

# HRNN Example

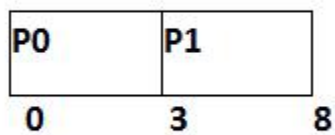
In the following example, there are 5 processes given. Their arrival time and Burst Time are given in the table.

Process ID	Arrival Time	Burst Time
0	0	3
1	3	5
2	4	4
3	6	1
4	8	2

At time 0, The Process P0 arrives with the CPU burst time of 3 units. Since it is the only process arrived till now hence this will get scheduled immediately.



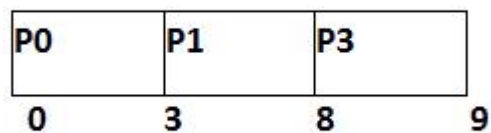
P0 is executed for 3 units, meanwhile, only one process P1 arrives at time 3. This will get scheduled immediately since the OS doesn't have a choice.



P1 is executed for 5 units. Meanwhile, all the processes get available. We have to calculate the Response Ratio for all the remaining jobs.

1.  $RR(P2) = ((8-4) + 4)/4 = 2$
2.  $RR(P3) = (2+1)/1 = 3$
3.  $RR(P4) = (0+2)/2 = 1$

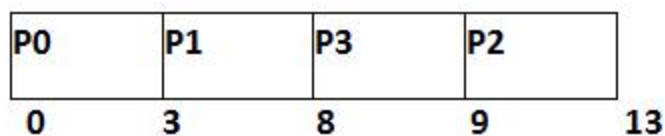
Since, the Response ratio of P3 is higher hence P3 will be scheduled first.



P3 is scheduled for 1 unit. The next available processes are P2 and P4. Let's calculate their Response ratio.

1.  $RR(P2) = (5+4)/4 = 2.25$
2.  $RR(P4) = (1+2)/2 = 1.5$

The response ratio of P2 is higher hence P2 will be scheduled.



Now, the only available process is P4 with the burst time of 2 units, since there is no other process available hence this will be scheduled.

P0	P1	P3	P2	P4	
0	3	8	9	13	15

<b>Process ID</b>	<b>Arrival Time</b>	<b>Burst Time</b>	<b>Completion Time</b>	<b>Turn Around Time</b>	<b>Waiting Time</b>
0	0	3	3	3	0
1	2	5	8	6	1
2	4	4	13	9	5
3	6	1	9	3	2
4	8	2	15	7	5

Average Waiting Time = 13/5