GLOBAL

NAME OF INSTITUTION

FACULTY

COURSE CODE

CSC305

LEVEL

LECTURE

LECTURE DAY(S)

DAY	VENUE	TIME

OPERATING SYSTEM II
CSC 305

Structuring Method of Abstraction
Processing of Resources
Concept of API device organization Interrupt
Scheduling Algorithm
File System
practical

Secondary store
→ System access
→ System files
→ Multitasking

Linus operating System

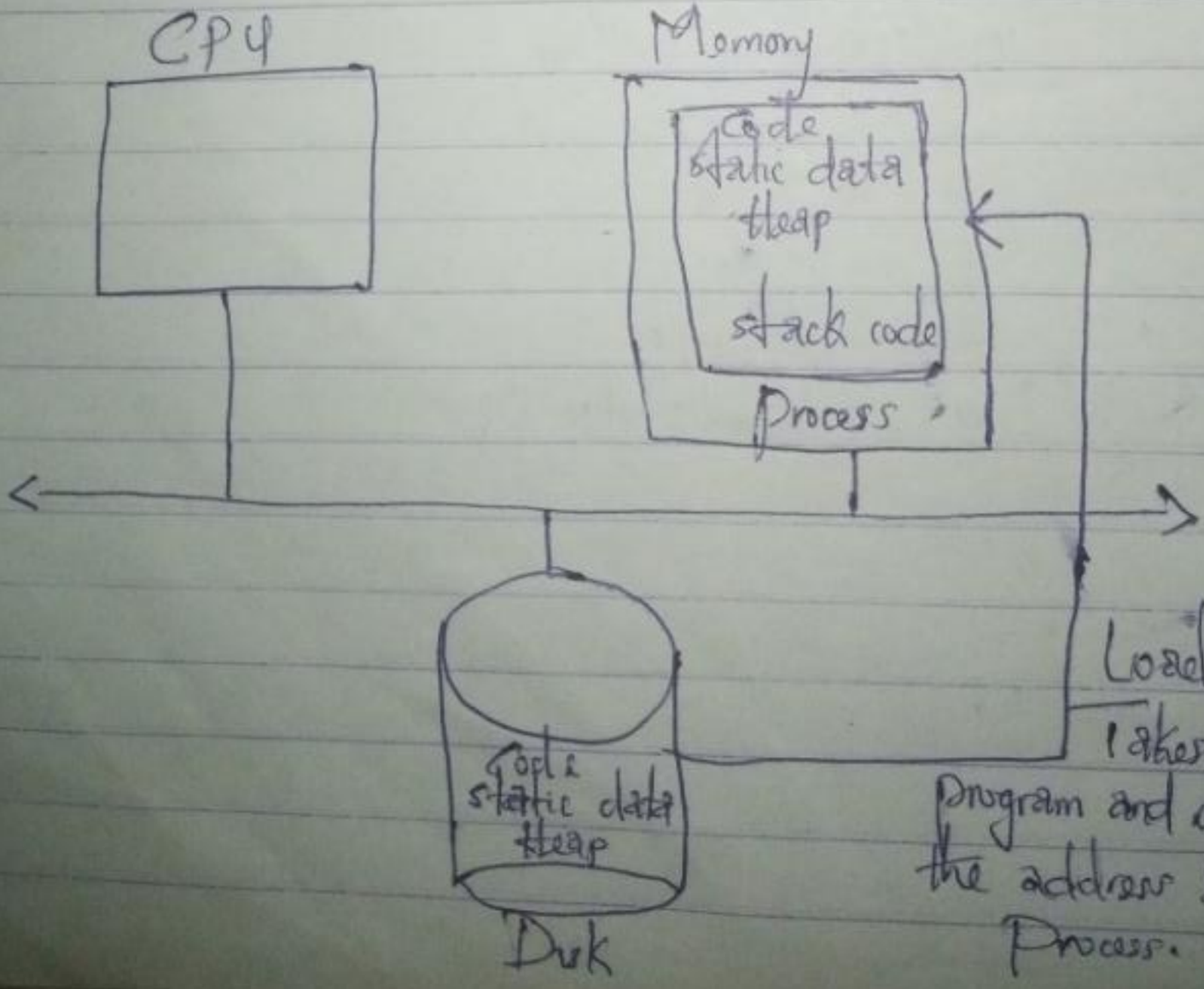
How to start
" " stop
" " Handle
" " Handle disc OS

Operating System is a System Software that manages Computer hardware and Software resources. It also Serves as a Component of Computer System.
It also provide Common Services for Computer program. OS Serves as Intermediary btwn program & Computer hardware.

Structuring Method of Abstraction

Abstraction is a logical view of OS with only the principle but not the technical detail. OS provide an ~~abstraction~~ abstract view of the Computer hardware. The abstraction of hardware, by OS means scheduling the application from the detail because it will only provide Common logical view of hardware.

Typical structuring method of abstraction by OS



Processing of Resources

= Create :- is to create processes with method. we can have new process

- Wait :- is to wait for a process to stop running.
- Destroy :- is to destroy processes forcefully into the data.
- Mischallerious Control is to provide method for suspending a process.

Method for suspending process, then resume and continue running

- status is to get status information about a process.

How to get information or status about a process

How long it is run

What state the process is in.

The Concept of API device organization Interrupt

This is a mechanism for alleviating the delay caused by the uncertainty and maximizing System performance.

Interrupt generally, is an event that alter the sequence in which the processor executes instruction. we have different types of Interrupt:

1. External Interrupt
2. Internal "
3. Software "

① External Interrupt: They are used by the CPU to interact with Input & output devices.

② Internal Interrupt: they are used to allocate CPU to different task in a multitasking OS with no output/Input devices.

③ Software Interrupt: They are generated by a Specific Instruction in the CPU Instruction set.

Queue theory

This is the mathematical study of waiting time of queue in which a model is constructed so as to predict in waiting length and waiting time.

Different problem that involver Queuing & waiting

- Queue
- Computer
- failure solution.

Types of Queue

We have two mayer type of queue

① Unbounded Queue
② Bounded "

① Unbounded Queue: It can grow as large as necessary to hold all customer. There will be no use of upper bond & lower bond.

② Bounded Queue: It can hold only a fixed number of waiting Customer or not even accomodate at all.

formation of Queue activities

① Arrival process
② Service mechanism
③ Queue characteristics

① Arriver process: It deal with how Customer arrive, how the arrivers are distributed.

② Service mechanism: It a description of the resources needed for service to begin. It will also ~~take~~ take the number of Servers

available. It will also consider whether the Server are in Series or parallel and it will also consider if prehemption is allowed.

(3) Queue characteristic: Is to choose the one to be Served next, it can be called queue discipline. e.g FIFO, LIFO, randomly.

Scheduling Algorithm

for scheduling, scheduling is the process of Arranging, Controlling and optimising work and in the production method and manufacturing process. Scheduling is also used to allocate plant and machinery resources, it will plan for productwin processes, it will plan for how to purchase material for the production.

Categories of Scheduling Algorithm

(i) Prehemtive Scheduling Algorithm
(ii) Non-prehemtive " "

(i) Prehemtive is normally define as a process that are logically runnable. It is priorrtize. It is scheduling discipline and for a scheduling algorithm to be prehemtive if the process has be given to a CPU, it can be taking away by any time.

(2) Non-prehemtive scheduling Algorithm: is when a process enter the state of running. The state of the process cannot be deleted, it would allow it to finish it Service time before the CPU.

Assignment Prehemtive
Differentiate between scheduling and non-prohemtive Algorithm.

Resource sharing.
A resource shared or shared resource is a Computer resource made available from one host to other host, ~~from one resource~~ on a Computer network. Shared resource is also made possible by Inter process Communication. It makes use of network.
This shared resources is also known as shared disk. Examples are
① Computer programs
② Data
③ Storage devices
④ Printer
⑤ Scanner

Resource protection
Is to prevent the replacement of any of the essential System files, also prevent any essential System folders. Examples are
① WRP (Window resource protection) : is the new name of window of file protection. will always protect all the registry Keys and folders.

File System
It is the method and data structure that our OS uses to keep track of files on a disc or any partition System

file System also refer to a partition or disc that is used to store the files or any other types of the file System.

Management of Secondary Storage

Generally, for Computer Storages which are primary and Seconday storage.

Primary Storage Known as RAM is called Internal

Secondary Storage

Primary storage is known as local disc, is stored inside the Server is reffered to as disc in an external storage array. It is more faster than Secondary storage. It is place very close to the CPU because it is located in the CPU.

The purpose is to reduce the amount of time it takes to move data between the storage and the CPU

Secondary storage is also called Auxiliary or External.

It is a Non-volatile storage because it is not under the control of CPU. It does not have direct Interaction with any application It provide high capacity but its own limitation ie the data may not be immediately acceptable. It is used to backup any of the primary storage, data or application. The data in Secondary Storage may not be as current as data in primary storage. It also use as other data protection method.

Secondary storage management.

It is a classical feature of database management System. It is usually supported through the use of

(1) Index managem
(2) Data clustering
(3) Data buyaron
(4) Access part selection
(5) Query optimization

Generally the Combination of primary storage and secondary storage allows the Computer to take advantage of

(1) High Speed
(2) Low Capacity
(3) Volatile storage and high capacity
(4) Relatively low Speed
(5) Non-volatile storage

System Access

It is the ability or authority to interact with a Computer System It always result in a flow of information. It ~~covers~~ as ~~interaction~~ Any otherwise, i.e Interaction with a Computer or Information without authority is reffered to as Hack anger ~~Hacking~~ Cracking while the person performing it is known as Hacker or Cracker.

System file

System file is a critical file in Computing and without it, a

computer System may not operate Correctly. System file may come as part of OS, may also come as a third party device driver, it can come on any other means. Ms window an Ms doc mark their more valuable System file with System (.sys). The system is there to protect OS against any accicental deletion.

Examples

1. Kernel 32.DLL
2. Pagefile.sys
3. HAL.DLL
4. Ms Docs.sys
5. .EXE
6. IO.SYS

System files

We don't change it, delete or move them. Most of the System files are hidden and cannot be deleted. System file can be added to any file in window or docs. But if you are adding to Docs we use the extension file name (.sys).

System file checker is a tool used to repair Corrupt System file that as been damaged or missing. It is used to restore a Computer back to its normal Computer environment.

MULTI TASKING

Generally an OS is a process that can execute on a single Computer simultaneously without any interference multiple process normally exist for the entire duration for any linux operating System (it has its own limit) Multitasking can be easily observed in unix like OS.

Linux OS:

— To start up process for linux OS, follow two steps:-

→ press the power button on your system.

→ After few minutes

For linux to undergo booting process it undergoes six different process.

— BIOS stage (Basic Input output System) perform System Integrity check through Searching, loading, executing the boot loader program embedded in the OS.

— MBR

— GRUB

— Kernal

— Init

— Run level programs

A Key can be pressed during the bios startup to change the booting Sequence (f12) bios loaded & execute MBR boot loader.

MBR - Master Boot record.

Its function is to locate the bootable sectors we have with the OS. MBR is located in the first floor of the bootable disk e.g /dev/hdl /dev/SDA. MBR is less than 512 bytes in size with 3 different components.

first Component 446 bytes is the primary boot loader info, next 64 byte is the partition table info, MBR Validation check is available and it occupies just two bytes.

MBR Contains Information about GRUB and it loads & execute the grub boot loader.

- Grub stands for Grand Unified boot loader. The major function of grub is to display a flash screen. At grub stage if you do not enter anything it will load the default Kernel images as specified in the Configuration files. Grub has the Knowledge of the file System e.g boot/grub/grub.Config.] grub.Config is a line to any of the file System. At this level grub will load & execute Kernel & Initrd.

— Kernel mount the root file System that Specify in the root especially when grub.Config is running. Kernel will execute this program /SD/in.

- Init was the first program to be executed by linux Kernel, it has a process id of one (pid processed). Initrd stands for (Initial ram disc). Initrd is used by Kernel as temporary root file System and it will be there until Kernel is booted and the real root file System is mounted. This Initrd Contain necessary drivers that Compile inside all this drivers help the Kernel to access the harddisk, partitions, CD driver, etc.

Init

The function of the init is to look at the -inittab file, -etc, and to decide the linux run level

Different examples of run level
(0 means halt) 0 run level
1 — means single user mode
2 — Means full multimedia mode
3 - Unused
5 - X11
6 - Reboot

Init normally identify the default init level the instruction etc, -Init tab file. The Init will identify different run level and will make use of it to load all the use program.

Different run level that can be set
① To 0 or 6 you can reset
② You can reset from 0 run level to 6 run level
③ You can reset it to 6
④ You can reset it to S

Run level program
This is when the linux System is booting up. At this level, Several run level program is when the linux OS is getting started Under the -etc, -rc.d, -rc*.d -dir. There will be program that start with letter S and Capital letter K. S there is for start up and K is for you to kill the System which means in other System shut down
The System will normally execute a program from one of the following directories at the run level.

at run level 0 -> /ETC/RC.d/RC0.d/
at run level 1 -> /ETC/RC.d/RC1.d/
at run level 2 -> /ETC/RC.d/Rc2.d/
at run level 6 -> /ETC/Rod/RC6.d/

The recognize and accepted way to shutdown a linux OS is to use the shutdown command.

Steps to shutdown linux

Step 1: Open a Command line terminal through select application >accessory > terminal.

Step 2: Switch to the root user of typing su or Sudo at the Command prompt. Sudo stands for S. when prompted, you enter the root password.

Step 3. Type in the following Command to shutdown the System 0 # shutdown -h or # shutdown -h+0