays or configures Disk Partition properties.
DOSKEY     Edits command lines, recalls Windows commands, and

```

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# Open command prompt



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## Changing Drive

```

Microsoft Windows [Version 10.0.18363.1256]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\IIITK>D:

D:\>F:
The device is not ready.

D:\>L:
The system cannot find the drive specified.

D:\>C:

C:\Users\IIITK>
  
```

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## Directory Commands

- Change Directory
  - `cd <<folder name>>`
  - `cd DOS`
- Create Directory Command
  - `mkdir <<folder name>>`
  - `mkdir folder2`
- List directory and files
  - `dir`
- back to the root directory
  - `cd\`

```

Microsoft Windows [Version 10.0.18363.1256]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\IIITK\PP\ID>cd Dos
C:\Users\IIITK\PP\ID\DOS>mkdir folder2
C:\Users\IIITK\PP\ID\DOS>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PP\ID\DOS

29-12-2020  16:45    <DIR>        .
29-12-2020  16:45    <DIR>        ..
29-12-2020  15:13    <DIR>        folder1
29-12-2020  16:45    <DIR>        folder2
               0 File(s)              0 bytes
               4 Dir(s)  366,712,664 bytes free

C:\Users\IIITK\PP\ID\DOS>mkdir fol1
C:\Users\IIITK\PP\ID\DOS>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PP\ID\DOS

29-12-2020  16:48    <DIR>        .
29-12-2020  16:48    <DIR>        ..
29-12-2020  16:48    <DIR>        fol1
29-12-2020  15:13    <DIR>        folder1
29-12-2020  16:45    <DIR>        folder2
               0 File(s)              0 bytes
               5 Dir(s)  366,715,777,824 bytes free

C:\Users\IIITK\PP\ID\DOS>cd fol*
Volume in drive C is Windows
  
```

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# Directory Commands

## ■ DIR Options

\* - wildcard ? - single character

dir <<folder name with \* and ?>>

dir c:\foldername\\*.mp3

dir c:\foldername\hello?.c

## ■ Delete/Remove Directory

rmdir <<folder name>>

rmdir folder2

```

C:\Windows\System32\cmd.exe
C:\Users\IIITK\PPV\D\DOS>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PPV\D\DOS

29-12-2020 16:48 <DIR>      .
29-12-2020 16:48 <DIR>      ..
29-12-2020 16:48 <DIR>      foll
29-12-2020 15:13 <DIR>      folder1
29-12-2020 16:45 <DIR>      folder2
               0 File(s)      0 bytes
               5 Dir(s)  366,715,777,824 bytes free

C:\Users\IIITK\PPV\D\DOS>dir fol*
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PPV\D\DOS

29-12-2020 16:48 <DIR>      foll
29-12-2020 15:13 <DIR>      folder1
29-12-2020 16:45 <DIR>      folder2
               0 File(s)      0 bytes
               3 Dir(s)  366,715,584,512 bytes free

C:\Users\IIITK\PPV\D\DOS>dir folder?
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PPV\D\DOS

29-12-2020 15:13 <DIR>      folder1
29-12-2020 16:45 <DIR>      folder2
               0 File(s)      0 bytes
               2 Dir(s)  366,715,387,984 bytes free

C:\Users\IIITK\PPV\D\DOS>
  
```

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# File creation

COPY CON <<filename>>

```

Microsoft Windows [Version 10.0.18363.1250]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\IIITK\PPV\D\DOS>COPY CON try.txt
hi hello "Z
          1 file(s) copied.

C:\Users\IIITK\PPV\D\DOS>
  
```

```

C:\Windows\System32\cmd.exe
C:\Users\IIITK\PPV\D\DOS>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PPV\D\DOS

29-12-2020 17:13 <DIR>      .
29-12-2020 17:13 <DIR>      ..
29-12-2020 17:01 <DIR>      folder1
29-12-2020 16:58 <DIR>      folder2
               0 File(s)      0 bytes
               4 Dir(s)  366,710,853,632 bytes free

C:\Users\IIITK\PPV\D\DOS>notepad firstfile.txt

C:\Users\IIITK\PPV\D\DOS>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PPV\D\DOS

29-12-2020 17:18 <DIR>      .
29-12-2020 17:18 <DIR>      ..
29-12-2020 17:18 <DIR>      21 firstfile.txt
29-12-2020 17:01 <DIR>      folder1
29-12-2020 16:58 <DIR>      folder2
               1 File(s)      21 bytes
               4 Dir(s)  366,709,420,832 bytes free

C:\Users\IIITK\PPV\D\DOS>
  
```

firstfile - Notepad

```

File Edit Format View Help
This is my first file
  
```

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## Copy Files

copy <<sourcefile location>> <<destination location>>

```
C:\Users\IIITK\PVP\D\DOS\folder2>copy Test.txt C:\Users\IIITK\PVP\D\DOS\folder1
1 file(s) copied.
```

```
C:\Users\IIITK\PVP\D\DOS>cd folder1
C:\Users\IIITK\PVP\D\DOS\folder1>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PVP\D\DOS\folder1

29-12-2020  15:13    <DIR>        ..
29-12-2020  15:13    <DIR>        .
               0 File(s)            0 bytes
               2 Dir(s)  366,711,525,376 bytes free

C:\Users\IIITK\PVP\D\DOS\folder1>cd..
C:\Users\IIITK\PVP\D\DOS>cd folder2
C:\Users\IIITK\PVP\D\DOS\folder2>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PVP\D\DOS\folder2

29-12-2020  16:58    <DIR>        ..
29-12-2020  16:58    <DIR>        .
29-12-2020  16:58             3 Test.txt
               1 File(s)            3 bytes
               2 Dir(s)  366,711,525,376 bytes free

C:\Users\IIITK\PVP\D\DOS\folder2>copy Test.txt C:\Users\IIITK\PVP\D\DOS\folder1
1 file(s) copied.

C:\Users\IIITK\PVP\D\DOS\folder2>cd..
```

```
C:\Users\IIITK\PVP\D\DOS\folder2>cd..
C:\Users\IIITK\PVP\D\DOS>cd folder1
C:\Users\IIITK\PVP\D\DOS\folder1>dir
Volume in drive C is Windows
Volume Serial Number is EE78-697C

Directory of C:\Users\IIITK\PVP\D\DOS\folder1

29-12-2020  17:01    <DIR>        ..
29-12-2020  17:01    <DIR>        .
29-12-2020  16:58             3 Test.txt
               1 File(s)            3 bytes
               2 Dir(s)  366,714,630,144 bytes free

C:\Users\IIITK\PVP\D\DOS\folder1>
```

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## File operation

- To view the content of a file  
type firstfile.txt
- To rename a file - ren <<old filename>> <<new filename>>  
ren firstfile.txt nextfile.txt
- To move a file - mov <<old filename>> <<new filename>>  
move Test.txt C:\Users\IIITK\PVP\D\DOS\folder1
- To delete a file - del <<filename>>  
del nextfile.txt

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## Other operations

- Displays and changes the current date.

date

- Displays and changes the current time

time

- to print the text files

print

attrib

- display a message

echo

- To exit the command prompt

exit

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## Windows and Unix Commands

Windows	UNIX/OSX	Function
cd	cd	Change directory (folder)
md or mkdir	md or mkdir	make a new directory
dir	ls	List files and directories
copy file1 file2	cp file1 file2	Make a copy of file1 and name it file2
ren file1 file2	mv file1 file2	Rename file1 as file2
move file1 file2		
del	rm	delete (remove) files
rd	rmdir	remove an empty directory
time	time	date and time mean different things in windows and unix
date	date	
exit	exit	exit
help	man	help or manual
more	more	show text file content one screen a time
type	cat	show text file content

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End