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BSIT – 301

1. Apply the following scheduling algorithms to the list of processes above.

    • First-Come First-Serve
    • Shortest Remaining Time First
    • Round Robin: Quantum = 3

2. For each process scheduling algorithm, provide the following:

    a. A complete and detailed table that contains the following criteria for each process (10 points):
        o Finish time
        o Turnaround time
        o Waiting time
    b. A detailed Gantt Chart (5 points)
    c. The average turnaround time (3 points)
    d. The average waiting time (2 points).

First-Come First-Serve

Finish Time	4	13	16	23	28	34	46
Turnaround Time	4	11	13	18	17	17	22
Waiting Time	0	2	10	11	12	11	10

Gantt chart

E	F	G	H	I	J	K
0	4	13	16	23	34	46

Average Turnaround Time: 102/7 = 14.57
Average Waiting Time: 56/7 =8.0

Shortest Remaining Time First

Finish Time	4	34	7	14	19	25	46
Turnaround Time	4	32	4	9	8	8	22
Waiting Time	0	23	1	2	3	2	10

Gantt chart

E	G	H	I	J	F	K
0	4	7	14	19	25	34	46

Average Turnaround Time: 87/7 = 12.43

Average Waiting Time: 41/7 = 5.86

Round Robin: Quantum = 3

Finish Time	10	25	9	31	30	37	46
Turnaround Time	10	23	6	26	19	20	22
Waiting Time	6	14	3	19	14	14	10

Gantt chart

G	E	F	I	H	J	K
0	9	10	25	30	31	37	46

Average Turnaround Time: 126/7 = 18

Average Waiting Time: 80/7 = 11.43

3. Then, answer the following items (5 items x 5 points):

a. Among the three (3) process scheduling algorithms that you have performed, which do you think is the most efficient and why? Shortest Remaining Time First is efficient because

it executes jobs faster than the SJF algorithm, even though its overhead charges are ignored.

b. Cite significant differences in the results of applying the First-Come First-Serve algorithm and Round Robin algorithm. Elaborate on your answer. FCFS (First Come, First Served) is a non-preemptive scheduling method in which processes are assigned to the CPU in the order in which they are received. RR, on the other hand, is a sort of preemptive scheduling that differs from FCFS.

c. What could possibly happen if the value of the Quantum in Round Robin is increased to 5? Elaborate on your answer. The average turnaround time will be halved, as will the average wait time. This is because the quantum size has an impact on the scheduler's fine graininess. Larger quantum sizes aggravate the (temporary) difference between connections. Smaller quantum sizes increase fairness, but they impose more load on the link scheduler's processing resources because more rounds must be completed before a packet can be delivered.

d. In your opinion, why does the average turnaround time and waiting time vary per algorithm? This is how I see things. Most processes finish their next CPU burst in one-time quantum, reducing turnaround time. Because it is defined as the total time spent between the start and finish times. It is an algorithm that selects the process with the shortest execution time for the next execution. This style of scheduling could be preemptive or non-preemptive. It reduces the amount of time spent waiting for other processes to complete.

e. Would you suggest the utilization of the Round Robin algorithm for process scheduling in a file management system? Why or why not? In terms of average response times, round robin scheduling outperforms non-preemptive schedulers. By limiting each activity to a set amount of time, the operating system may be able to cycle through all possible activities, giving each one a chance to run. Round Robin is a cyclical CPU scheduling method in which each task is given its own time slot. It's simple to set up, and because all apps share the processor equally, there are no CPU shortages. This is one of the most often used CPU scheduling algorithms.