ENGR 0012 – Spring 2019
HW 5

Acceptable behaviors for this assignment include:	Unacceptable behaviors for this assignment include:
• Consulting your textbook or other written material • Asking your team members • Asking your professor or TA Note that consulting materials and asking others is only acceptable as long as they do not provide you with the solutions – you have to come to the solution on your own!	• Copying the solution(s) from a solution manual, book, or other written material • Copying the solutions(s) from assignments submitted in previous semesters • Providing the solutions to a classmate, student in other section, student in future section, or online solution banks • Asking someone to complete the assignment for you

This is a computer-based team assignment. You will be creating a MATLAB script. But first, you need to do the following:

- **1st** create a flowchart of your program. You will be submitting this electronically, so please go to www.draw.io or use any flowchart software of your choice. Please include a text box with your team number and team member names at the top.
- **2nd** Include a line of code so that the first thing your program displays is this sentence: "We in team (TeamNumber), (Team Member Names), certify that we have completed this assignment in an honest manner." (For example: "We in team L01 (Francisca, Gomy, and Jack-Jack) certify that we have completed this assignment in an honest manner."). Your assignment will not be graded if this statement is missing.

Topic: Statistics, functions and histograms

Things you will need:

- **Data:** File named "Views.txt" containing data for the ~5000 most popular Youtube channels according to SocialBlade.
- **Picture:** Image called "Pic.jpg" (image taken from Creative Commons images)

1. Write a MATLAB script that will call the following functions:
    a. Function 1: Asks the user to enter the name of a data file, checks whether the filename exists, and error checks indefinitely until the user provides an existing file.
    b. From the main, load the data from the file.
    c. From the main, use a menu together with a switch case to allow the user to select the statistical operation that should be performed (options are mean, standard deviation, variance, min, and max), and then perform the appropriate operation. You can use the built-in commands.
    d. Function 2: Will display the operation that was selected, as well as the result of that operation, to the command window. For example, if the user selected mean, the function should display "The mean of the data is ___". If the user selected min, the function should display "The min of the data is __".
    e. Function 3: Sorts the data and stores it in a new variable. Then, creates a 1x3 subplot that will plot the following:
        i. In the first subplot, plot the sorted data using yellow circles. The function should allow the user to enter the plot title, and x and y axis labels. Display these on the plot.
        ii. In the second subplot, display the image "Pic.jpg" (in CourseWeb)
        iii. In the third subplot, display a histogram of the data. The histogram should have 10 bins. Include the title "Histogram of Data".
        iv. Using gtext, display the user's name somewhere in the subplot (you will need to ask the user to enter their name first).
    f. From the main, and after those steps are executed, ask the user if they would like to run the program again, with a new set of data (you are giving the user the opportunity to run the program again, without having to exit and re-run the program). You may use a menu or logic.

Include a comment with your team number and team member names at the top of each file.
Include comments, indentation, and whitespace so that your program is neat and understandable to anyone who reads it.

<u>This is a team assignment.</u> You need to submit the flowchart and the m-files. Name your files **InstructorLastName_ClassTime_HW5_TeamNumber**. For example, if you are in Dr. Mandala's 10am class, you should name your files Mandala_10am_HW5_Team5. Then, place your m-files and flowchart in a folder, and name your folder the same way.

You will need to submit a zipped folder. To do this, follow these steps: (1) Right click on the folder, go to "Send to", then "Compressed (zipped) folder" (see Image 1), (2) Name your zipped folder the same way you named your regular folder (**InstructorLastName_ClassTime_HW5_TeamNumber**).

Incorrect file formats and/or incorrect file naming will result in point loss.

Upload the zipped folder through your class computer using the official file submission link (found on the desktop of class computers in GSCC 138 or BEH 229 at the beginning of the class when this assignment is due).

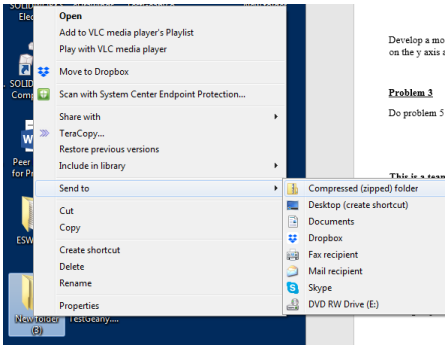

Image 1

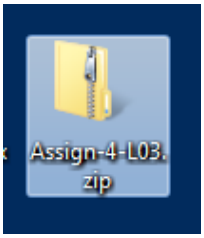

Image 2