

Computing A

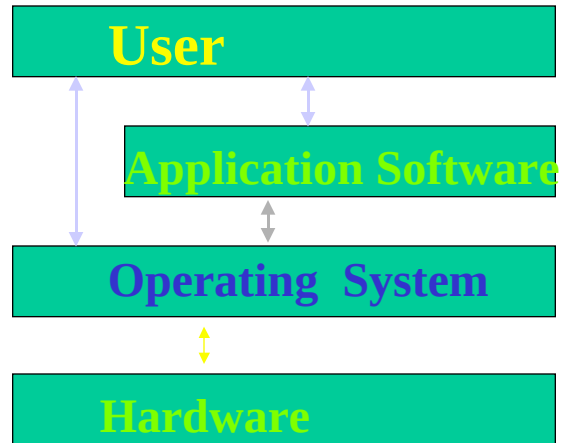
Lecture 2 - Operating Systems Week 2

Operating Systems

A computer CANNOT OPERATE without an operating system.

An operating system provides a link between you (the user), the hardware and other software.

OS - operating system



What is an Operating System?

An operating system is a **GROUP OF PROGRAMS** that controls the hardware of the computer and interprets instructions in the software run on the computer

An OS is specialised to the computer hardware.

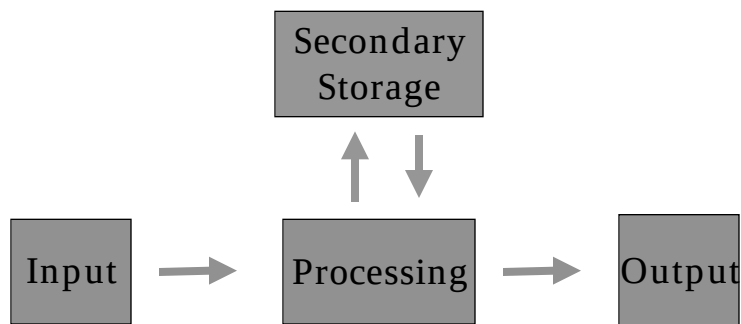
The Operating System ...



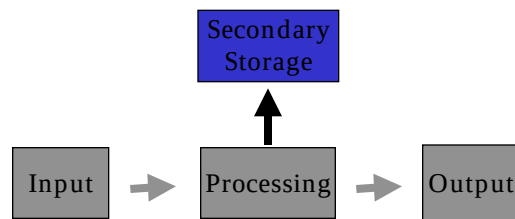
(OS) is needed so that the various parts of the computer can communicate with each other.

The OS manages the CPU, memory, disk drives, printers, and other computer resources.

Where Is the Operating System?

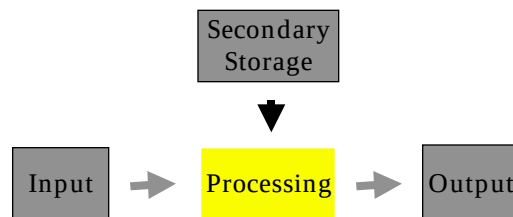


Answer:



When the computer is off, it is stored on the hard drive (part of secondary storage).

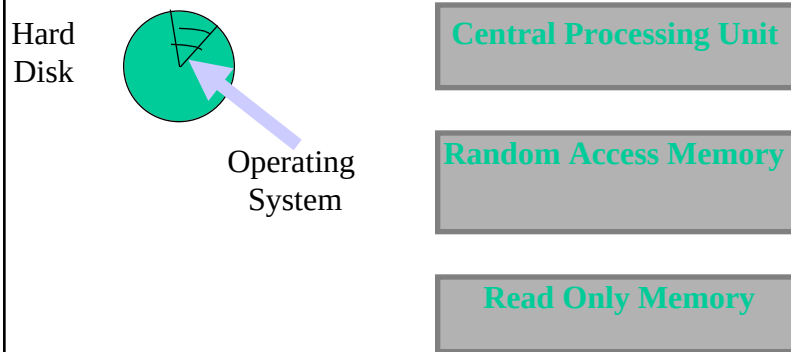
and...



When the computer is running, a copy has been stored in memory (part of processing).

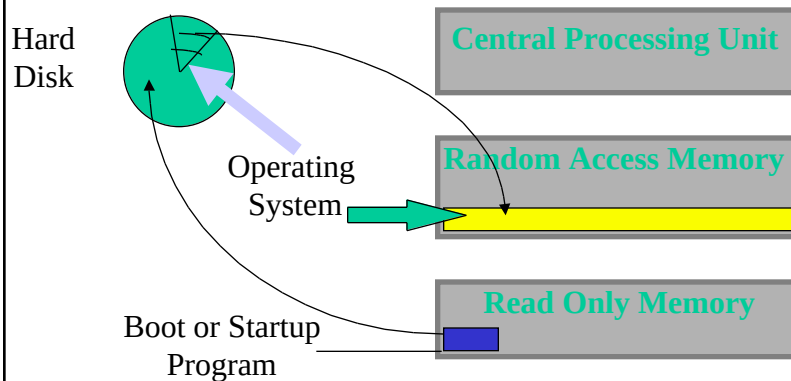
Booting the OS

Loading an Operating System into RAM



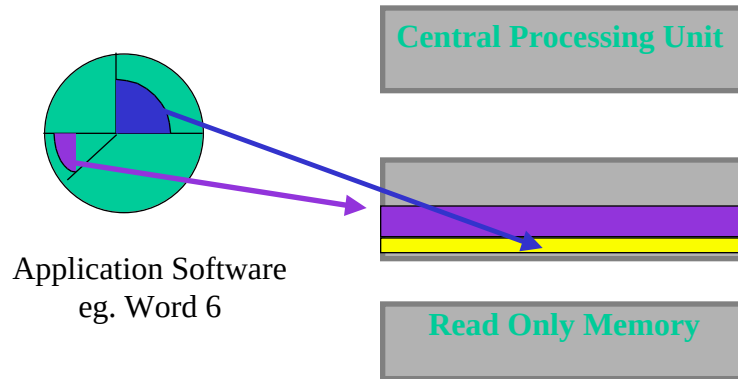
Booting the OS

Loading an Operating System into RAM



Executing an Application

Before a program can be executed (run),
some of it must be loaded into RAM



Function of an OS

- * It actually runs a program. When you wish to execute (run) a program, it is the operating system that loads the program into RAM and runs it.
- * It controls all input and output on the computer.

User Interface

- (i) text interface or a
- (ii) graphical interface.

A graphical user interface, or GUI combines text and graphics to make the software easier to use.

Process Management p10

Single Tasking - only 1 application program may be loaded into RAM and executed at one time

Multi-tasking - several application programs may be concurrently stored in RAM and executed (by 1 CPU)

Multiprocessing - simultaneous processing performed by 2 or more processors linked together.

Single-user vs Multiple User p10

Single-user Only 1 user at a time.

Most OS on microcomputers are single user systems, and multitasking.

Multi-user Several users at the same time.

Most OS on mini/mainframe are multi-user and multitasking.

Multi-users OS must use timesharing techniques.

Popular OS p11

- MS-DOS Microsoft Disk Operating System
- Windows 3.x
- Windows 95 and Windows 98
- Windows NT
- Macintosh OS
- Unix

MS-DOS p12

DOS prompt

A:\> A prompt - looking at floppy
drive

C:\> C prompt - looking at hard drive

F:\> F prompt - looking at fileserver

MS-DOS p12

DOS prompt

C:\>

C:\> A: C:\a:

DOS is case insensitive

DOS filenames p13

The name of a file contains two parts: the name and the extension with a full stop in between.

eg. physics.doc

8.3 convention

Name - max of 8 alphanumerical characters

Extension - max of 3 alphanumerical

No spaces (and other “special” chars) allowed.

No “.” except between name and extension

DOS filenames pg 13

DOS considers the following filenames to be the same:

ESSAY1.DOC

Essay1.doc

essay1.doc

Underscore is useful char in filenames

eg. Essay_1.doc Essay_2.doc

DOS filenames pg 13

Which of the following are valid DOS filenames:

essay1.txt
chemistry.doc
essay 1.doc
final.essay
report.1.doc
report.xls.
summary
exam.a

DOS filenames pg 13

Which of the following are valid DOS filenames:

essay1.txt **VALID**
chemistry.doc
essay 1.doc
final.essay
report.1.doc
report.xls.
summary **VALID**
exam.a **VALID**

DOS filenames pg 13

Which of the following are valid DOS filenames:

essay1.txt	VALID
chemistry.doc	name cannot > 8 chars
essay 1.doc	space not allowed
final.essay	extension cannot >3 chars
report.1.doc	only 1 "." allowed
report.xls.	only 1 "." allowed
summary	VALID
exam.a	VALID

DOS filenames pg 13

.TXT files

A simple text file usually has the TXT extension.

.DOC files

Data files produced by a word processing program (such as WORD) usually have the DOC extension.

.XLS files

Data files produced by Microsoft Excel often have the XLS extension.

.EXE files

A program file is called an executable file - executable files usually have the EXE extension.

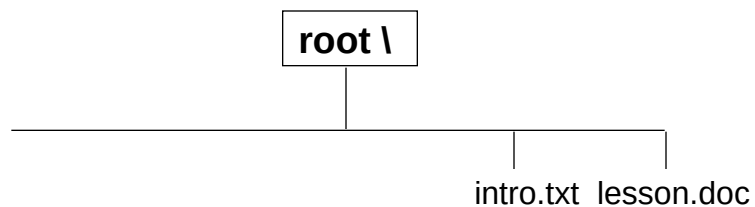
Subdirectories pg 14

DOS uses directories to organise files on the disk.

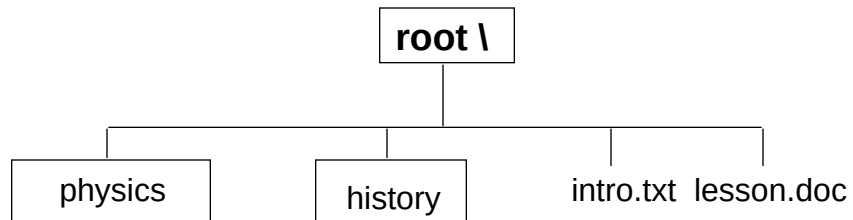
When you format a disk, DOS creates a main directory called the root directory, designated by the backslash(\).

A subdirectory is any directory except the root directory.

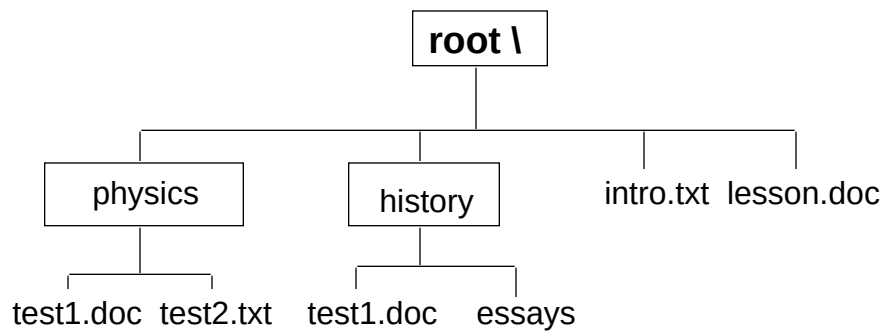
Subdirectories



Subdirectories



Subdirectories



Path pg 14

eg A:\PHYSICS
eg A:\PHYSICS\ESSAYS
eg C:\PHYSICS\assign1.doc
eg C:\PHYSICS\ESSAYS\essay1.doc

DIR command pg 15

DIR command displays a directory listing of the current directory or specified directory.

C:\> DIR

A:\> DIR

C:\> DIR A:

DIR command pg 15

DIR command displays a directory listing of the current directory or specified directory.

C:\> DIR dl of root directory on drive C

A:\> DIR

C:\> DIR A:

DIR command pg 15

DIR command displays a directory listing of the current directory or specified directory.

C:\> DIR dl of root directory on drive C

A:\> DIR dl of root directory on drive A

C:\> DIR A:

DIR command pg 15

DIR command displays a directory listing of the current directory or specified directory.

C:\> DIR dl of root directory on C drive

A:\> DIR dl of root directory on A drive

C:\> DIR A: dl of current directory on A drive

DEL enables you to remove unwanted files from a disk.

A:\>DEL essay1.txt

C:\>DEL essay2.txt

C:\>DEL *.doc

A:\>DEL *.*

DEL enables you to remove unwanted files from a disk.

A:\>DEL essay1.txt

delete essay1.txt from root dir A drive

C:\>DEL essay2.txt

C:\>DEL *.doc

A:\>DEL *.*

DEL enables you to remove unwanted files from a disk.

A:\>DEL essay1.txt

delete essay1.txt from root dir A drive

C:\>DEL essay2.txt

delete essay2.txt from root dir C drive

C:\>DEL *.doc

A:\>DEL *.*

DEL enables you to remove unwanted files from a disk.

A:\>DEL essay1.txt

delete essay1.txt from root dir A drive

C:\>DEL essay2.txt

delete essay2.txt from root dir C drive

C:\>DEL *.doc

delete all files with doc ext from root dir C drive

DEL enables you to remove unwanted files from a disk.

A:\>DEL essay1.txt

delete essay1.txt from root dir A drive

C:\>DEL essay2.txt

delete essay2.txt from root dir C drive

C:\>DEL *.doc

delete all files with doc ext from root dir C drive

- UNIX is a multiuser OS
- Wumpus (a university minicomputer) runs under UNIX OS.
- UNIX is case sensitive
eg. `final_essay` is different to `FINAL_ESSAY`

UNIX filenames

- must be one word
- multiple underscores and fullstops allowed
eg. `essay.1.final` `essay18.11.98`
- long filenames allowed

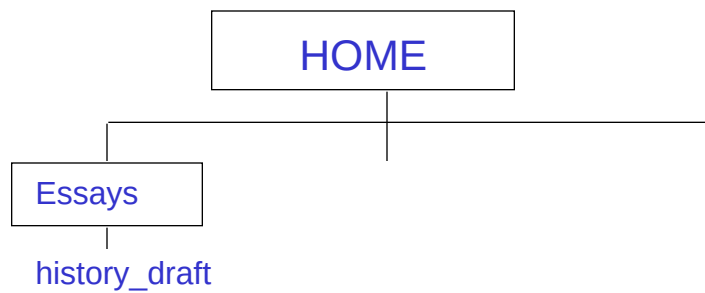
UNIX pathnames

- use forward slash as separator
- eg. `/HOME/Essays/history_draft`

UNIX pathnames

use forward slash as separator

eg. `/HOME/Essays/history_draft`



UNIX commands

`passwd` command

The `passwd` (password) command will let you change your wumpus password.

\$ `passwd`

old password:

new password:

new password (again):

UNIX commands

The `ls` (list directory) command will give you a listing of the files and directories on your wumpus account.

\$ `ls`

\$ `ls -l`

\$ `ls -a`

\$ `ls Mail`

UNIX commands

The `ls` (list directory) command will give you a listing of the files and directories on your wumpus account.

`$ ls` dl of current directory
`$ ls -l` long dl of current directory
`$ ls -a` dl showing hidden files
`$ ls Mail` dl of “Mail” subdirectory

UNIX commands

change directory command

The `cd` (change directory) command will let you change the current directory on wumpus.

`$ cd Mail`
`$ cd ..`
`$ cd`

UNIX commands

change directory command

The `cd` (change directory) command will let you change the current directory on wumpus.

\$ `cd Mail` change to “Mail” subdirectory

\$ `cd ..` change to the next higher level directory

\$ `cd` change to your home directory

UNIX commands

working directory command

The `pwd` (for print working directory) displays the current directory – ie. your location in the UNIX directory structure.

\$ `pwd`

displays the pathway to current directory

UNIX commands

copy command

The cp (copy) command makes a duplicate copy of files and places in specified destination location.

```
$ cp essay_7.99 ESSAYS
```

copy “essay_7.99” to “ESSAY”
subdirectory

```
$ cp myworkfile WEEK1
```

copy “myworkfile” to “WEEK1”

UNIX commands

move command

The mv (move) command will move a file to a new location ie to a different subdirectory

```
$ mv essay_7.99 ESSAYS
```

move “essay_7.99” to “ESSAYS”
subdirectory

The mv command may also be used to rename a file

UNIX commands

remove command

The **rm** (remove) command removes (deletes) files.

```
$ rm essay_7.99
```

remove “essay_7.99” from current directory

```
$ rm WEEK1/myworkfile
```

remove “myworkfile” from “WEEK1” directory

UNIX commands

finger command

The **f** (finger) command will display information about wumpus users

```
$ f wade
```

displays login name; name in real life; user directory details and the last time logged in

```
$ f wade|more
```

UNIX commands

man command

The **man (manual)** command will display information about unix commands including usage constructs

\$ **man ls**

displays contents of the manual about the ls command

\$ **man print**

displays contents of the manual for the print command

UNIX commands

Logging off terminates the session with the computer

exit command

The **exit** command will break your connection with wumpus

\$ **exit**

Always remember to use this command when you have finished communicating with wumpus

Windows 95 Desktop

The interface between you and the operating system which allows you to perform various tasks

Start button: opens the Start menu which has submenus leading to many other folders and applications

Taskbar: displays buttons for your open applications and windows

Windows 95 Desktop

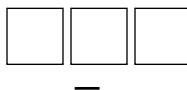
More important features...

Tray: the part of the taskbar that displays the clock, volume control and icons for other utilities

Shortcut icons: allow you run applications and load documents by double-clicking

Windows: when open can be moved and resized

remember these...



???

Windows 95 Desktop

My Computer: file management tool that displays your hard drive; network drives; floppy and CD Rom drives; the Control Panel and the Printer folder

Pull down menus: File; Edit; View; Help
to carry out tasks on files/folders such as
open; move; copy; rename

**OR right click on file/folder icon to perform
the same file management tasks**

Windows 95 Desktop

Windows Explorer is another file management tool

Left Pane: contains all the devices on your system

Right Pane: displays the contents of any item selected in the left pane

Drives or folders that have a “+” beside them contain other folders

When fully expanded “+” changes to “-”