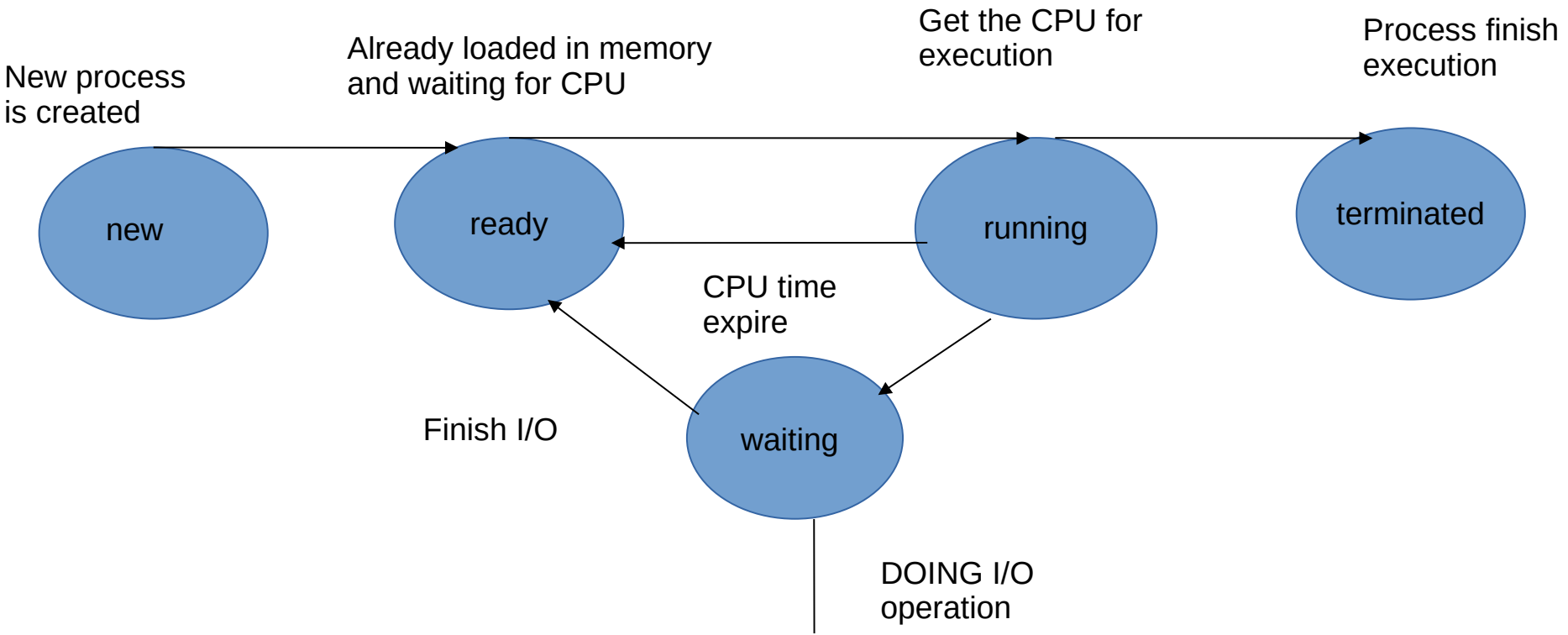
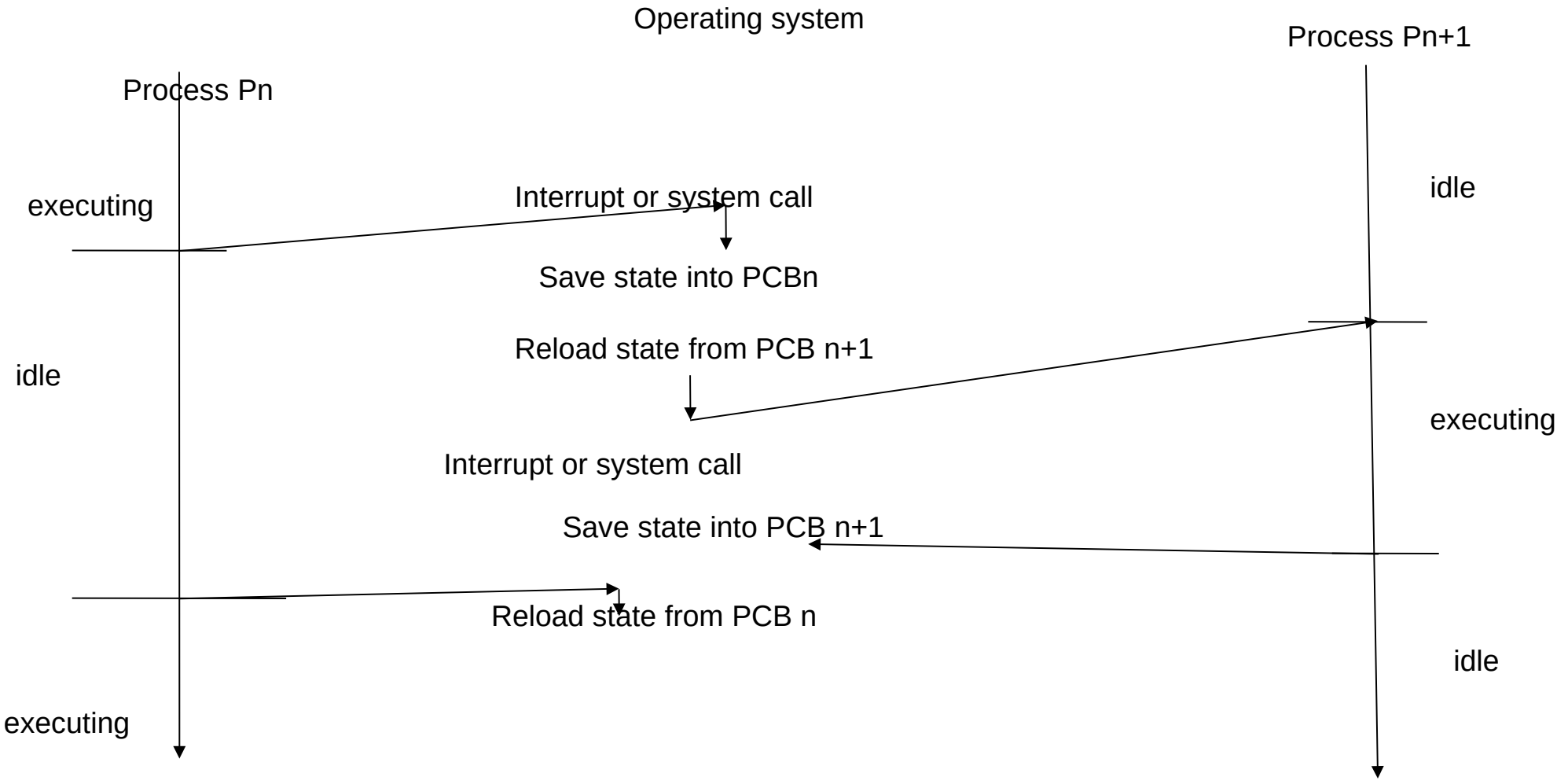

New process
is created
Already loaded in memory
and waiting for CPU
Get the CPU for
execution
Process finish
execution
new
ready
running
terminated
CPU time
expire
Finish I/O
waiting
DOING I/O
operation

Process Control Block

Each process is represented in the OS by a process control block(PCB).

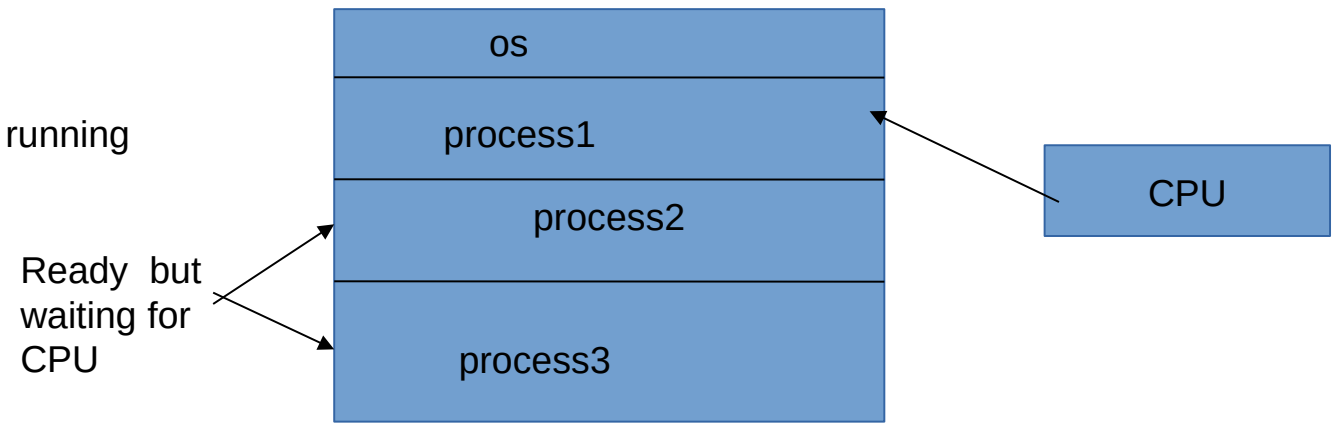
It contains many peace of information:

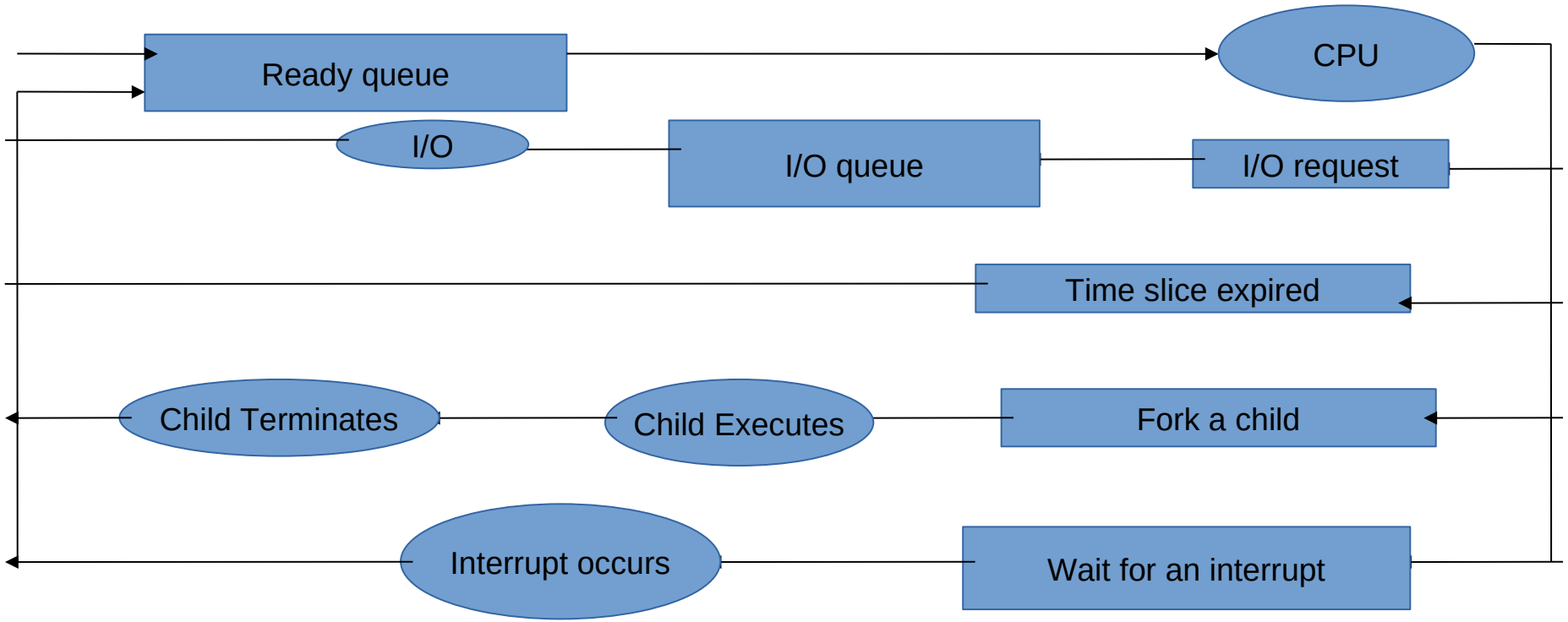
- Process state: new/ready/running/.....
- Program counter information: Address of the next instruction to be execute.
- CPU registers: Registers may be very in numbers.
- CPU scheduling information: Process priority.
- Memory management information: This may include the value of the base and limit address and other informations: page table, segment table etc.
- Account information: This includes the amount of CPU and real time used, process number etc..
- I/O status information: This includes the list of I/O devices allocated to this process.


Operating system
Process Pn
Process Pn+1
executing
Interrupt or system call
idle
Save state into PCBn
Reload state from PCB n+1
idle
executing
Interrupt or system call
Save state into PCB n+1
Reload state from PCB n
idle
executing

Process Scheduling

- For a uniprocessor system there will never be more than one running process.
- If there are more processes, the rest have to wait until the CPU is free and can be rescheduled.




Ready queue
CPU
I/O
I/O queue
I/O request
Time slice expired
Child Terminates
Child Executes
Fork a child
Interrupt occurs
Wait for an interrupt

Job queue: As processes enter into the system, they are kept in this queue.

Ready queue: This queue consists of all processes that are ready and waiting to be executed.

Device queue: This queue consist of all processes waiting for the particular I/O device. Thus there is a device queue for each device.