Roll No: 17 TEA

Assignment 8th

Nikita D Bhosale

GURUKUL | Page No. | Date / /

Aim: Implement Job scheduling algorithm FCFS SJF priority, Round Robin

Problem statement: WAJP (using OOP features) to implement following algorithms
FCFS, SJF (Premptive)
Priority (Non-premptive)
Round Robin (Premptive)

Theory:

① Problem explanation:-
- CPU scheduling deals with the problem of deciding of which process in ready queue is allowed to utilize the CPU.

② First come First serve

- simplest CPU scheduling algo
- The process that req the CPU 1st is the one of which it is allocated 1st
- The algo implemend using job queue.
- when process req CPU it is added to the tail of the Job queue
- The CPU is allocated to the process at the head of the queue

Implementation

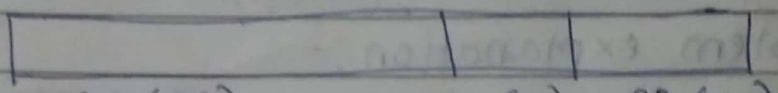
1. I/p process along with the burst time (bt)
2. find waiting time (wt) for all process.

3. Find the waiting time for all other processes
4. Find teasnaround time for all processes
5 Find avg waiting time
6 Find avg teasnaround time.

e.g :-

Process	Duration	order	arival Time
P1	24	1	0
P2	3	2	0
P3	4	3	0

Gantt Chart



P1 (wt) = 0
P2 (wt) = 24
P3 (wt) = 27

avg wt = (0+24+27) / 3
= 17

③ Shortage Job first :-

- This algo associated with its length of next CPU burst
- when the CPU is available it is assigned to that job with smallest CPU burst
- This provide min avg ting

Algorithm

1) Start all processes in increasing order according to burst time.
2) Then apply FCFS

GURUKUL | Page No. | Date / /

Shortest Remaining Time

- Shortest Remaining time (SRT) the peremptive version of SJN algo
- The processes is allocated to the job closest to completion but it can be preempted by newer ready job with ST of completion
- It is used in batch environment whether short job need to give preference

④ Priority Based Scheduling

- Priority scheduling is non preemptive algo and one of the most common scheduling algo
- each process is assigned a priority : process with highest priority is to be executed first.
- Priority decided based on memory requirement or any other resource requirement

Implementation :-

- 1st i/p the process with burst time and priority
- sort the process, bt and priority according to priority
- Apply FCFS algo.

⑤ Round Robin

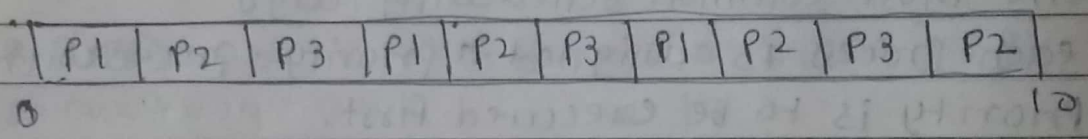
- It is a CPU scheduling where each process is assigned a fixed time slot in cyclic way
- It is simple, easy to implement and starvation free as all process get fair share of CPU.
- one of the most commonly used tech is CPU scheduling

- each process is provided a fix time to execute called time quantum
- once process executed for give quantum it is preempted and other process execute for given time period

Example :-

Process	Duration	order	Arival time
P1	3	1	0
P2	4	2	0
P3	3	3	0

Quatum 1



Conclusion :-

Thus we have implemented FCFS, SJF, Priority and Round Robin algorim.