CSP203: Software Tools & Technologies Lab

Lab Exam-4 (Gnuplot)

Date: 8-Nov-2024

Duration: 1 hour 30 minutes

Maximum Points: 100

Instructions for Submission:

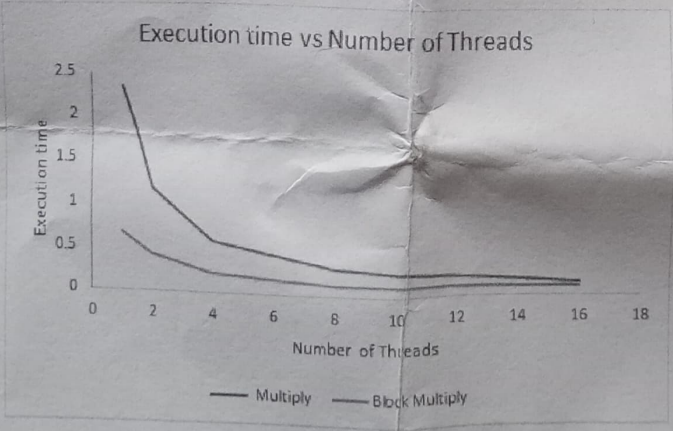
1. Prepare a zip file of your solution, name it as <Roll_no>LabExam-4.zip and submit it through Canvas.
2. Your zip file should contain the plots file, input data, and the corresponding output file.
3. **You should have a readme file in your submission. It carries 5 Marks.**

Problem-1:

Consider the following data.

Number of Threads	Execution time Multiply	Execution time Block Multiply
1	2.340903	0.676808
2	1.177014	0.418324
4	0.597775	0.227245
8	0.304866	0.125317
16	0.156539	0.113881

Write a gnuplot script to visualize the data as the following. Note that your fonts can be different from that of the image. Note that one line should be red and the other should be blue.



Problem-2:

Consider the train passengers data having the following entries.

TrainNo, Day, NPassengers, Class

TrainNo: Any 5 digit number
Day: Can be days of the week: Mon/Tues..
NPassengers: The number of passengers travelling on the train
Class: Can be Sleeper, AC, or General.

Create a simple file containing the above data.

Write gnuplot scripts to visualize the following data. Give appropriate labels for x-axis, y-axis, title, key, xtics, ytics. You may have to filter data using appropriate shell scripts.

1. For a given train number, show a histogram (solid) of the passengers data day wise, i.e., X-axis should be Day and Y-axis should be Number of passengers in the train.
2. For a given train number, show a linespoints of the passengers data class wise, i.e., X-axis should be Day and Y-axis should be Number of passengers in the train. Each line in your plot should correspond to a class.
3. For a given train number, draw a pie chart giving the distribution of passengers class wise, i.e., your pie chart should show the percentage of passengers travelled for each class.
4. Analyze the train traffic on Monday using histogram plot. Your x-axis should contain the train number and y-axis should contain the total number of passengers travelled on Monday.
5. Show a stacked histogram showing the passengers distribution of a given train number day wise. In other words, x-axis should be Day, Y-axis should be the number of passengers. The histogram stack should contain the number of passengers for each class.