L-2.7 Round Robin (RR) Scheduling algorithm

Criteria : "Time quantum"

Mode : "Preemptive".

Process executes upto a given time quantum irrespective of burst time and if the process is not completed it is again sent to ready queue.

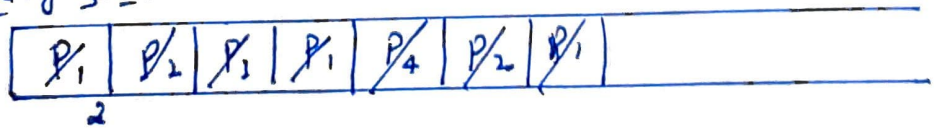
Given TQ = 2

Sequence of processes in ready queue is very important.

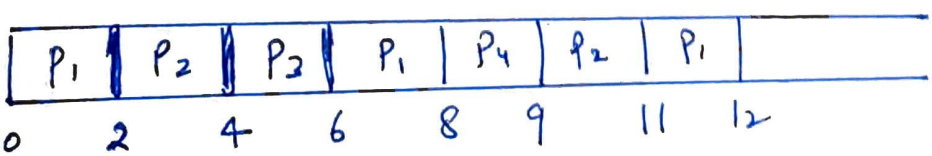
Process no	Arrival time	Burst time	completion time	TAT (CT - AT)	WT (TAT - BT)	RT (CPU first time - AT)
P_1	0	~~5~~ 1	12	12	7	0
P_2	1	~~4~~ 2	11	10	6	1
P_3	2	2	6	4	2	2
P_4	4	1	9	5	4	4

TQ = 2

Ready Queue



Running queue (gantt chart)



Context switching → saving a process temporarily to execute later.

In the previous example, P_1 is context switched again and again.

(Q) How many times context switching happened

Running process ko waapas bhejo and naye ko laayo

6 . ?

L-2.8 Pre-emptive Priority scheduling algorithm

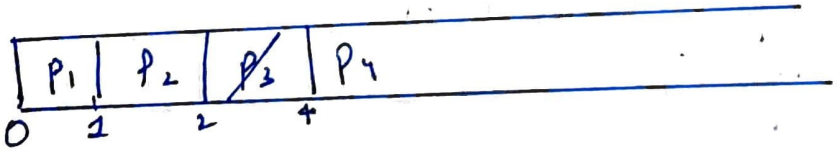
Criteria : "Priority"

Mode : "Pre emptive"

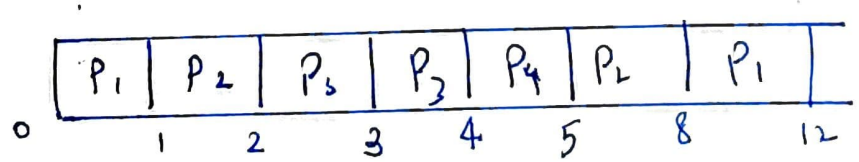
Priority	Process No.	Arrival time	Burst time	completion time	TAT (CT - AT)	WT (TAT - BT)
10	P_1	0	~~5~~ 4	12	12	7
20	P_2	1	~~4~~ 3	8	7	3
30	P_3	2	2	4	2	0
40	P_4	4	1	5	1	0

Higher number = higher priority in this case.

Ready queue.



Running queue.



L-2.9 Example of Mix Burst time (CPU & I/O both) scheduling

Process	AT	Priority	CPU	I/O	CPU
P_1	0	2	1 0	5 0	3 1 0
P_2	2	3	3 1 1 0	3	1 0
P_3	3	1	1 1 0	3 0	1 0
P_4	3	4	1 0	4	1

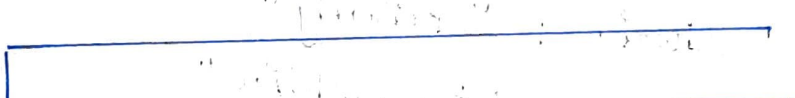
Mode : Pre-emptive

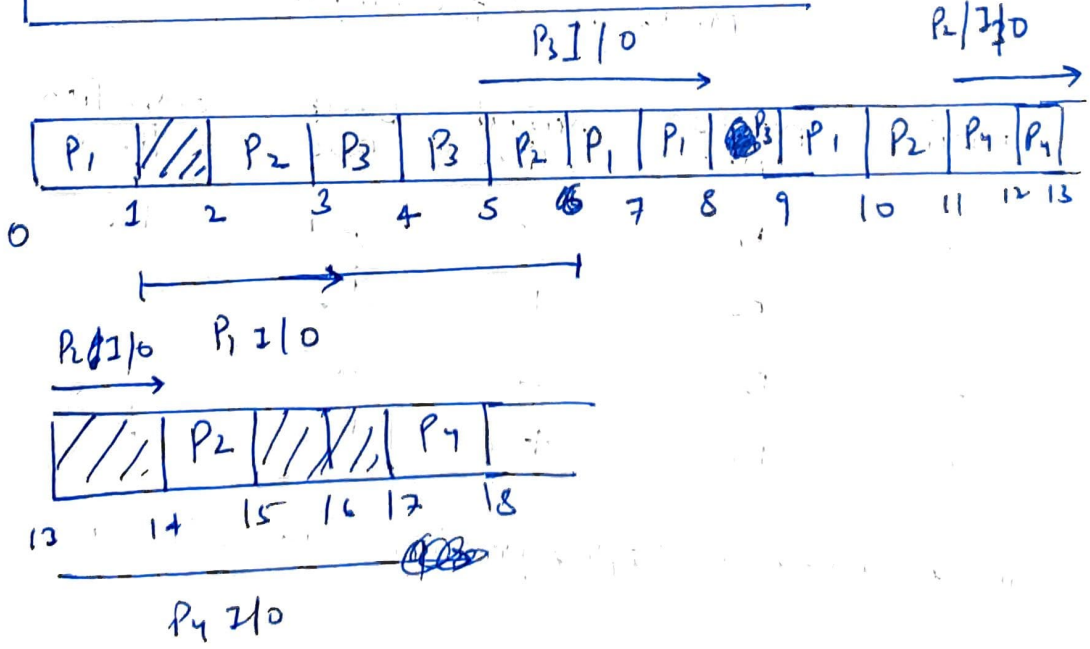
Criteria : Priority based

lower number has higher priority in this case.

Find CT of P_1, P_2, P_3, P_4.

Ready queue

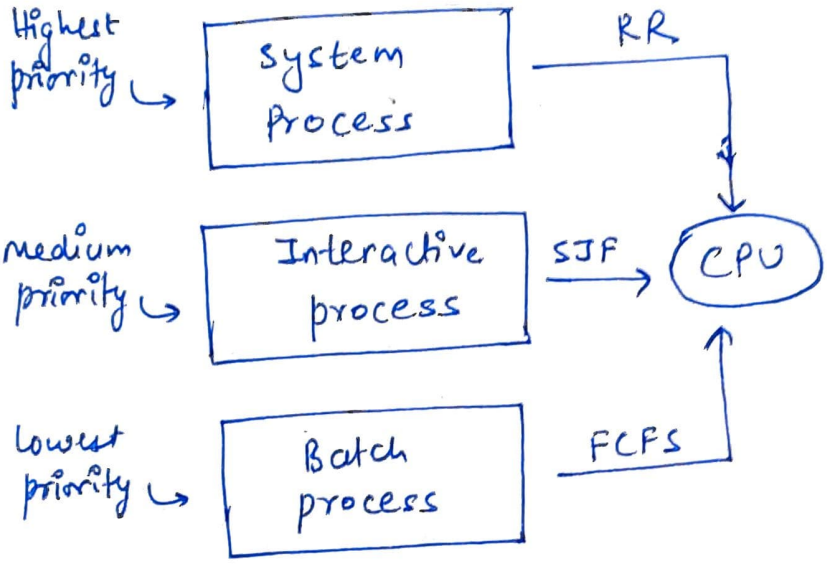




L-2.10 Multi Level Queue scheduling

different queues for different priority processes.

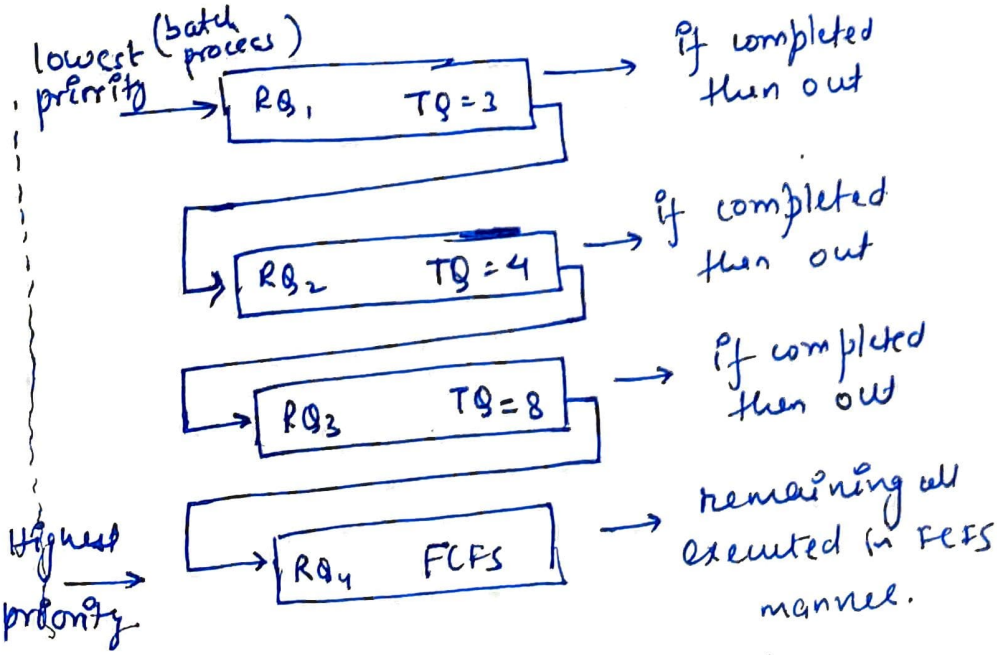
Every kind of process can have its own different scheduling algorithm.



Now, the problem is that if there are a lot of system processes, there would be starvation for medium and low priority processes.

This is solved using multilevel feedback queue scheduling.

L-2.11 Multilevel Feedback Queue



Lowest priority process does not starve because its queue keeps on changing