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cscd340 Lab 8

Problem 4 Questions

a. The CPU utilization for myrun_2 is .96158

b. myrun_1 has a throughput of .116711 and myrun_2 has a throughput of .116777, so myrun_2 has the greater throughput value.

c. myrun_1 has an average turnaround time of 215.05 and myrun_2 has an average turnaround time of 124.87, so myrun_2 has the shorter turnaround time.

d. myrun_1 has a maximum turnaround time of 257.05 and myrun_2 has a maximum turnaround time of 256.90, so myrun_1 has the longer maximum turnaround time.

e. On the FCFS chart, process 15 finished just after time 200

f. On the SJF chart, process 16 finished first

g. On the SJF chart, process 15 finished last

h. My calculation of the load average for the FCFS run is approximately 20.58860

I. My calculation of the load average for the SJF run is approximately 10.06968

j. N * S * L = 529.23 → 90*S*20.58860 = 529.23 → S = 0.28561
The context switch time for the FCFS run is approximately 0.28561

k. N * S * L = 258.69 → 90*S*10.06968 = 258.69→ S = 0.28544
The context switch time for the SJF run is approximately 0.28544

Problem 5 Questions

a. All other processes(1-5) are part of the convoy the second time process 6 gets the CPU.

b. RR 1 has the most context switches by far with an amount of 1056.

c. FCFS and SJF have the same number of context switches because both are non-preemptive. Since neither algorithm will preempt a running process, then there will only be context switches between finishing a process and starting a new one. It follows then that if the same number of processes are run with each algorithm, then the amount of context switched will be the same.

d. PSJF has more context switches than SJF, because it interrupts a running processes when a shorter process arrives; and runs the shorter process before switching back to the process that was preempted.

e. In this example, the average wait time is less when the quantum is increased.

f. RR 25 seems closest to the FCFS policy.

g. In this example, there will be no change between the quantum's 25 and 100, because the CPU and IO bursts are both set to a constant 10. However, in general a higher quantum such as 100 will cause processes to be given turns on the CPU far less frequently. This can cause processes(especially interactive processes) to seem unresponsive, since the rotation around to each process will be much slower.