جامعة الأمير مقرن بن عبد العزيز
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Lab 1
Using the Command Line Interpreter

Operating System

❖ Why is OS important?

- An **operating system is the most important software that runs on a computer**.

- It **manages** the computer's **memory** and **processes**, as well as all of its **software** an d **hardware**.
- It also allows you to **communicate** with the computer without knowing how to speak t he computer's language.

- **Without an operating system, a computer is useless.**

Operating System Services

An operating system provides an environment for the execution of programs by providing services to users and programs.

There are **three** approaches for **interacting** with an operating system :

(1) Command line interpreters (CLI)

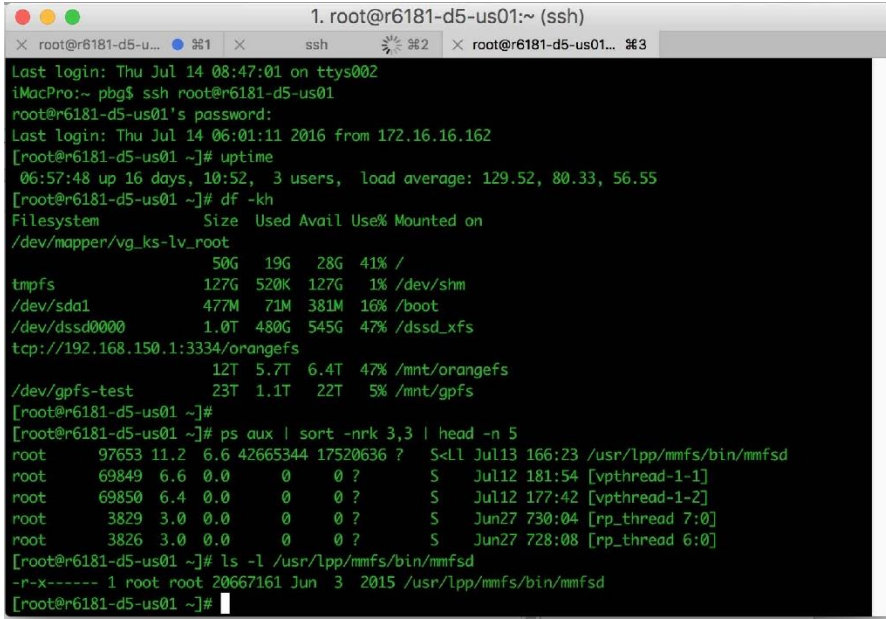
(2) Graphical user interfaces (GUI)

(3) Touchscreen interfaces.

Command Line interpreter (CLI)

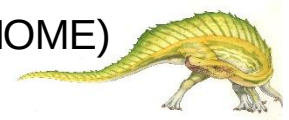
- CLI allows direct command entry
- Sometimes implemented in kernel, sometimes by systems program
- Sometimes multiple flavors implemented – **shells**
- Primarily fetches a command from user and executes it
- Sometimes commands built-in, sometimes just names of programs
  - If the latter, adding new features doesn't require shell modification
- In the lab you will be using CLI for the following operating systems:
  - MS-DOS – this lab
  - Linux – all future labs & project

Bourne Shell Command Interpreter



User Operating System Interface - GUI

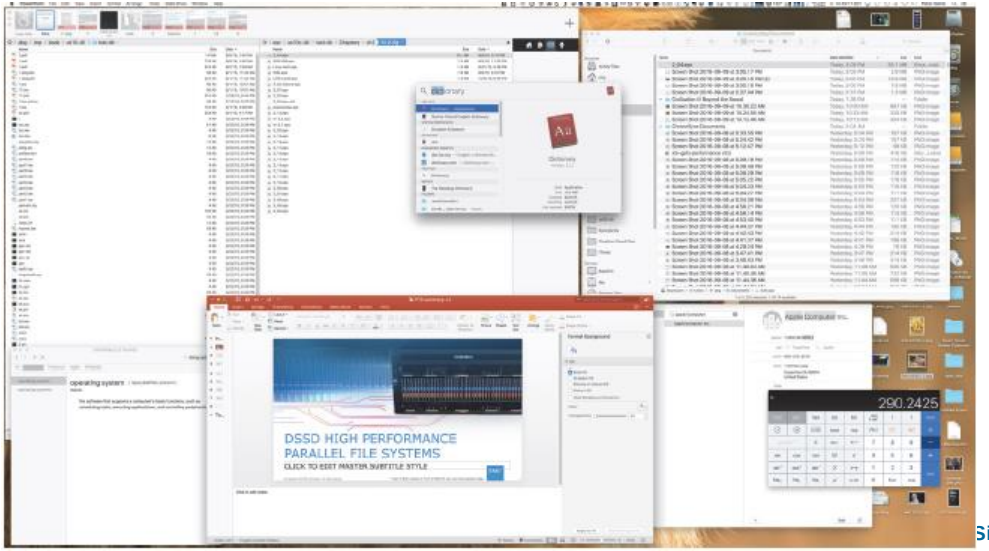
- User-friendly **desktop** metaphor interface
  - Usually mouse, keyboard, and monitor
  - **Icons** represent files, programs, actions, etc
  - Various mouse buttons over objects in the interface cause various actions (provide information, options, execute function, open directory (known as a **folder**)
  - Invented at Xerox PARC
- Many systems now include both CLI and GUI interfaces
  - Microsoft Windows is GUI with CLI "command" shell
  - Apple Mac OS X is "Aqua" GUI interface with UNIX kernel underneath and shells available
  - Unix and Linux have CLI with optional GUI interfaces (CDE, KDE, GNOME)

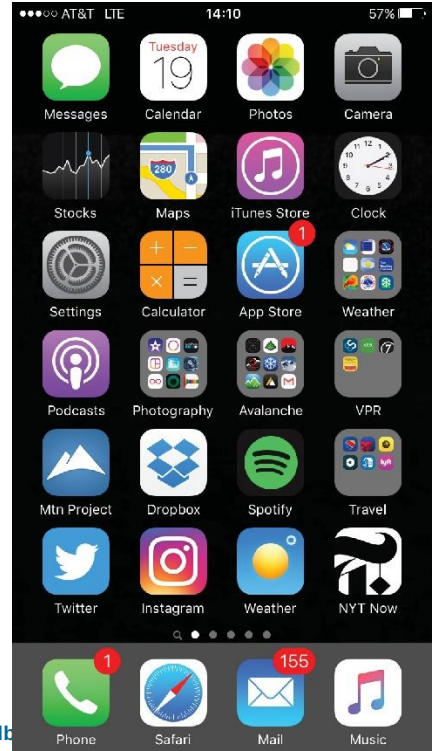


Touchscreen Interfaces

- Touchscreen devices require new interfaces
  - Mouse not possible or not desired
  - Actions and selection based on gestures
  - Virtual keyboard for text entry
- Voice commands

The Mac OS X GUI





MS-DOS basics

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❖ What is MS-DOS?

MS-DOS stands for Microsoft Disk Operating System. MS-DOS controls the computer's hardware and provides an environment for programs to run.

❖ Why You Need MS-DOS:

There are a variety of reasons why you need MS-DOS. A few of them are listed below:

1. An example of old and basic single program OS.
2. Windows is built upon MS-DOS and it is better to start learning programming under MS-DOS as compared to Windows.
3. MS-DOS controls the flow of information between you and the computer (translator).
4. MS-DOS allows you to store information on your computer.
5. MS-DOS allows you to retrieve information stored on your computer.
6. MS-DOS interprets and translates the software you have on your computer.
7. MS-DOS gives you access to all its function (i.e. saving, copying, and printing files).

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Internal Versus External Commands

Internal Commands

There are two ways commands are executed in MS-DOS: internally and externally.

Internal commands:

- Built into the command interpreter itself (COMMAND.COM).
- Already in memory if the OS is loaded.
- Available anytime the computer is displaying a command prompt.
- Generally, the more frequently used commands.
- Examples include: DIR, COPY, PATH, CD, MD, DEL, TIME, DATE.

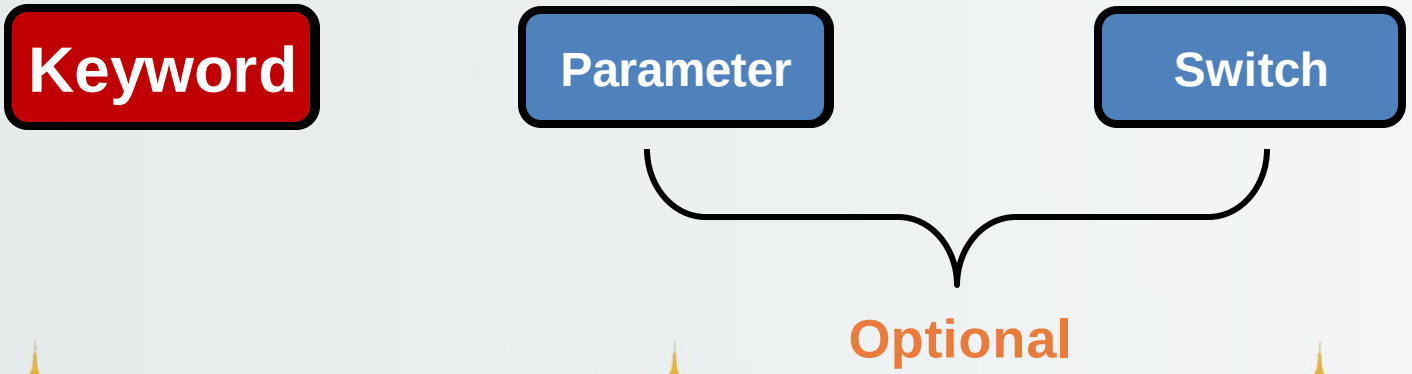
External Commands

- Not a part of COMMAND.COM.
- Located in another directory.
- Must be loaded into memory as needed by the OS.
- Examples include: FORMAT, DEFRAG, DISKCOPY, and SCANDISK.

Syntax

- A specific set of rules that you must follow when writing commands.
- The order in which you arrange the elements of the command.
- The rules of grammar for the command line.

Commands have three parts:



Keyword

What action to perform

FORMAT, COPY, MOVE

- A unique word or set of characters that identifies the action to be performed.
- Some are quite descriptive: FORMAT, COPY, MOVE
- Others are abbreviated: DEL, DEFRAG, DIR, CD, MD

Parameter

What is acted upon

- Additional directions for the command.
- It may specify a directory or file on which to perform the action.
- It may specify a hardware device.
- It may specify a system setting.

Switch

How to perform the action

/P switch with the DIR

- Additional directions for the command.
- It may specify a directory or file on which to perform the action.
- It may specify a hardware device.
- It may specify a system setting.

Two Common Forms of Commands:

Keyword | Drive/Files | Switches

OR

Keyword | Source Files | Target Files | Switches

Example 1

```
DEL SALES95.DOC
```

Keyword

File

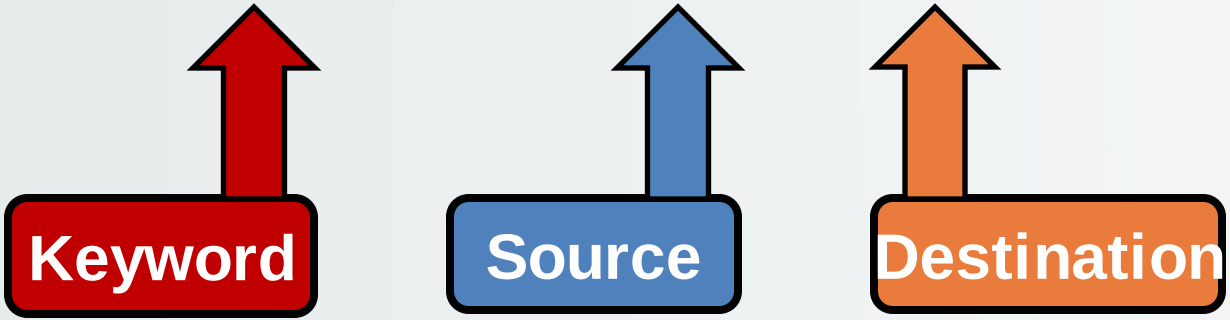
Example 2

```
DEL A:\SALES95.DOC
```

Keyword

File

```
COPY FILE13.TXT A:
```



Backslash Vs. Forward Slash

- \ Backslashes are used as separators when specifying directory or file information.
- / Forward slashes are used to notify DOS that the next character is a command line switch.

Getting Help

- Type **HELP** followed by the command you want to know about.
- Type the command and then follow it with the switch **/?**

Commands

- C:\> dir
- C:\> cd
- C:\> move
- C:\> Cd..
- C:\> Cd\
- C:\> mkdir folder_name
- C:\> dir /p /w
- C:\> cls

Commands

- **Copy computer Ip address:**

C:\WINDOWS\system32>**ipconfig | clip**

- **Open Notepad:**

C:\WINDOWS\system32>**notepad.exe**

- **History:**

C:\WINDOWS\system32>**doskey /history**

- **dobble cmd:**

C:\WINDOWS\system32>**ipconfig && netstat**

- **dobble cmd copy:**

ipconfig && netstat |clip

Commands

- **To scan system files for bug:**

C:\WINDOWS\system32>**sfc /scannow**

- **Task Manager:**

C:\WINDOWS\system32>**tasklist**

- **To end Process:**

C:\WINDOWS\system32>**taskkill -im 7188**

- **To get a list of install drivers:**

C:\WINDOWS\system32>**driverquery**

- **Create Secure Folder:**
- **Hide Folder:**

C:\Users\Yare007\Documents\yasmin>**attrib +h +s +r Hassan**

Commands

- **Unhide:**

C:\Users\Yare007\Documents\yasmin>**attrib -h -s -r Hassan**

- **Shutdown Computer:**

C:\Users\Yare007\Documents>**shutdown -s**

- **Restart:**

C:\Users\Yare007\Documents>**shutdown -r**

- **Logoff:**

C:\Users\Yare007\Documents>**shutdown -l**

- **Shutdown count time:**

C:\Users\Yare007\Documents>**shutdown /s /t 30 /c " I am going to sleeep...."**

Commands

- **Change CMD prompt**

C:\Users\Yare007\Documents>**prompt Moh**

- **Change CMD title**

title any_name

- **To clear CMD**

cls

- **Get the list of all installed program**

C:\WINDOWS\system32>**wmic product get name**

- **to get a list of all default programs**

C:\WINDOWS\system32>**assoc**

Commands

- **Start a website:**

C:\WINDOWS\system32>**start www.upm.edu.sa**

- **Get ip address for a website:**

C:\WINDOWS\system32>**ping www.upm.edu.sa**

C:\WINDOWS\system32>**nslookup upm.edu.sa**

- **To save output of a command to a text file:**

C:\WINDOWS\system32>systeminfo > **c:\aniga.txt**