

Operating System: Process State Transition

By: Vishvadeep Gothi



VISHVADEEP GOTHI SIR

AIR 19

in GATE 2010



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



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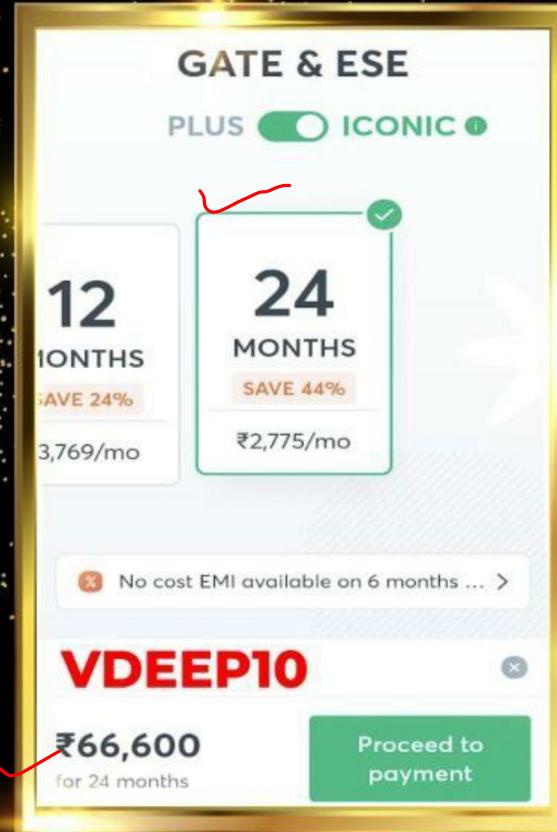
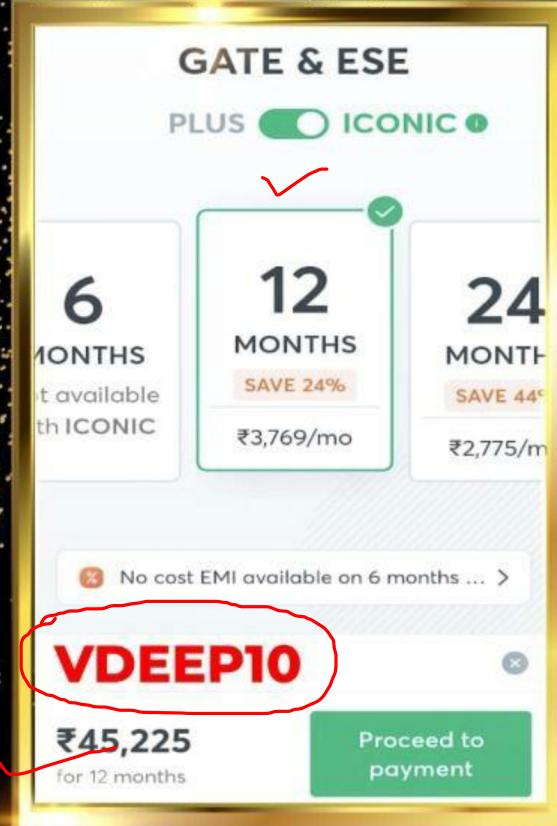
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Process

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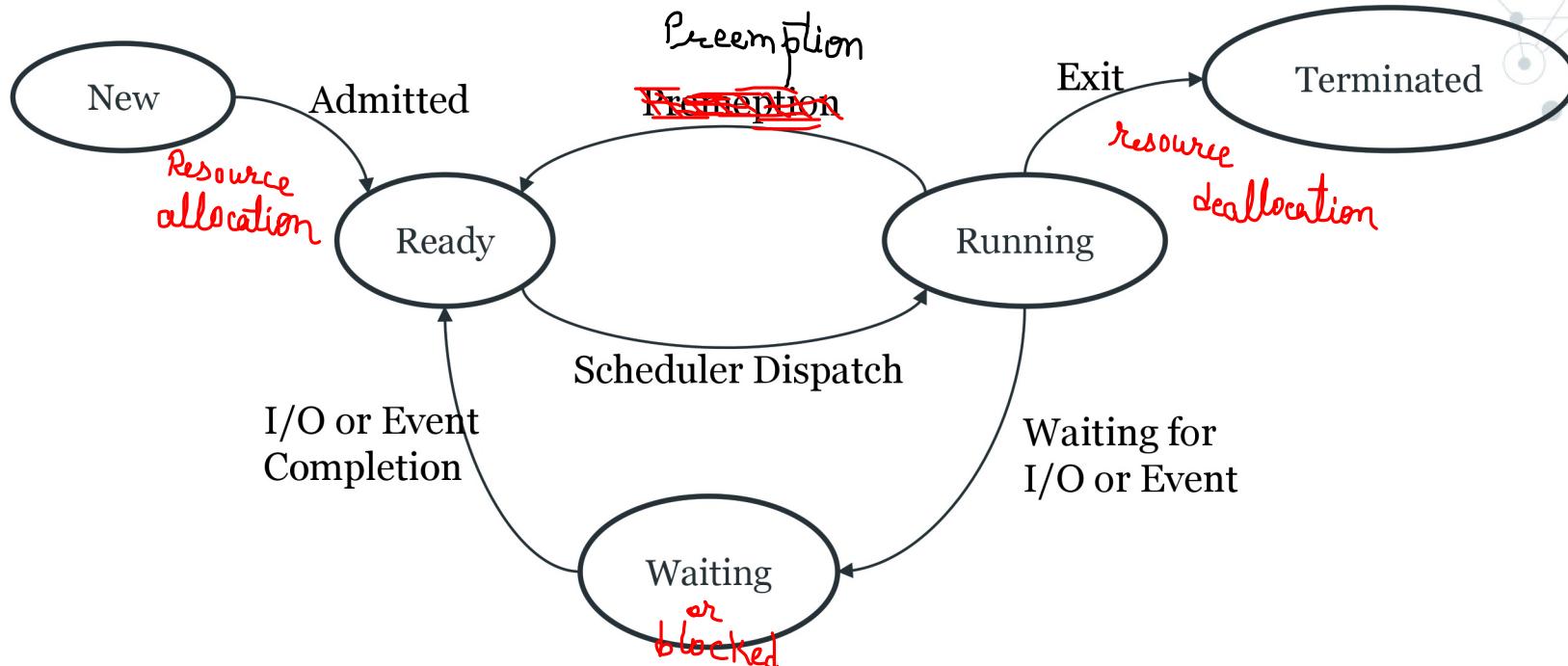
- Program under execution
- An instance of a program
- Schedulable/Dispatchable unit (CPU)
- Unit of execution (CPU)
- Locus of control (OS)



Process States



Process States



Process States



New:

All installed processes are known to be in new state

Ready:

All processes which are waiting to run on CPU are known to be in ready state



Process States

Running:

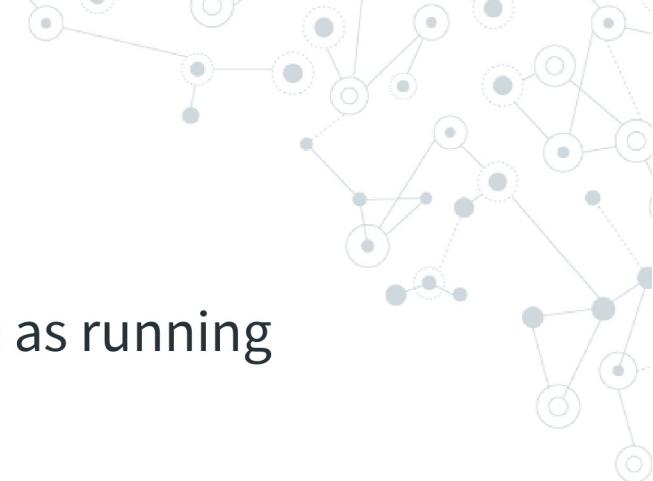
A process which is running on CPU has its state as running

Terminated:

A completed process has its state as terminated

Blocked:

All processes which are waiting for any IO or event



Process States Transitions

New To Ready: When process is admitted by OS — *by OS*

Ready to Running: When a process is dispatched to CPU — *by OS*

Running to Terminated: When a process is completed — *by process*

Running to Blocked: When a process goes for IO or event — *by process*

Running to Ready: When a process is preempted — *OS*

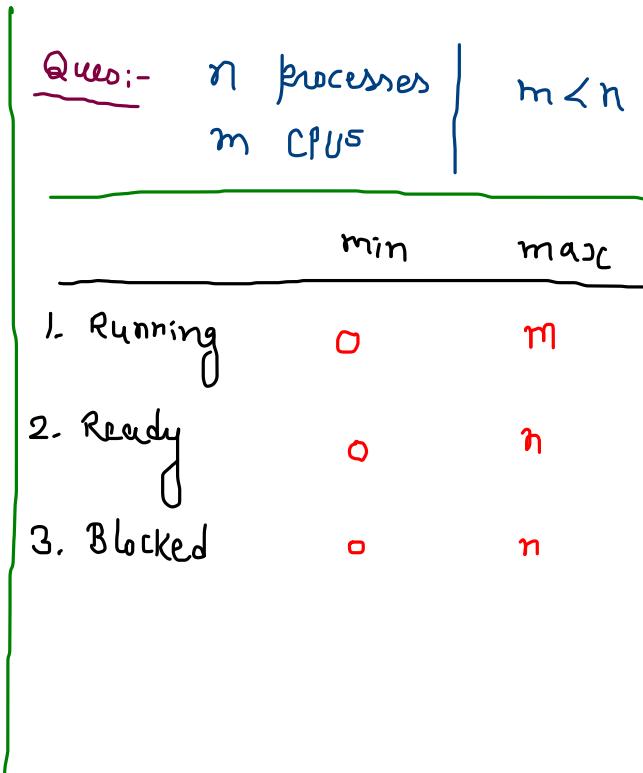
Blocked to Ready: When a process completes IO or event

OS

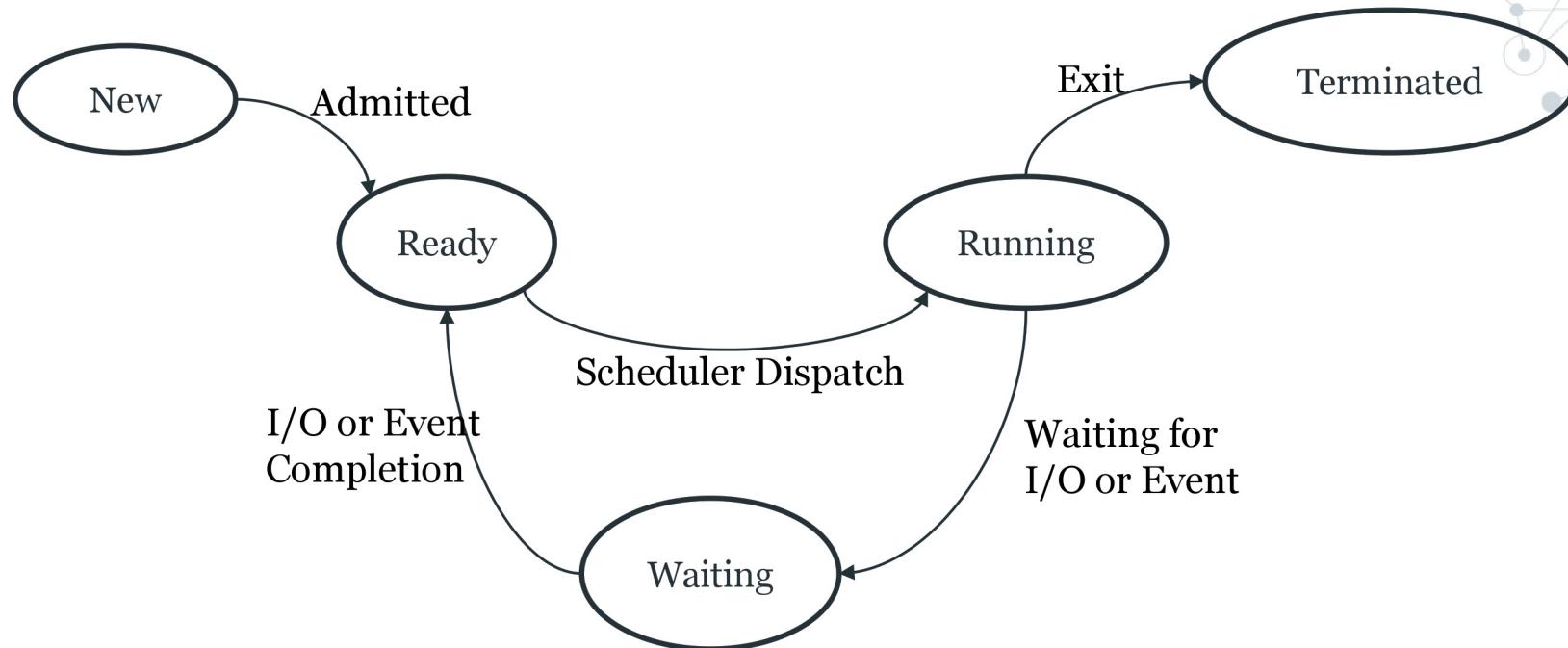
Process States Transitions

2 Transitions are voluntary:

- Running to Terminated
- Running to Blocked



Process States: Non-preemptive



CPU vs IO Bound Process

Father vs mother bound process

CPU Bound: If the process is intensive in terms of CPU operations

IO Bound: If the process is intensive in terms of IO operations

If a process is IO bound then it does not mean that it will not use CPU as to go to the blocked state one process must go to the running state and uses the CPU.



Question 1

Which of the following state is/are initiated by process itself?

- a) Running
- b) Ready
- c) Terminated
- d) Blocked



Question 2

A process which has just terminated but has to relinquish its resources is called?

- a) Suspended Process
- b) Zombie Process
- c) Blocked Process
- d) Terminated Process



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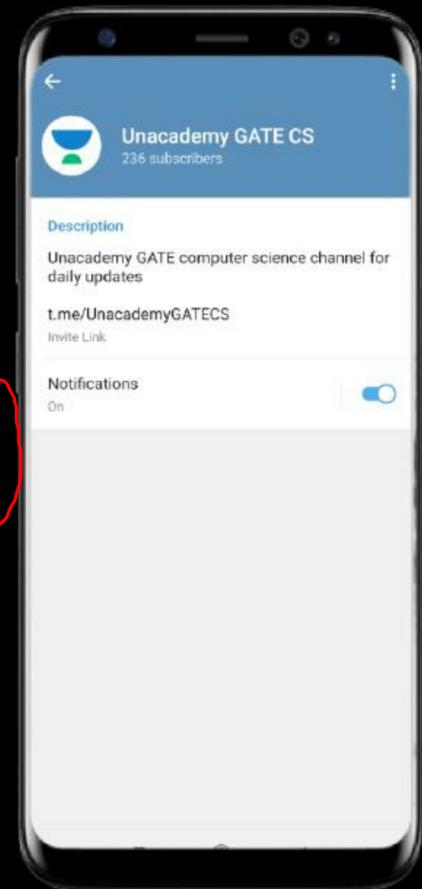


✓ Process Scheduling





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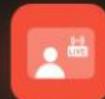
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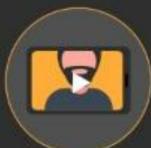
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