Group B

Assignment No:- 1

Aim:- Write a program to simulate CPU Scheduling algorithm:- FCFS

Theory:-

It is a long term scheduling algorithm. It is one of the simplest scheduling algorithms, in which jobs are executed in the order of their arrival.

Working of FCFS:-

i] FCFS is a first-come-first-served scheduling.

ii] It's come in Non-premptive scheduling. It is a common scheduling algorithm.

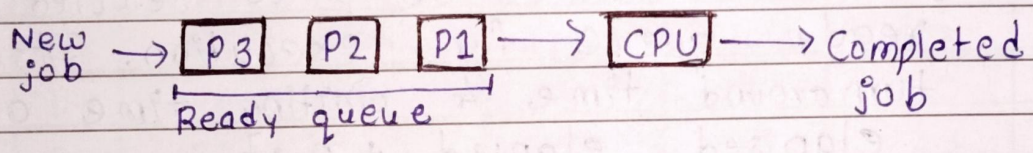


Fig. FCFS Scheduling.

iii] Its implementation involves maintaining a queue of arriving jobs. Whenever the CPU is free, a new job from the ready queue is assigned CPU. Once a process has the CPU, it runs to completion.

Algorithm:-

The algorithm requires three queues:-
1. Wait :- Queue of new jobs.
2. Ready :- Queue of reddy jobs.
3. Finish :- Queue of executed jobs.

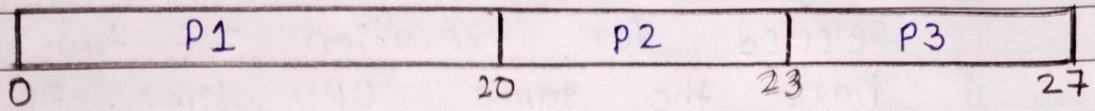
i] Jobs to be processed are stored in the arrival queue. elapsed = n.
ii] If both wait queue & the ready queue are empty then goto step 7.
iii] For every job p in wait queue
If p at ≤ elapsed
then
p is deleted from wait queue and inserted in ready queue.
iv] A new ~~deleted~~ job p is selected from the ready queue for execution. Its Finish-time turnaround time & waiting time are calculated.
elapsed = elapsed + p.st
v] Goto step 2
vi] Generate report
vii] Stop.

Example :-

If proces arrive in order P_1, P_2 & P_3 in quick succession and serve in FCFS order we get

result.

Process	Burst time / Execution time
P1	20
P2	3
P3	4



i] Turn around time = ~~Fist~~ Finish time - Arrive time
ii] Waiting time = Turn around time - CPU time

New table with turn around & waiting time.

Sr No.	Process No.	CPU Time	Start Time	Finish time	Turn around time	Waiting time
1	P1	20	0	20	20	0
2	P2	3	20	23	23	20
3	P3	4	23	27	27	23
					Avg = 70/3 = 23.33	Avg=43/3 = 14.33

Conclusion :- Here we get simulation of CPU scheduling algorithm on FCFS.

Group B

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Assignment 2

Aim :- Write a program to simulate CPU Scheduling Algorithms : SJF

Theory :- Shortest - job - first (SJF) another scheduling algorithm. In this algorithm as soon as the CPU is available.

- A job with shortest execution time is selected for execution. If two processes have the same CPU time. FCFS is used.
- In SJF algorithm doesn't gurantee fearness, if shorter jobs keeps joining the ready queue then relatively longer may have to wait infinitely.
- In SJF algorithm it is very difficult to estimate the exact CPU time requirement for job or process.

Algorithm :-

- SJF Algorithm

1] Jobs be processed are stored in the arrival queue.
2] Elapsed = 0
3] If Both arrival queue and the ready queue are empty then goto Step 9.
4] for every Job p in arrival queue.
if p at ≤ elapsed then.

4. For every Job p in arrival queue.
if p at ≤ elapsed then,
p is deleted from the arrival queue and inserted in the ready queue.

5. Jobs in the ready queue are sorted with the smallest job at the front.

6. A new job p is selected from the ready queue for execution its finish-time. turn around time and waiting time are calculated.
elapsed = elapsed + P. st

7. Job p in inserted in Finish-queue.

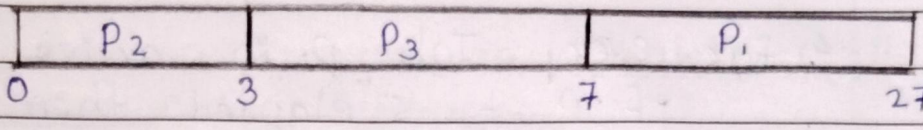
8. Jota Step 3

9. Generate report

10. Stop

Example :-

Process	Burst time / Execution time
P_1	20
P_2	3
P_3	4



- Shortest job P_2 is selected for execution at time = 0
- Next job P_3 is selected for execution at time = 3
  Finally job P1 is selected for execution at time = 7

Process	CPU Time	Start Time	Finish Time
P_1	20	7	27
P_2	3	0	3
P_3	4	3	7

New table with turnaround time & waiting time:

Sr no.	Process No.	CPU Time	Start time	Finish time	Turn around	Waiting time.
1	P_1	20	7	27	27	7
2	P_2	3	0	3	3	0
3	P_3	4	3	7	7	3
					Avg: 37/3 = 12.33	Avg: 10/3 = 3.33

Conclusion: Here, we get simulation of CPU scheduling algorithm in SJF.