

Operating System: Types of OS

For Questions & Queries:
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VISHVADEEP GOTHI SIR

AIR 19

in GATE 2010



**ME from IISc Bangalore
MTech BITS Pilani (Data Sc.)**



**13+ Years of Teaching Experience,
9+ Years in GATE/IES**



Subjects Taken:
Computer Organization,
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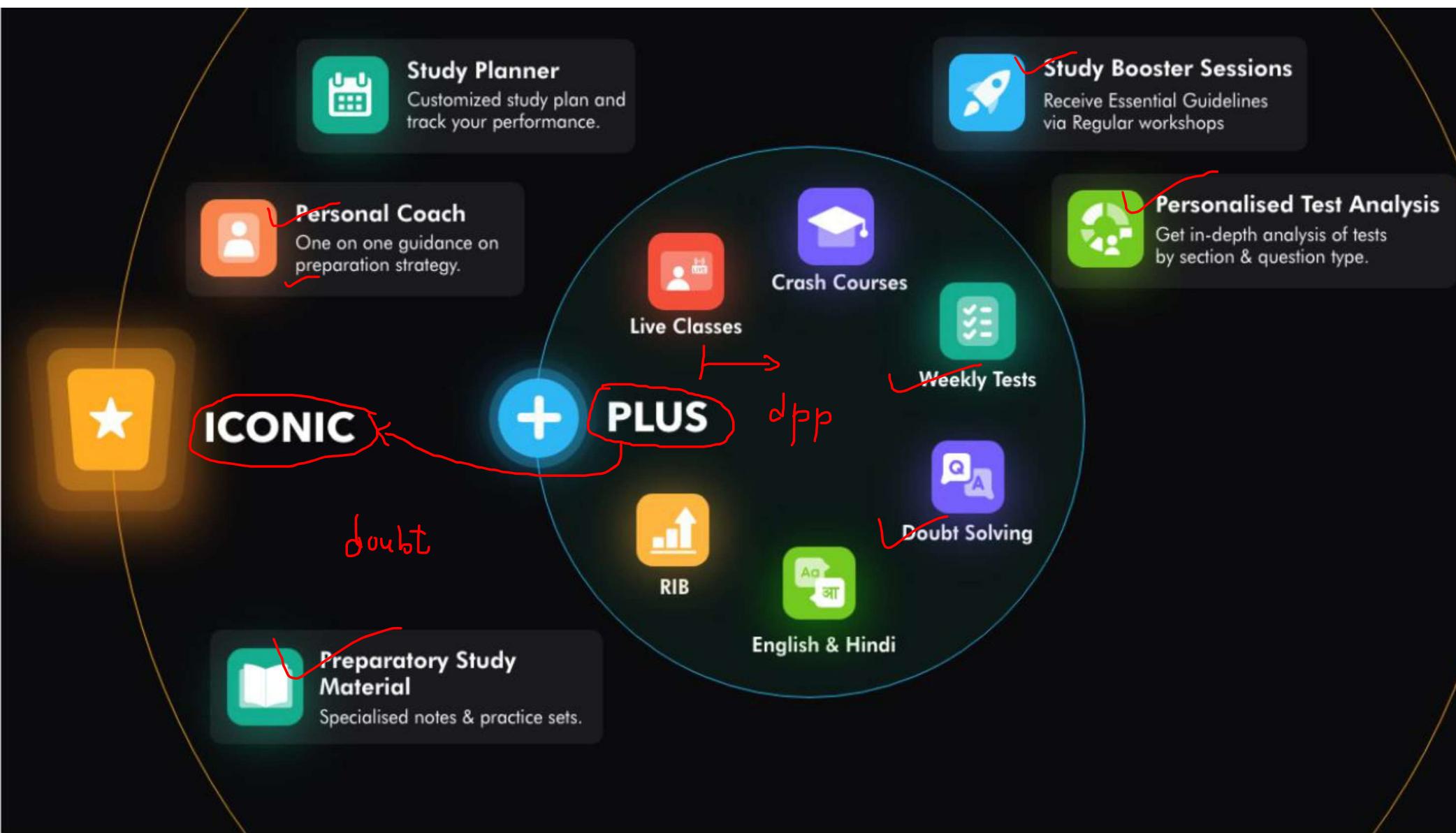
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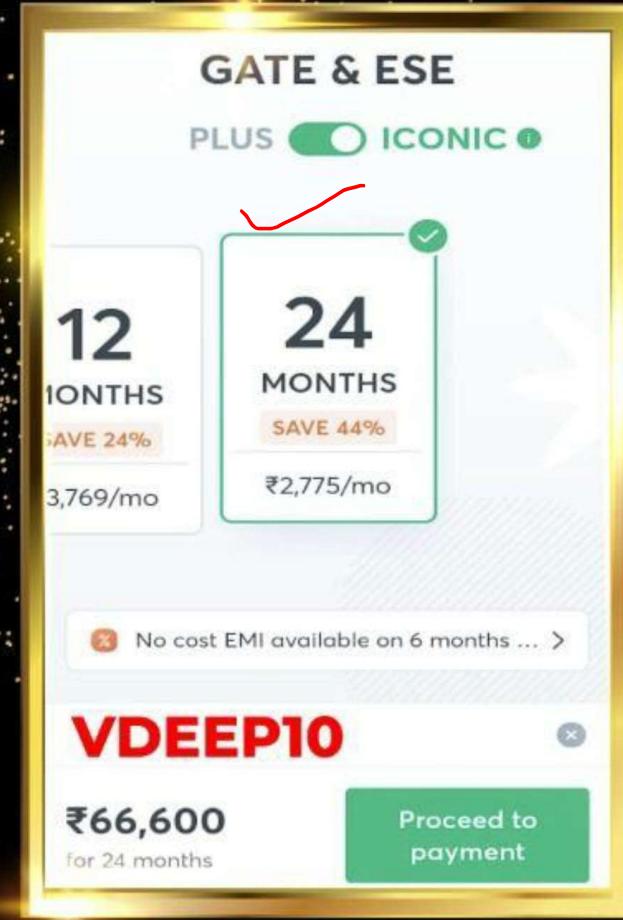
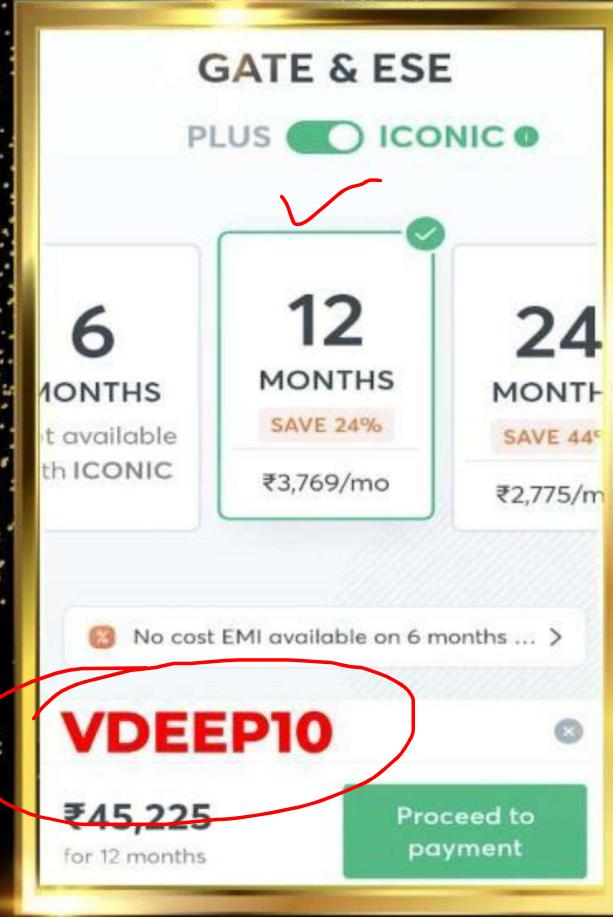
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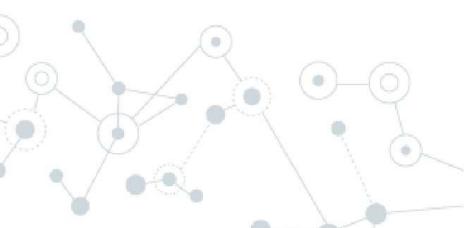
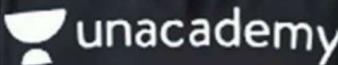


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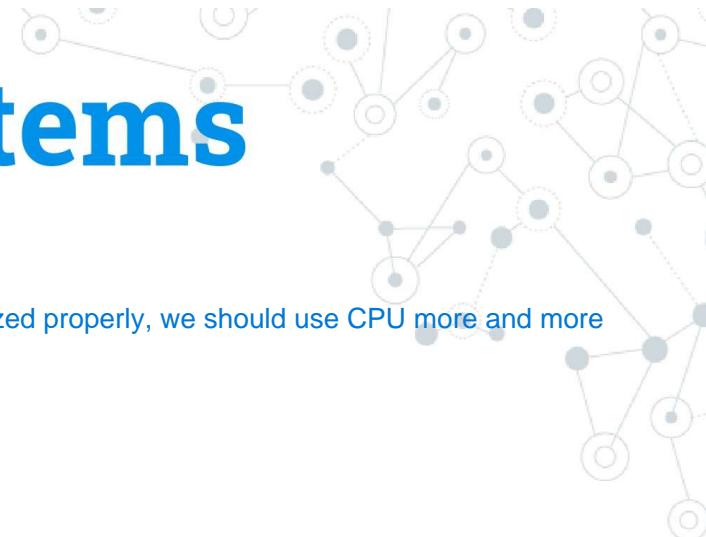
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Operating System



Types of Operating Systems

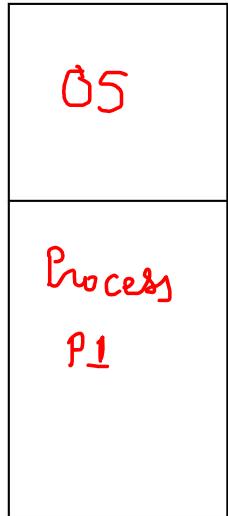


1. Uni-programming OS one process at a time , so the CPU is not utilized properly, we should use CPU more and more
example- TV in house
2. Multiprogramming OS
3. Multi-Tasking OS
4. Multi-User OS
5. Multi-Processing OS
6. Embedded OS
7. Real-Time OS
8. Hand-held Device OS



Uni-programming OS

OS allows only one process to reside in main memory



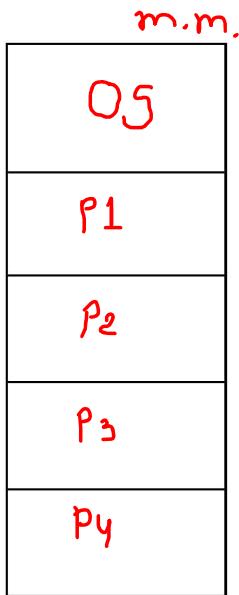
Single process cannot keep CPU & I/O devices
busy simultaneously.

→ Not a good CPU utilization.



Multi-programming OS

OS allows multiple processes to reside in main memory



→ Better CPU utilization than uni-programming ✓

→ Degree of multiprogramming :-

No. of running programs (processes) in mm.

→ As the degree of multiprogg increases, CPU utilization also increases. but upto a certain limit.



Multi-programming OS: Types

Preemptive

zabarjasti bhar nikal skte hain

Non-Preemptive

runs jab tak uski marzi hain

A process can be forcefully taken out of CPU.

A process runs off CPU till its wish.

- Either process terminates
- or goes for I/O operation



Multi-tasking OS

Time-Sharing

OS

Extension of multi-programming OS in which processes execute in round-robin fashion.

Round-Robin

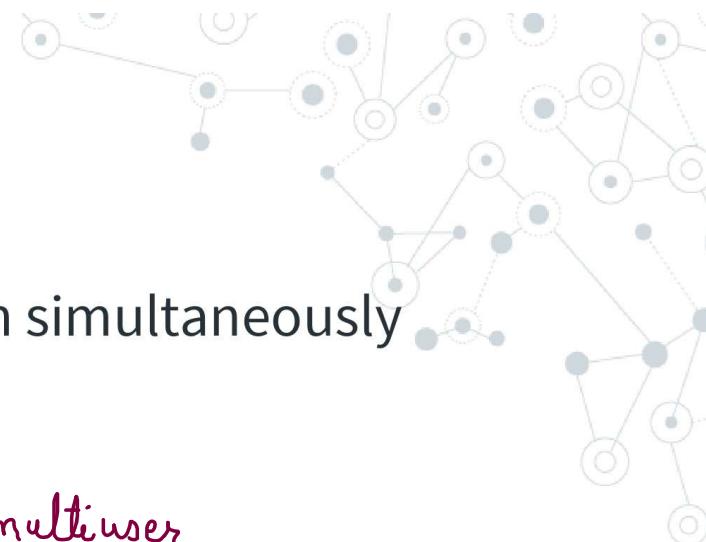


Multi-User OS

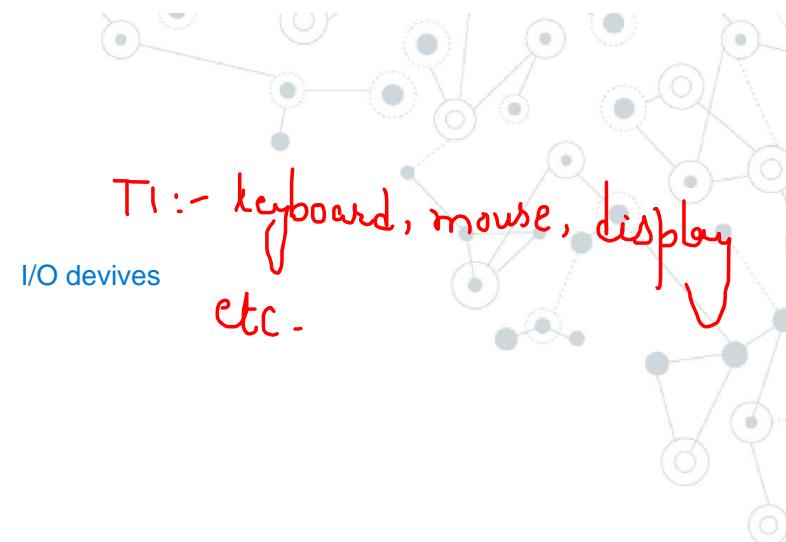
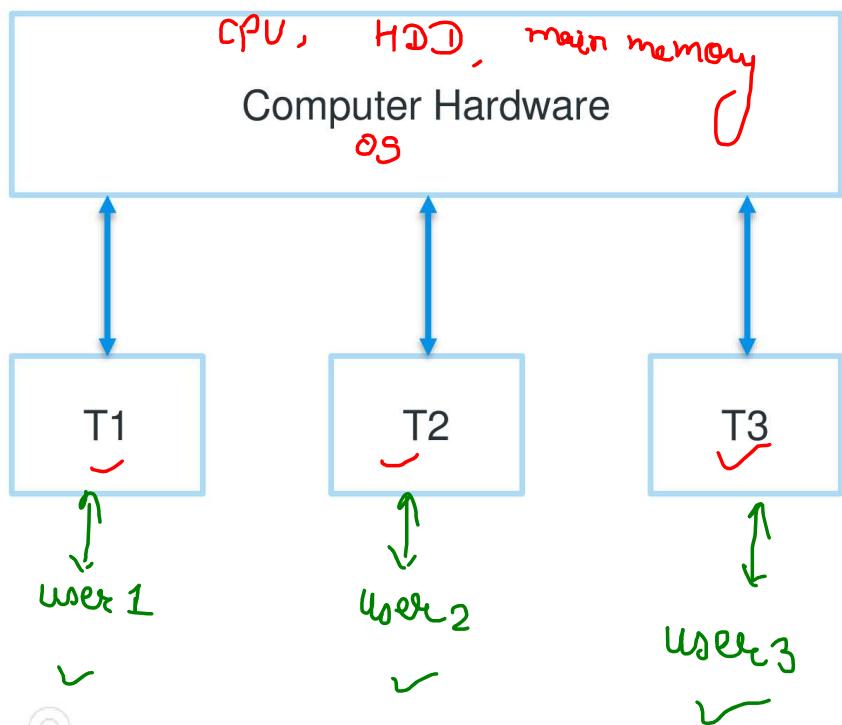
This OS allows multiple users to access single system simultaneously

windows — not multiuser OS

Unix & Linux } Yes multiuser



Multi-User OS



T1 :- keyboard, mouse, display
etc.



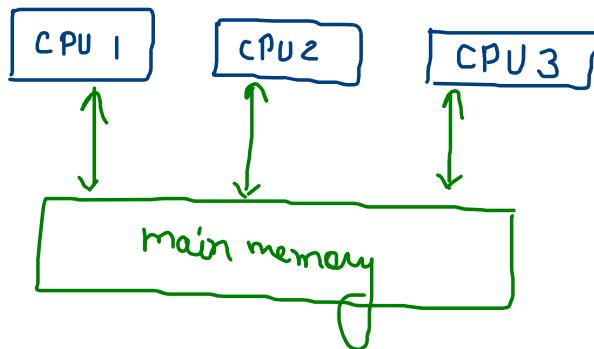
Multi-Processing OS

This OS is used in computer systems with multiple CPUs

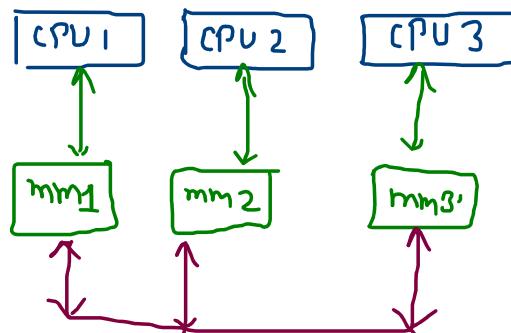


Multi-Processing OS: Types

Tightly Coupled
(shared-memory)



Loosely Coupled
(Distributed system)



Embedded OS

An OS for embedded computer systems.

- ◎ Designed for a specific purpose, to increase functionality and reliability for achieving a specific task.

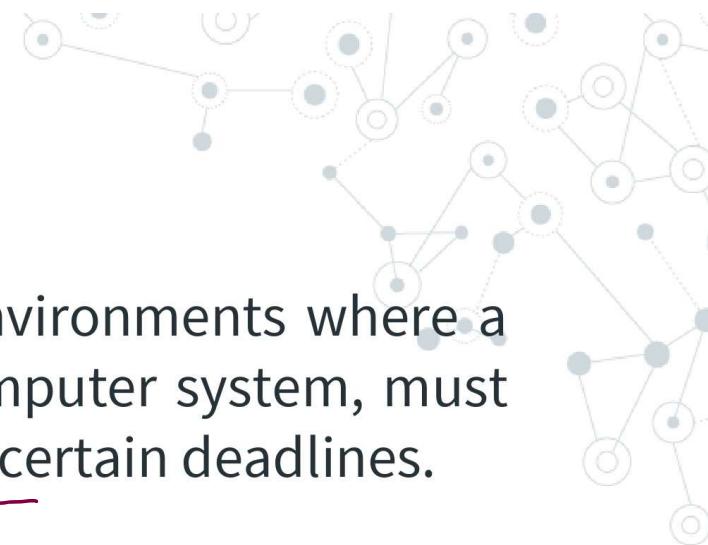
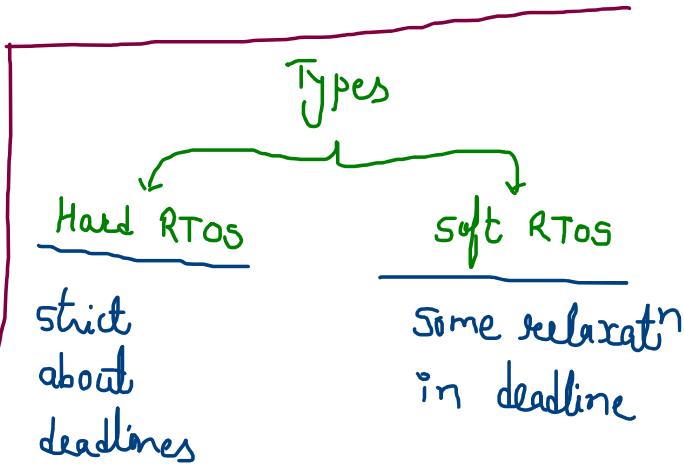
→ User interaction with OS in min.



Real-Time OS

Real time operating systems (RTOS) are used in environments where a large number of events, mostly external to the computer system, must be accepted and processed in a short time or within certain deadlines.

OS used for rocket launching
→ Every process has a deadline.



Hand-held Device OS

OS used in hand-held devices.

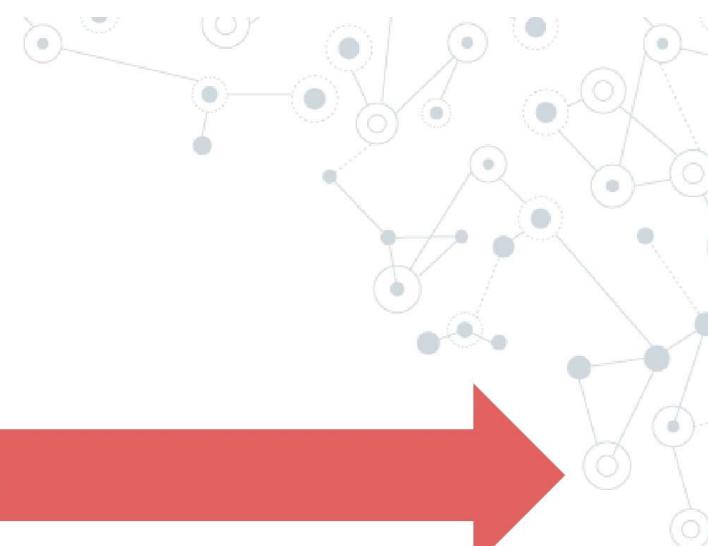


Next Class

What is Process?

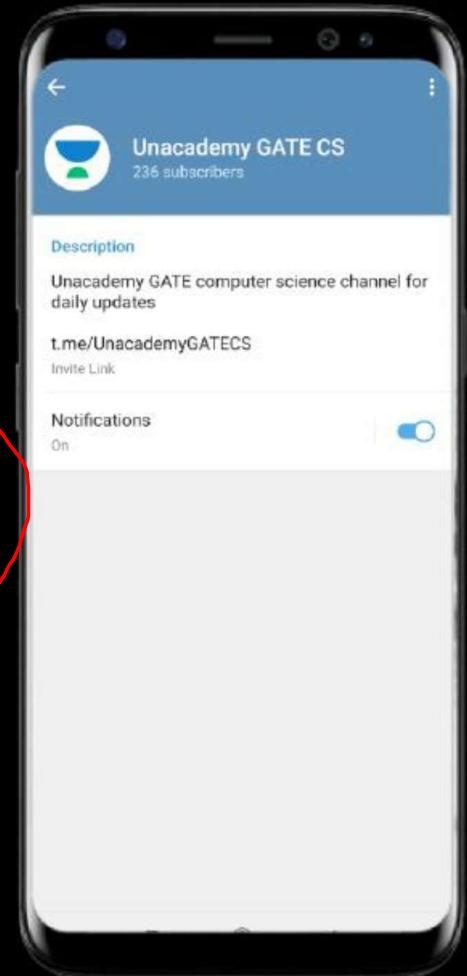


Process Management





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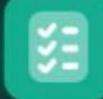
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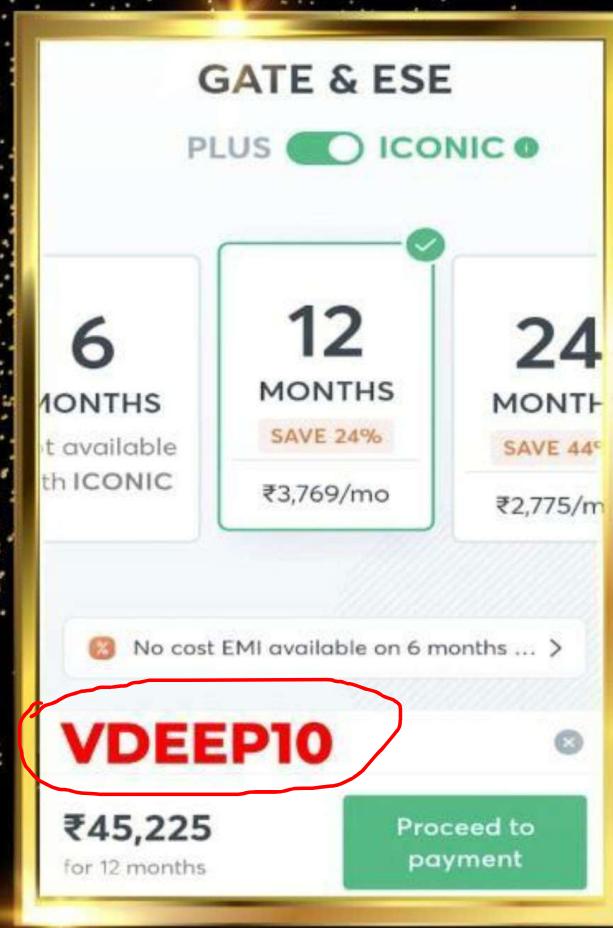
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