CSCI 5573 **Homework Assignment 2** **Spring 2022**

Due Date: 11:59 pm, February 28 (Mon), 2022

1) Disclaimer

This homework is created based on our textbook, Operating Systems: Three Easy Pieces, written by Remzi and Andrea Arpaci-Dusseau at the University of Wisconsin.

2) Goal

In this homework, you are to familiarize yourself with the scheduling algorithms we learned.

3) Requirement

This program, scheduler.py, allows you to see how different schedulers performunder scheduling metrics such as response time, turnaround time, and total wait time. See the README for details. (See our textbook for scheduler.py)

4) What to submit & how to submit

a) Answer all questions and add print output for each question.
b) Upload all required materials to the class Canvas.

5) Questions

1. Compute the response time and turnaround time when running five jobs of length 200 with the FIFO, SJF, and STCF schedulers.

2. Now do the same but with jobs of different lengths: 100, 200, and 300.

3. Now do the same, but also with the RR scheduler and a time-slice of 1.

4. For what types of workloads does SJF deliver the same turnaround times as FIFO?

5. For what types of workloads and quantum lengths does SJF deliver the same response times as RR?

6. What happens to response time with SJF as job lengths increase?
Can you use the simulator to demonstrate the trend?

7. What happens to response time with RR as quantum lengths increase?
Can you write an equation that gives the worst-case response
time, given N jobs?