ENGR101 Lab 6

Submission Requirements:

See Part 3 of this lab on how to submit these files.

- INDIVIDUAL TASK
    - Save your work as lab6_1.m
    - Save your graphs as lab6_1.png and lab6_2.png
- GROUP TASK
    - Save your work as lab6_presentation.pdf

**** Every student must submit all files (both Individual and Group) to the Lab 6 Canvas assignment due at 11:59pm the day after the lab:***

- ***lab6_1.m***
- ***lab6_1.png***
- ***lab6_2.png***
- ***lab6_presentation.pdf***

Part 1: Individual Task

Motivation

You have learned how to code in Matlab. It is now time to test your proficiency in communicating results using Matlab and critically analyzing the results. In engineering, being able to communicate your ideas to make a convincing argument on why your results are significant is equally as important as being able to technically work the programs and generate data. This portion of the lab is meant to test your knowledge of Matlab in a simulated environment similar to the Matlab exam.

Objectives

Depending on your data division assignment, download the corresponding data file:

- *EngineeringUndergraduateEnrollmentFallTermData.csv*
- *EngineeringGraduateEnrollmentFallTermData.csv*
- *EnrollmentForSchoolsAndColleges.csv*
- *EngineeringUndergraduateCreditHours.csv*

- *SchoolsAndCollegesUndergraduateCreditHours2016.csv*
- *SchoolAndCollegeUndergraduateCreditHours2000.csv*

The purpose of this exercise is to present the same information in two different ways and to understand trends and their meaning within the university. You have been given a dataset with many different types of data to investigate the below two questions. Don't worry if your data doesn't directly answer both questions - your work in this individual portion is to get you thinking about how your group will address these questions with different data and graphs from each group member.

- Overall enrollment at U-M has generally trended up over the past 15 years or so. **Are all programs at U-M seeing a general increase in students? Your role is to investigate this hypothesis using the data provided.**
- Laura says that in talking to students over the past few years, it seems like students are expected to do more and more extracurricular activities (service organizations, project teams, Greek life, sports, research outside of class, etc.). **If overall student credit hours are trending downward, then this may support this anecdotal evidence. Your role is to investigate this hypothesis using the data provided**

Your GSI will give you your assigned data to represent in your graphs. You will have **45 minutes** to complete your two graphs. By the end of that time, you must have **two graphs** that represent your set of data in **two different** ways.

Save your two graphs from the Individual Task as *lab6_1.png* and *lab6_2.png*. Your Matlab file used to generate the two graphs should be named *lab6_1.m*.

You may not copy and paste data into Matlab. You must use csvread() in Matlab.

***Note:* You may not speak or collaborate with your group for this activity. Pretend like it's an exam, except you can use a computer.**

Part 2: Group Task

You have graphed your portion of the data. Now, it is time to get any help you may need from your team members, present your work to your team, analyze and critique each other's work, and collectively create a compilation of your work. You will have **40 minutes** to create a presentation deliverable with your team and submit it to Canvas.

Graphs should have all the characteristics of an effective graph as discussed in Lecture 8 and Lecture 9 (a copy of both are in the Lab 6 folder). Slides should be professional, informative, clear, and concise.

Objectives

The purpose of this exercise is to work with your group to present the complete dataset. The goals are outlined below:

- Each group member presents their data and the two graphs they created for their dataset to the rest of the group.
- Group members should *briefly* critique each graph (don't spend too much time on each critique as you have a lot to get through!):
    - What works well?
    - What does not work well?
    - Suggested improvements
- The group picks **one graph from each member** to include in their deliverable.
    - Make improvements to the graph **if you have time.** Otherwise, just submit as-is.
- The group creates a presentation with **5-7 slides**. The slides will be as follows:
    - Slide 1: Title slide
        - Must include a title, all group members names, lab section, and GSI
    - Slides 2 - 6: Selected graphs from individual team members
    - Slide 7 (include more than one slide if needed): Answers to the following questions about the data
        - Summarize key findings.
        - Are all programs at U-M seeing a general increase in students?
        - Are overall student credit hours trending downwards?
        - What was the most surprising trend you saw from the data?

Part 3: Turning in Your Assignments

Labs must be turned in through the relevant assignment, Lab 6, in Canvas. Be sure to submit all files listed under Submission Requirements.

The name of your files must be exactly as specified in order to receive credit.