2C303BE1

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TEST - 01

MODULE - 1

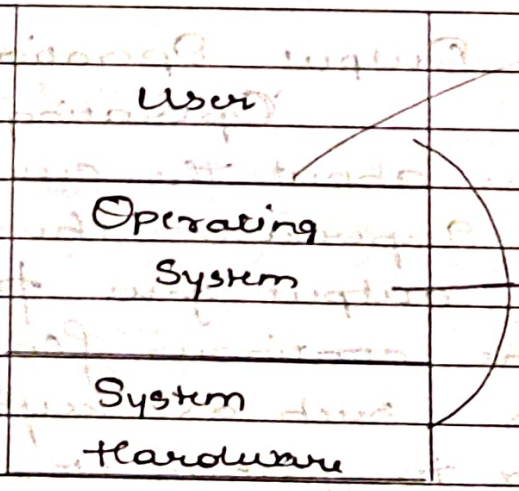
1) a) **Operating System:**

- It is a intermidiate between the computer hardware and the user.
- It is the software modularity or the set of instruction.

for example:

i) Windows is the Operating system used in several computers.
ii) MAC os is used for Apple system.
iii) Apple IOS for iphones
iv) Android for mobile phones etc.

- These are all the software used to run their particular hardware by the users.



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- Without Operating system user would have to write every set of code every single time while using hardware, which is not considered reliable.

- The Services that the Operating System provides us with are :-

i) Process management:
Operating System with the proper process management either be it based on priority, arrival time etc.

ii) Resource management:
Operating System enables proper utilization of the resources for various process or tasks be it a single process or multiple process. OS allots the resources for use adequately.

iii) Input / Output Operation:
Operating System gets well aware about the current running task and supervises the proper input take and output give process. It enables the continous flow between those hardwares such as keyboard to monitor or monitor to printer etc.

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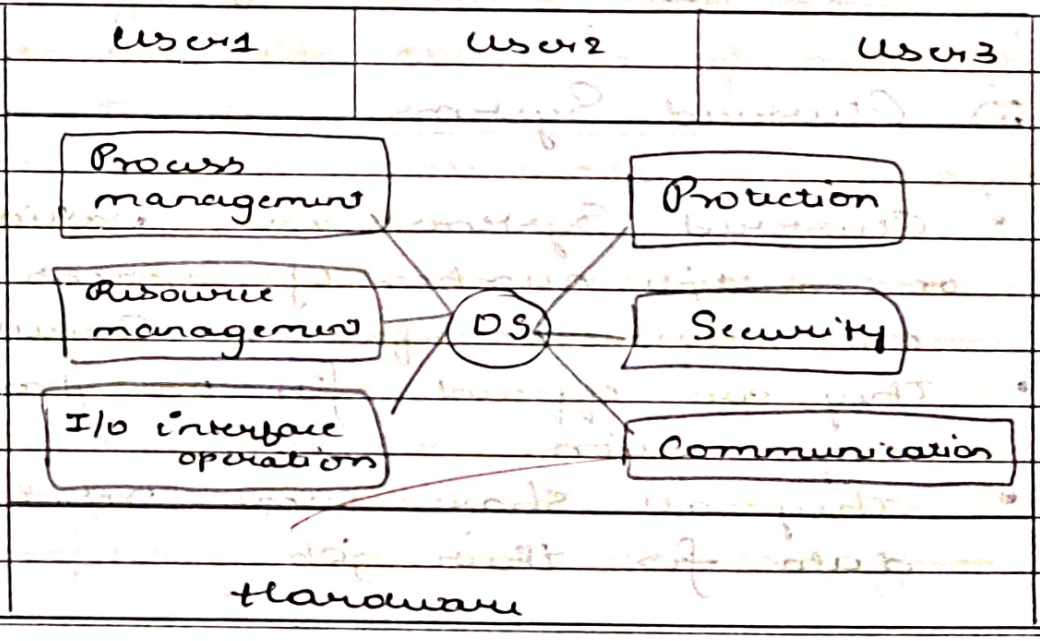
iv) Communication :

Operating System always manages the communication link between the user and the hardware, It provides kernel for the efficient talk from user to the OS, through which further job is done. It manages all links between every hardware.

v) Protection and Security :

Operating System make sure all the data and resources are efficiently used and are intact. Any other outsider cannot open the system. It provides password interface / padlock interface etc. It keeps our device protected and is secure.



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1 b) i) Multiprocessor Systems

- Multiprocessor system refers to system having two or more processors.
- It is very efficient for usage, cause it is always easy when one processor breaks down, the other is used.
- Execution time here is low compared to clustered system.
- It is always efficient to find the broken processor and replace.
- Here each processor has its own data set, memory.

CPU 1	CPU 2	CPU 3
dataset	data set	data set.
User 1	user interface	

ii) Clustered Systems

- Clustered Systems are various number or multiple number of systems bound by one network interface or Server.
- They are efficient for one particular organisation.
- They all share same resource and data for their job.

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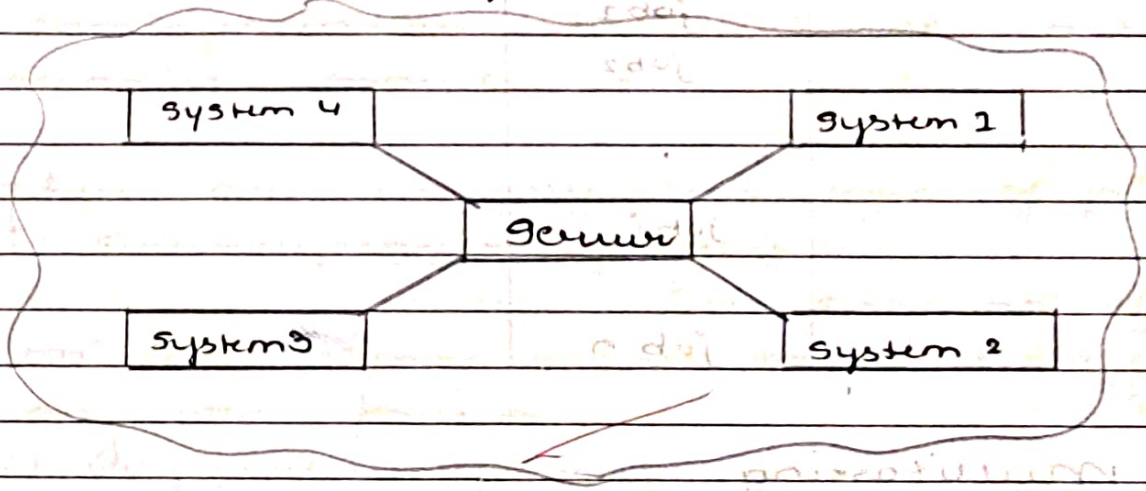
- Execution time is higher than the multiprocessor systems.
- If one system breaks down, the others are not effected, the work is shared and quickly executed.



b ii) Multiprogramming:

- Multiprogramming a job done by the processor for execution of more than one process.
- The processes are always dumped is to the processor.
- Each processes are executed one by one
- There FIFO is used for the process management.
- Always the CPU moves on to the next process when the previous one is completely executed or the previous

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process is busy with other input/output interaction.
- Here the waiting time for the process are high.

job 1
job 2
:
:
job i
:
job n

Multitasking

- Multitasking is very efficient
- here the waiting time is less
- It seems that in multitasking, all the processes are running one after other that it looks as if it is being executed all at once
- It is comparitively faster compared to the multiprocessing
- Here the Turnaround time as well is faster than the multiprocessing.

CPU	job 1	job 2	job 3	job 1	job 3

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MODULE - 2

3 a) Inter Process Communication:

Inter Process Communication is the communication between two concurrently running process.

There are usually two types of process
i) Interdependent process:
It has no effect on other process nor does it effect any other process.
ii) Cooperative process:
They have effect on other running process and as well are effected by them

There are few reasons why IPC is needed

- Resource sharing between two process
- Computer Speed up, a task is broken into sub-tasks for proper execution and efficiency
- Modularity, where there are several modules, obvious resource sharing is taken place.

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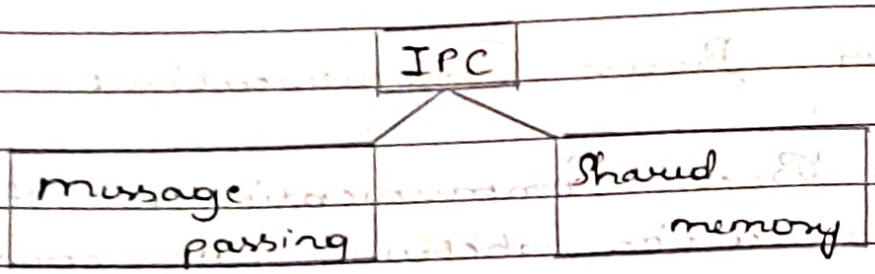
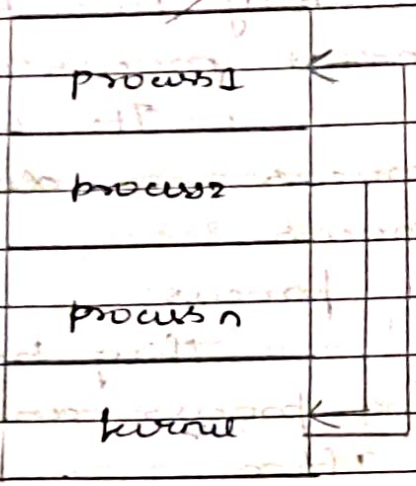
There are two ways the IPC takes place



i) Message passing:



- Message passing method is used to pass message through the kernel.
- Here if the communication has to be established, there needs to be talk hence kernel.
- Here message cannot be sent simultaneously, either one has to send or receive.
- If process1 sends a message, the process 2 receives, there help in the communication type.

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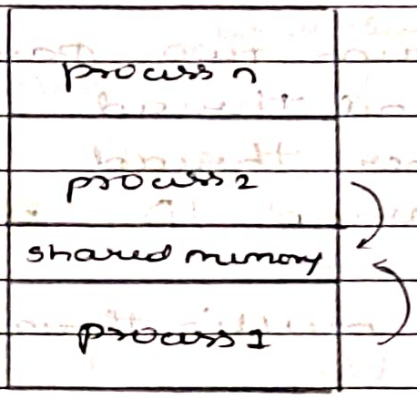
ii) Shared memory



- Shared memory is a method, where a particular memory is allocated for the purpose of sharing between two process to work.
- Shared memory to be established first requires a communication link to know the perfurmus. Then message passing is used.
- It works based on producer and consumer them, where producer can only give while the consumer can only take how much is produced.

Naming
Sync
Buffering

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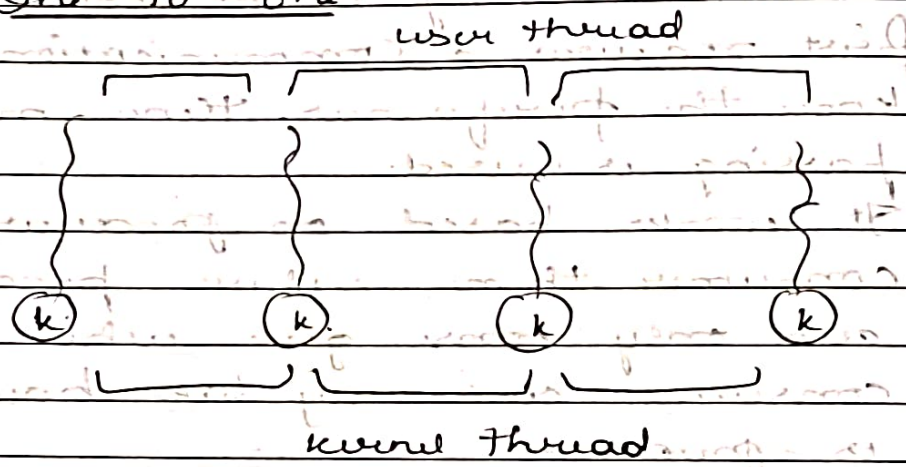
3b) Multi-threading models

A thread contains two parts
i) kernel thread
ii) User thread
It also has thread ID etc.

There are three multi-threading models

i) One-to-one
ii) One-to-many
iii) many-to-many

i) One to one



- Here blocking call of one thread doesn't disrupt the other.
- There can be any number of individual threads
- they all are independent processing.

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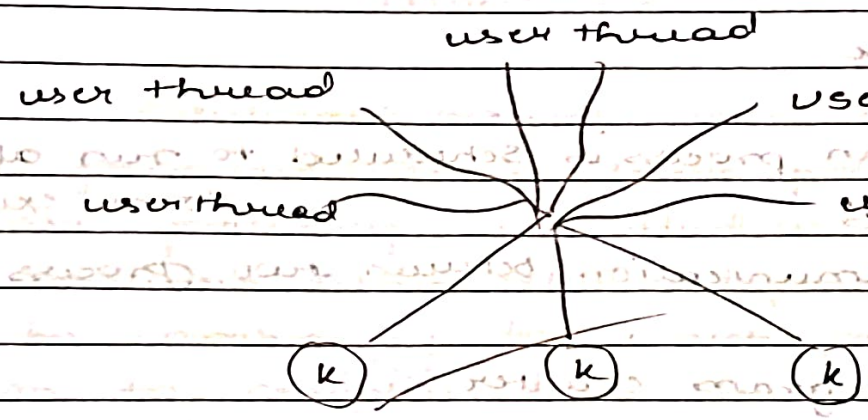
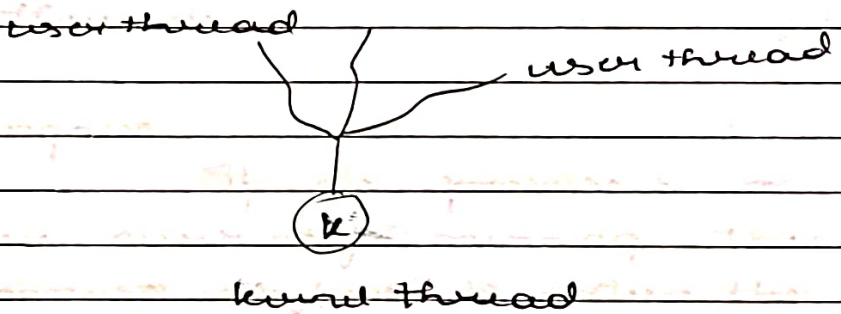
ii) Many to many



- Here several user threads are connected to several kernel threads
- Blocking call of one doesn't effect the other, cause the other thread replaces its execution

iii) One to many



- Here many user thread are connected to one kernel thread.
- Here disruption of kernel leads to break of process.

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Quiz

1) a) fork

2) a) when process is scheduled to run after some execution

3) b) Communication between two process

4) b) Program counter

5) b) OS