Lecture 29

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12 01 2024

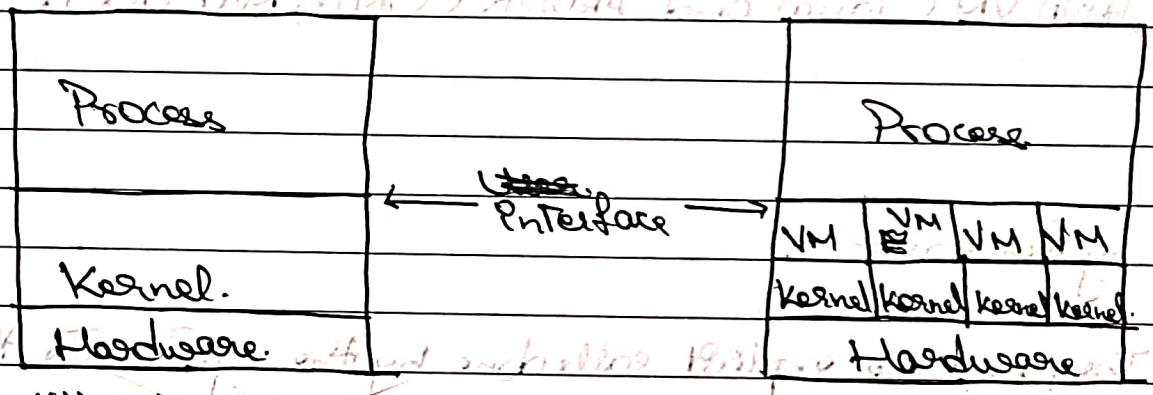
INTERNALS - I

MODULE - I

2)

a) Virtual Machines

Virtual machines are the imaginary distinguishment done by the processor to allocate different jobs to various environments.



As shown in the above diagram, when the user of the computer provides an input for the processor to process, the device without the VM has to process and solve the ~~data~~ various inputs and thus takes a longer time.

Whereas the device with the virtual machine doesn't have that problem since, the VM bifercates the data into various environment to be processed simultaneously and thus multiprocessing the

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the system therefore reducing the processing time.

Virtual machines are the made up bi-processors by the main processor so as to process the data quicker and with ease.

Even though its not real, an VM has access to the other VM and no command over it.

Since the VM system consists of multiprocessing, they assign each sub-processor a specific task. To accomplish and thus, the run-time is quicker.

The various VMs are Win32 (Windows), JAVA VM (Java) and PRONIX (UNIX, Mac OSX).

b)

System calls-

→ They are the explicit calls done by the system to the process

Types of system calls-

→ Process control - create, remove - they can create or remove a given process.

- fork, delete
- Process control is the system call that defines the flow or control of the process to be run.

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→ Device Management - It is the system call by the computer to procure any of the data or information that is stored in the device.
- It can even be to check-up about the device's wellbeing and processing speed.
- getdata, setdata.

→ File Management - getfile, putfile.
- read, write, reallocate.
- It is the system call that calls a file or creates a new file for the processing of the process.
- create, remove, delete.

→ Communication - This system calls is responsible for the passing of the message and instructions to and from the processes.
- It even takes the role of displaying the message and output for the users.

→ Security - This system call takes care of protecting the system and processes from the external malware that would come along with the message during the system call.
- They even provide privacy to every process from the other.

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MODULE - 2

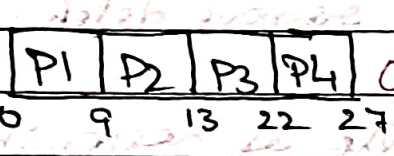
4)

a)

FCFS:

Process	Arrival Time	Burst Time	WT	TAT
P1	0	9	0	0
P2	1	4	9	5
P3	2	9	13	4
P4	3	5	22	17

Avg WT = 4 Avg TAT =



FCFS: Avg WT = 4

Avg TAT = 6.5

SRTF: q = 2ms

Process	AT	BT	WT	TAT	CT
P1	0	9	9	9	18
P2	1	4	2	2	6
P3	2	9	16	16	27
P4	3	5	6	6	11

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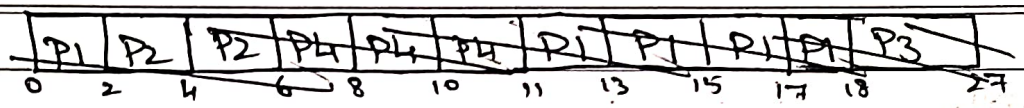
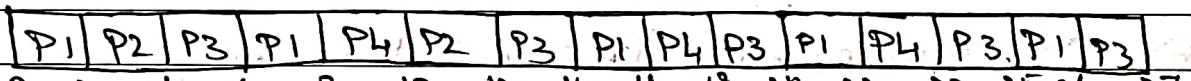
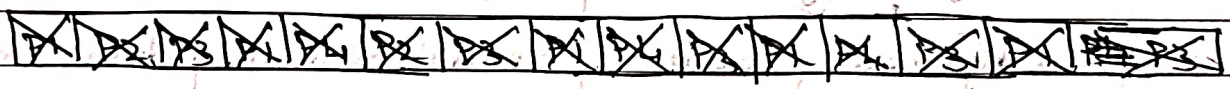


Round Robin: q=2 ms.

Process	AT	BT	CT	TAT	WT
P1	0	9	26	26	17
P2	1	4	12	11	7
P3	2	9	27	25	16
P4	3	5	23	20	15

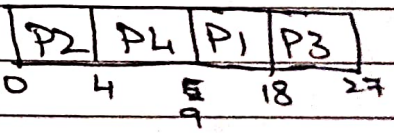
Avg TAT = 20.5 Avg WT = 13.75





SRTF:

Process	AT	BT	TAT	WT
P1	0	9		9
P2	1	4		0
P3	2	9		18
P4	3	5		4



Avg TAT = Avg WT = 7.75

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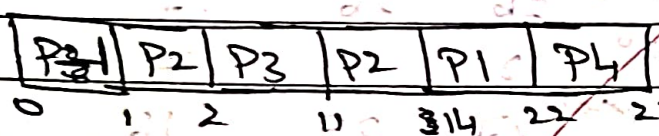
Priority

Process	AT	BT	Priority	TAT	WT	CT
P1	0	9	3	14	14	22
P2	1	4	2	11	10	14
P3	2	9	1	11	29	11
P4	3	5	4	23	20	27

Avg TAT = 14.75, Avg WT = 13.2



b) Difference b/w Process & threads

Process	Threads
→ Heavy weight process	Light weight process.
→ Multiprocessing needs PC to own.	→ Multithreading doesn't need PC to own.
→ Every process are indepent	→ One thread can modify, a even delete another thread.

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Quiz

1. ~~B) Create~~ A) Fork.

2. A) when process is scheduled to run after some execution.

3. B) ~~B)~~ Communication b/w 2 ~~threads of same~~ process.

4. B) Program counter.

5. B) 5