Operating Systems (11335)
Fall 2021
Term Project

General Requirements

- The project accounts for 10 points of the total course grade.
- The project can be done in groups of 3-4 students.
- Grades may vary among the group depending on their effort, contribution and discussion.
- Every team member should contribute to all aspects of the project and should be ready to present and answer anything about any part of the project.
- Submit the following onto e-learning:
  - A fully working application zipped into the project's assignment
  - Source code to be placed in the project's Turnitin-assignment
- There will be a group discussion with the instructor.
- Any violation to PSUT's ethics/honor code will have severe consequences.

Scheduling Algorithms:

Write a program in any programming language to implement the following scheduling algorithms:

1. **Round Robin scheduling** algorithm with variable quantum (q). The user should enter the quantum (q), a number of processes, their arrival times and their burst times in seconds.
2. **Pre-emptive Shortest Job First**. The user should enter a number of processes, arrival times and burst times in seconds.

The 2 options above should be displayed as menu options in a console or GUI. Data entry can be through console or graphical interfaces. Your program should find, select and display the order in which the processes are executed and the start and end of each execution cycle (you can add the length of the execution cycle) supported by a Gantt chart. The program should be able to tell the user which algorithm was more efficient than the other if you run it on the same input using the metrics below.

At the end, for each option do the following calculations and display them:

1. the average waiting time
2. the average response time
3. the average turnaround time
4. the throughput in some time unit that is entered by the user.