CS & IT ENGINEERING

Operating System

Process Management

Lecture - 2

By- Vishvadeep Gothi sir

Recap of Previous Lecture

Topic — Operating System Definition

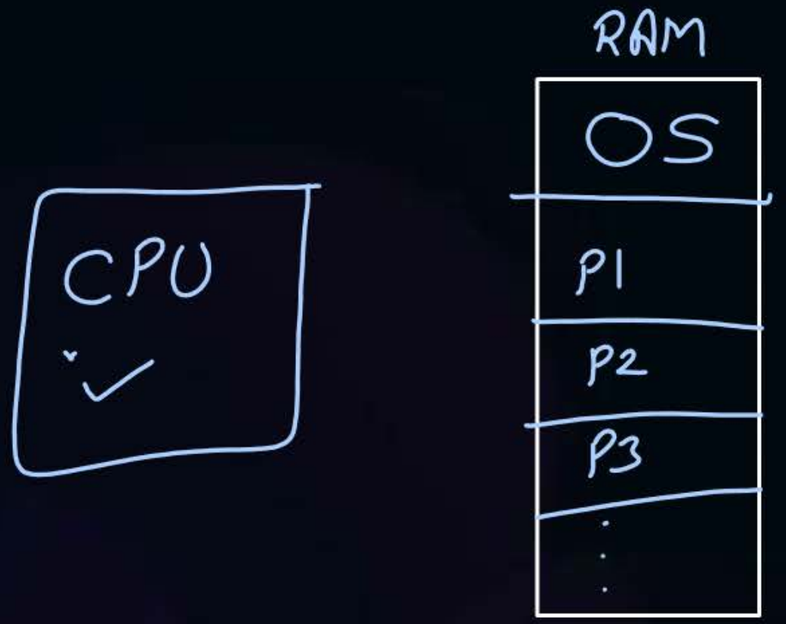
Topic — Types of Operating System

Topics to be Covered

- Topic: Dual Mode of Operation
- Topic: Process
- Topic: Process Representation
- Topic: Process Control Block

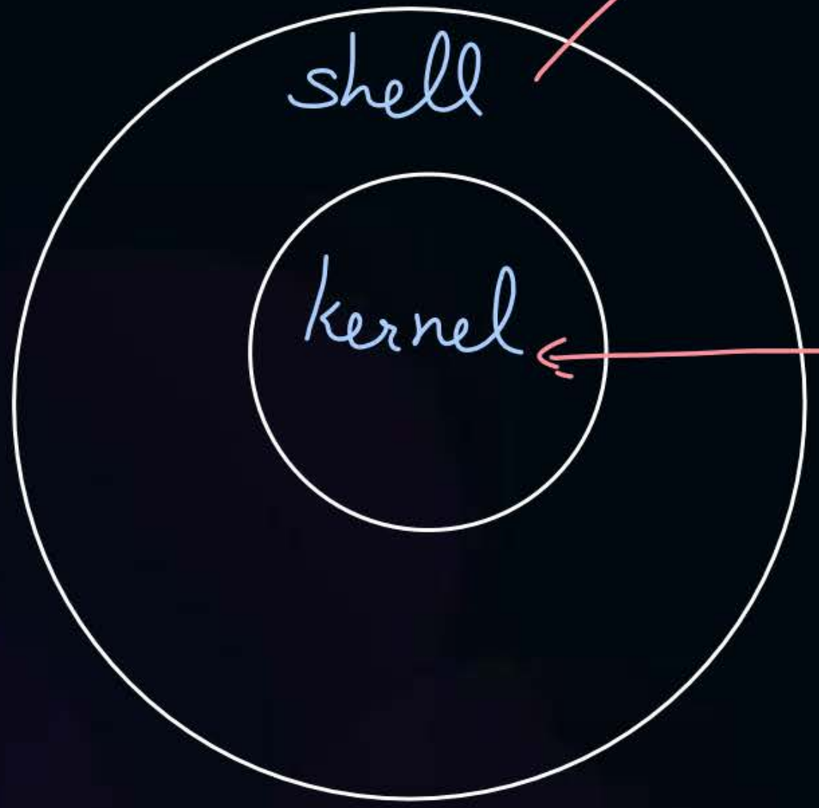
Topic : System Call

A system call is a way for programs to interact with the operating system



Topic : Parts of OS

1. GUI (Graphical User Interface)
2. Command Line Interface



Core part of OS which has all OS features

Topic : Dual Mode of Operation

2 modes:
User Mode (mode bit = 1)
Kernel/System/Supervisor/Privileged Mode (mode bit = 0)

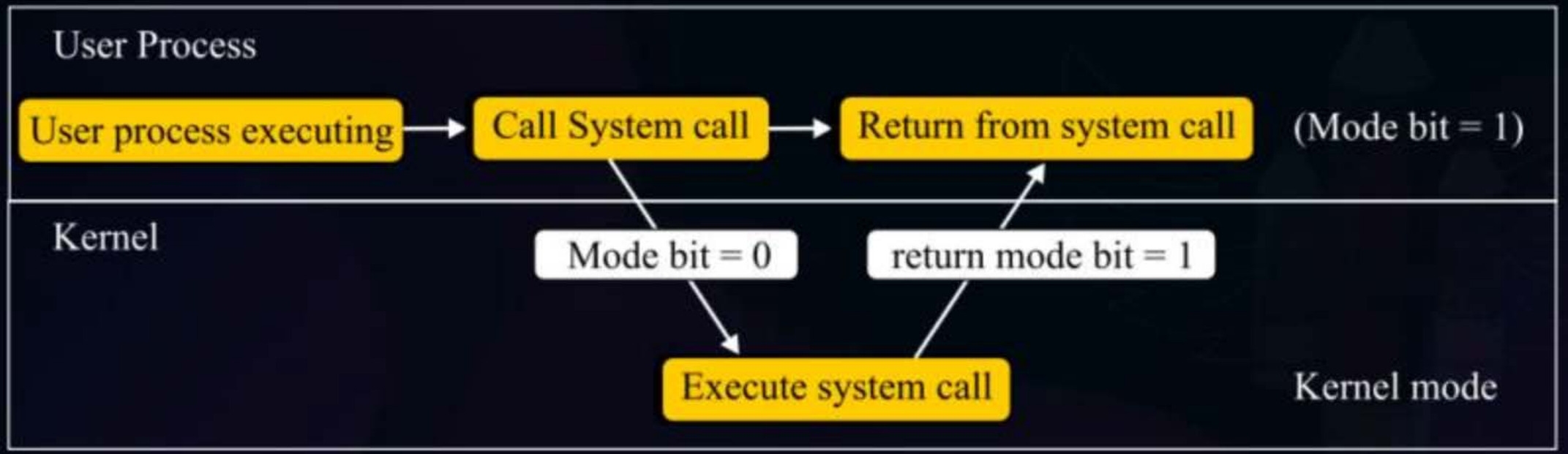
Used for system protection

Topic : Dual Mode of Operation

2 Modes:

User Mode (mode bit = 1)

Kernel/System/Supervisor/Privileged Mode (mode bit = 0)



Topic : Process

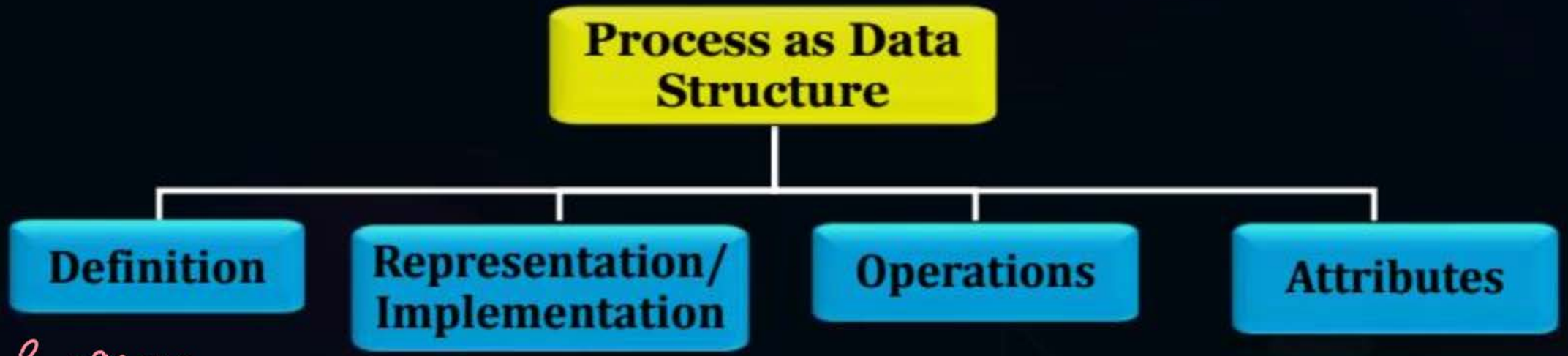
Program in execution is called as a process.

Process = Program + Runtime activity

Topic : Process

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

Topic : Process



Program
(set of instructions)

Topic : Representation of a Process

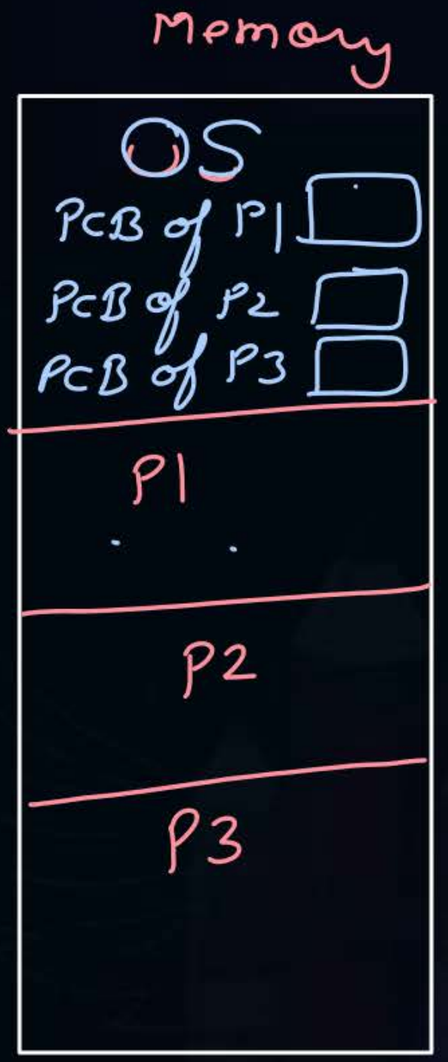
Each process is stored in memory in 4 sections

Topic : Operations on a Process

- Create (Resource Allocation)
- Schedule, Run
- Wait/Block
- Suspend, Resume
- Terminate (Resource Deallocation)

Topic : Attributes of a Process

- PID (Process id)
- PC
- GPR (General Purpose Registers)
- List of Devices
- Type
- Size
- Memory Limits
- Priority
- State
- List of Files



Topic : PCB

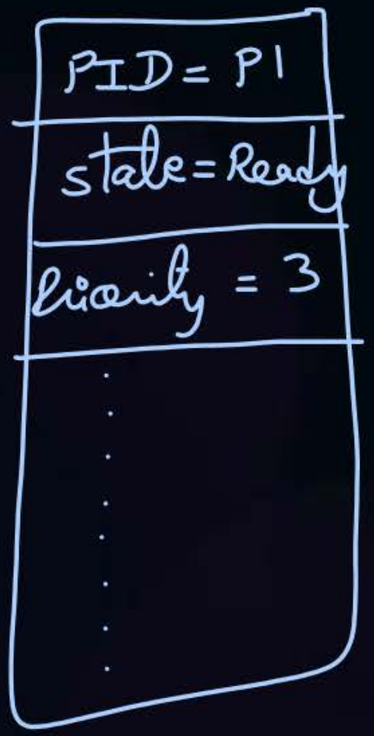
Process Control Block

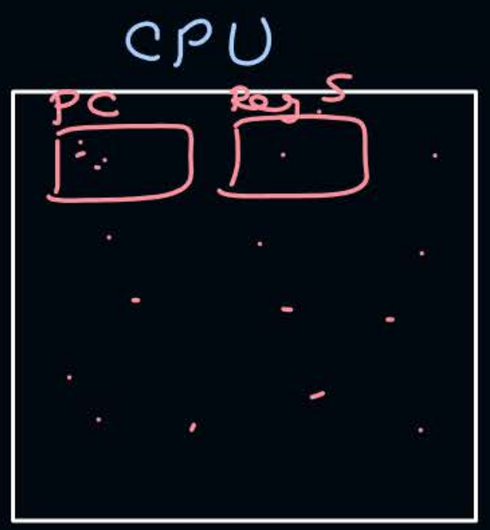
Also known as processor descriptor

Topic : Context

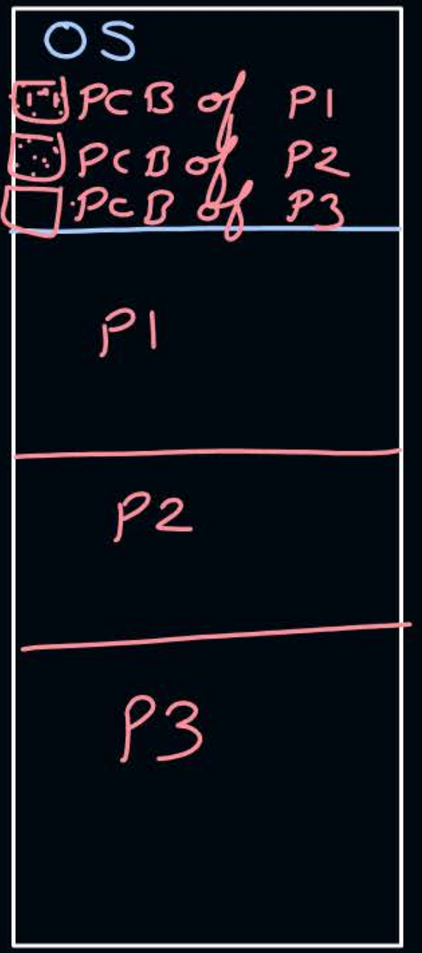
The content of PCB of a process are collectively know as 'Context' of that process

Process PCB





Assuming P1 is running in CPU.



memory

Context switch :-

1. Context (CPU register values) of current running process is stored in it's PCB.
2. Context of next process is loaded into CPU registers from PCB.

[NAT]

#Q. While running, a process can access its PCB from main memory?

NO

[MCQ]

#Q. A process in the context of computing is:

A. A set of instructions to be executed on a computer → Program

B. A program in execution ✓

C. A piece of hardware that executes a set of instructions → CPU

D. The main procedure of a program → main function

2 mins Summary

Topic Dual Mode of Operation

Topic Process

Topic Process Representation

Topic Process Control Block

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Happy Learning

THANK - YOU