

Daniel Gaston

CSC 33200

### Report 3: Upgrade of Homework One

So since the assignment was based off of Homework #1, I decided to continue to use python as my choice of language for this assignment. The only thing I change on the init for this assignment is sending more arguments to each files ( the scheduler and cpu emulator). So now the scheduler has two more arguments for the algorithm and Time Quantum while the emulator only has the time quantum. I saw it was suggestion that it be good to do the emulation all on one side but I didn't due to having no complications when sending and receiving the code. However, I did have complications setting up the scheduler when it came to implementing the algorithms so if you can compare the algorithm I had from assignment one to assignment you can see there is more complex code on the latter ( probably shows how more comfortable I got with python since then). So here's my process for implementing the algorithm ; I have two lists, one process\_list queue, which has the list of all the process, and one ready queue, which is initially empty. Then every cycle, I will check if the current time is equal to the arrival time and if it is, add the first process to the ready queue, and if the process is ready to be sent, send that process to the emulator. Before the sending though, I will sort based on the mode that is given and send the one that's first. After it is been sent, I will check for the time for it to be received. While we are waiting , we are also adding to the ready queue as their arrival time could be before the received time. Once we received the data, we did the same method we did for assignment 1. Then we repeat until the process is done. While doing that, I record the total time, the waiting time, and the number of context switching.

FCFS

Time done : 5476

Context Switches : 14

Total Average Waiting Time : 2363.4285714285716

Average Turnaround Time: 2900.214285714286 seconds

Priority

Time done : 5476

Context Switches : 14

Total Average Waiting Time : 2214.8571428571427

Average Turnaround Time: 2751.6428571428573 seconds

SJN

Time done : 5476

Context Switches : 14

Total Average Waiting Time : 2004.4285714285713

Average Turnaround Time: 2541.214285714286 seconds

Round Robin- FCFS 10, 100, 1000

Time done : 7078, 5626, 5476

Context Switches : 548, 64, 14

Total Average Waiting Time : 4499.428571428572, 4113.285714285715, 2363.4285714285716

Average Turnaround Time: 5913.714285714285, 4734.5, 2900.214285714286

RR- Priority

Time done : 5785

Context Switches : 117

Total Average Waiting Time : 4139.214285714285

Average Turnaround Time: 4848.357142857143 seconds

RR- Shortest Remaining Time Next

Time done : 5785

Context Switches : 117

Total Average Waiting Time : 2056.714285714286

Average Turnaround Time: 2684.5714285714284 second

Which have the longest / shortest total run time?

FCFS, RR 10 = 7085 FCFS, FCFS-1000 , SJN, Priority = 5476

Which are the most responsive / least responsive?

FCFS, RR 10 = BEST FCFS, FCFS-1000 , SJN, Priority = WORST

Which have the longest / shortest average wait time?

Shortest= SRTN Longest= FCFS-10,

Which has the longest total wait time for any single process? Shortest? Why?

Which have the best / worst CPU utilization (think of time lost to context switches).

Best- All Algo with Context switches 14 Worst- FCFS-10