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2-a Virtual Machines -

* Virtual machines are based on the functional concept of utilization of software & Hardware across the different user.

* Here, the hardware or Software is hosted by a remote OS.

* Then, the hardware or software can be borrowed by the host at a remote OS.

* Benefit of using virtual machines is it provides high processor virtually, so it can be used by normal user to get experience of it & can utilize to increase the productivity of the user.

* A large numbers of user can get accessed to virtual machines across the globe & share data with each other.

* As all of the users uses same virtual machines, it causes no interruption or blocking of the process.

* If a user having virus gets access to virtual machine, the other users or host cannot get infected virus, making it very safe to handle.

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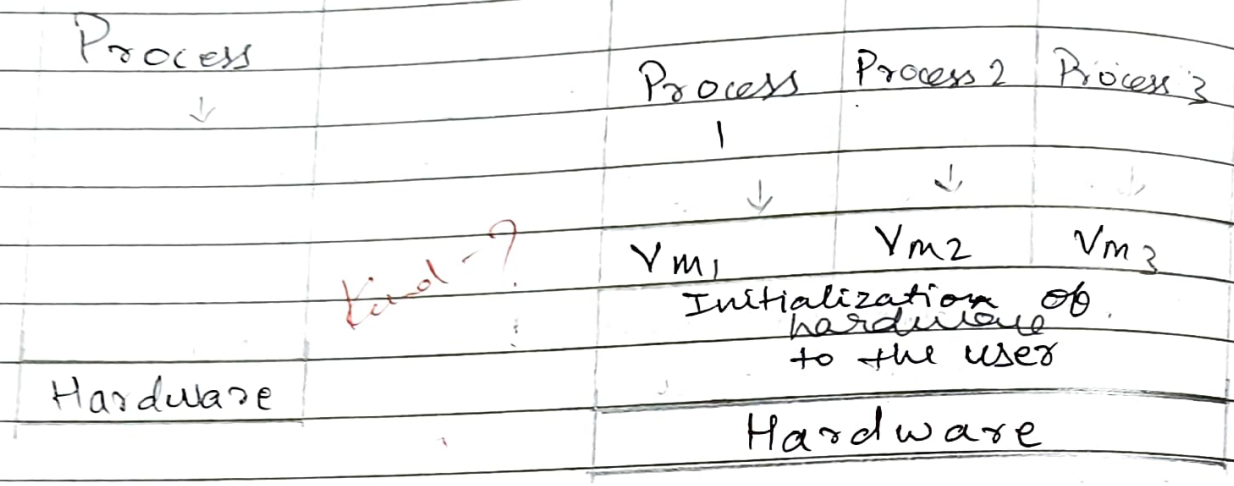

a. Normal Hardware

b. Virtual Machines.

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2 b. System calls -

* System calls are functions or interface specified by the operating system.

* This system calls helps the application to request for service from the operating system.

* System calls acts as a interface or communicator between the user application & Hardware.

Types of System calls.

i. Process System calls -
exec (), exit ()
it is used to implement a process on the processor.

ii. File System calls -
iii. Device System calls -
iv. Memory system calls -
v. communication system -
vi. Security system calls

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ii. File System calls -
This function is used to organise the data in a file.

iii. Device System calls -
This function is used to maintian the process going on the hardware.

iv. Memory System calls -
This function is used to store all the data for the process which needs or to happening process.

v. communication System calls -
This function is used to share all the data across the hardware.

vi. Security System calls -
This function is used to check the security of the data which is stored, moved across the hardware for process.

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Module 2

3.b. Multi Threading Models.

* Thread is a separate part of CPU utilization

* Threads are created during each every step of the process.

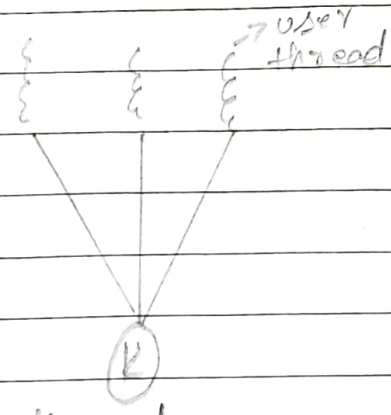
* Threads are created in between the process so that the process goes on without any interruption.

* By Multithreading is process where many user threads are connected to the kernel.

Different Multi Threading

i. Many to one
ii. one to one
iii. Many to many

i.



(i) Many to one

* In this method many user thread is connected to one Kernel
* only 1 user thread can access kernel at a time, so it is a slow process.
* If one thread is blocked the entire process is interrupted.

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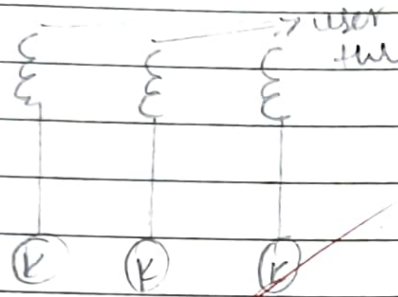
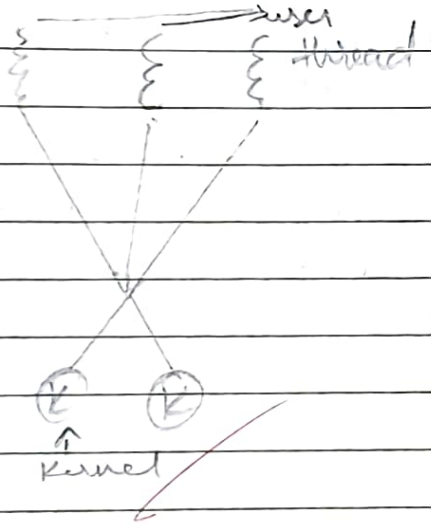
ii.



One to one

* each user thread is connected to a single kernel
* There is no delay in process even if one thread is blocked, other keeps working
* One limitation is the no. of threads created are limited.

iii.



* In this method the threads connected to equal to smaller number of kernel
* There is no interruption
* no of threads created has no limit.
* This method brings good from both many to one & one to one method.

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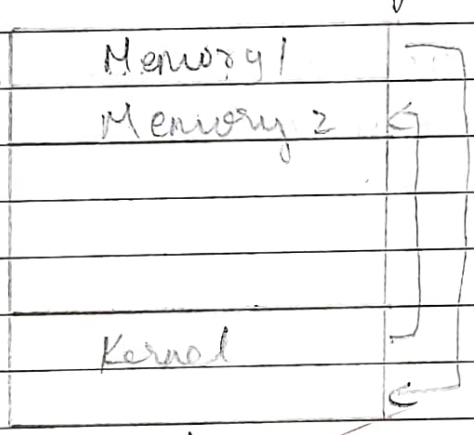
3.a. Inter Process communication

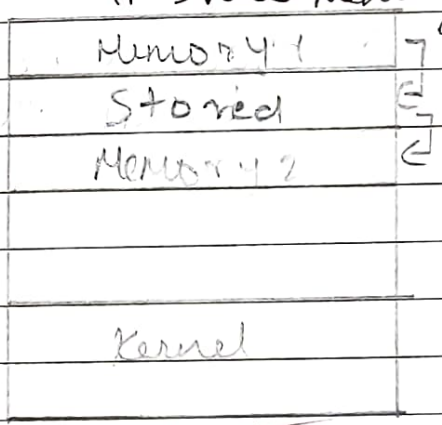
* Inter Process communication is process where where the memory are stored or passed of memory with help of a Kernel.

There are 2 type of IPC.

i. Message passing
ii. Shared memory concept



(i)



(ii)

Message Passing - / Instruction

i. During the process the message from M1 is relayed to the Kernel

ii. Then the Kernel passes or Memory takes the instruction / message relayed by the Memory / through the Kernel.

iii. It is one of the slow process due to the message passing of information.

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ii. Shared memory

* Here the memory 1 passes the next instruction which needs to executed in the Stored Area.

* Then the memory 2 recieves or takes the information from the stored Area to execute the process.

* There is no intreption or blocking of process in this shared memory concept.

MCQ

1. a. Fork

2. a. when process is scheduled to run after some executions

3. b. Communication between 2 process

4. b. Program counter

5. b. 5