OPERATING SYSTEM (CS-206)

Lecture-5

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Highest Response Ratio Next (HRRN)

→ Non-preemptive.

→ Used to tackle the issue of Starvation in SJF

→ Response ratio = $\frac{\text{Waiting time} + \text{Burst time}}{\text{Burst time}}$.

HRRN-Non-preemptive without context switch overhead.

PID/P#	AT	BT	CT/FT	TAT	WT	RT
1	0	7				
2	0	4				
3	0	2				
4	0	5				

In first cycle:

$RR_1 = RR_2 = RR_3 = RR_4$

$\Rightarrow$ Use FCFS

In second cycle.

$RR_2 = \frac{7+4}{4} = 2.75$

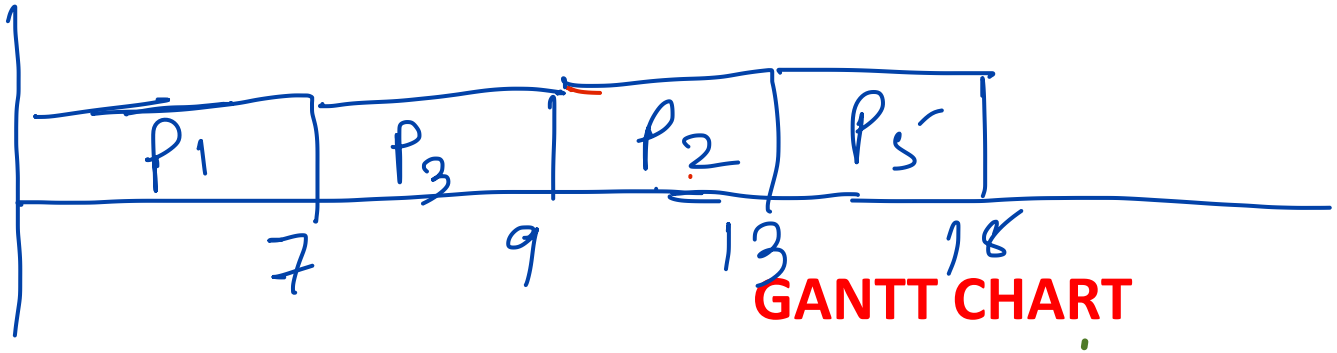
$RR_3 = \frac{7+2}{2} = 4.5$

$RR_4 = \frac{7+5}{5} = 2.5$

In third cycle.

$RR_2 = \frac{9+4}{4} = 3.25$

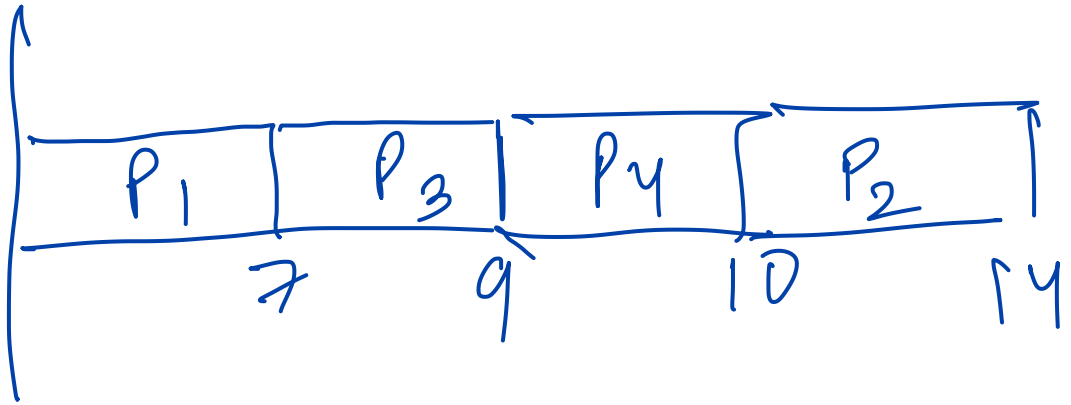
$RR_4 = \frac{9+5}{5} = 2.8$



GANTT CHART

HRRN

PID/P#	AT	BT	CT/FT	TAT	WT	RT
1	0	7			0	0
2	2	4			8	8
3	4	2			3	3
4	7	1			2	2
						3.25



Cycle 1
only one process at 0

Cycle 2

$RR2 = \frac{5+4}{4} = 2.25$

$RR3 = \frac{3+2}{2} = 2.5$

$RR4 = \frac{0+1}{1} = 1$

Cycle 3

$RR2 = \frac{7+4}{4} = 2.75$

$RR4 = \frac{2+1}{1} = 3$

Cycle 4
only one process