COMP2240 A1 REPORT

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# Introduction

This report reviews the results of Assignment 1 program and any interesting observations that came about during writing and executing. This assignment was to write a program that simulates First Come First Serve (FCFS), Shortest Remaining Time (SRT), Multi-level Feedback (Variable) (FBV) and Lottery (LTR) scheduling algorithms.

Below are my observations and results of FCFS and SRT. Unfortunately, I could not get FBV or LTR to work as intended so my report will be based off FCFS and SRT mainly.

# First Come First Serve (FCFS)

First Come First Serve algorithm worked as expected and there were no variances or errors with the program. This algorithm automatically executes queued requests and processes in order of their arrival time – not pre-emptive. Due to this, it is not very efficient, demonstrated by the longer average turnaround and average wait times in the output of the datafiles.

The only issue I ran into programming this algorithm was that it randomly printed different times even though the process ID was correct. After some debugging, I found that I hadn’t added my time variable in properly through my Run() method. After I fixed this up, FCFS was working well.

# Shortest Remaining Time (SRT)

Shortest Remaining Time is the pre-emptive version Shortest Job Next algorithm where the processor is allocated to the job with the shortest processing time left. As viewed in the output of the datafiles, it can be observed that it is most efficient out of the 4 algorithms.

SRT did not work as intended for me. My program only runs datafile1 properly up until the turnaround time and waiting time. I suspect that the program does not sort through the arrival time properly as datafile1 has an arrival time of 0 and datafile 2 – which has varying arrival times – is where my outputs do not come out as intended. Furthermore, although my time and process ID for datafile1 works, the output of the turnaround time and wait time (including the average) also does not work as intended. I believe that there is an issue with my while loop and nested if statements which cause it to not read compute the turnaround time and waiting time properly.

# Multi-level feedback (Variable) (FBV)

Multi-Level Feedback allows a process to move between queues which is determined by the CPU burst time. If the process uses too much CPU time, then it will be moved to a lower priority. According to the datafile outputs, it is the longest for the average turnaround time and wait time when compared to the other 3 algorithms. This makes it the least efficient scheduling algorithm.

# Lottery (LTR)

Lottery scheduling is a probabilistic scheduling algorithm where processes are each assigned some number of tickets. The scheduler than draws a random ticket to select the next process. This solves the problem of starvation as well as each process has the possibility of being selected. It is the 2nd most efficient out of the 4 scheduling algorithms.

# Conclusion

Although I was only able to output FCFS and SRT, it was evident that SRT was the most efficient scheduling algorithm due to it being pre-empt as opposed to FCFS which is not.