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Matlab Project Report

The matlab project consisted of making a script code on matlab that would receive an input file and using the data inputted, it would give the results that are shown in the menu. The user has the choice of options presented in the menu.

To start the code, user must first click run on the tab above the code. Once that is done, user would see a menu pop-up from which he/she may choose from the options. The menu reads as follow; “Set username”, “Load data file”, “Clear data from memory”, “Set output filename”, “Plot Histogram”, “Plot probability plots”, “Regression of y on x”, “Find probability given x or z”, and “Exit”. For each menu function a switch is created and it is put in a while loop so that once a function is complete, user could return to the menu. “project1” is set as ‘true’ before the loop and the loop runs while “project1” is true.

The first option on the menu is “Set username”. This option lets user set a username although, the script will check if the “username” array is empty. If it is empty, username can be given and the user will be prompted to return to the menu. If a username already exists, the user will be prompted with a question about whether or not they would like to the change or keep the current username. A new username could be set and if not then the username will stay the same.

I tested this option by adding a username and then trying to add another username again, it prompted by saying if I want to keep the old username or change it, both options worked.

The second option on the menu is “Load data file”. This option lets user load a data file into the code from which the user could find certain statistics of the data. Firstly, it would check if the there exists a data file already; if so, it would prompt user if he/she wants to upload a new input file. If yes, user can upload a new file and if no, the current file will remain. If there is no input file not already there, the user can set the new file. I tested this by adding an input file and then trying to add another file to it. It gave me an option to replace the old file or enter a new one.

The third option is to “Clear data from memory”. The user will be prompted if they want to clear all memory. If so, all memory will be cleared using the ‘clear’ function; values such as “username”, “output\_filename”, and “q” will need to be reset to an empty array as they were before the loop started. If not, no memory will be cleared and user will be prompted back to the menu. I tested this function by entering a few values in the other options (username, probability, etc.) and ran the clear memory. And when I returned to the other option, I was prompted to set a new value.

The fourth option is to “Set output filename”. The code will first check if there is input data available. If yes, the statistics will be calculated from the data and will store it in an output file that is set by the user. If input data is not available, it will print an error telling the user that there is no input file and to load an input file first.

The fifth option is to “Plot histogram”. It first checks input file exists; if yes, it would check the size of the column and use a for loop to create histograms as subplots. If input file does not exist, this will show an error and take the user back to the menu. The same process applies for “Plot histogram fit” and “Plot probability plots”.

The eighth option is “Regression of y on x”. It checks if input file exists; if so, it takes the lengths of the x and y and checks if they are the same. Then it presents the option of what type of regression the user wants. The code would calculate the values accordingly and present a graph. To test this code, I entered columns with unequal lengths and it gave me the right response.

The ninth case is “Find probability given x or z”. Again it would check if the input file exists. It asks the user what value they are inputting (x or z). Then it would check if the value inputted is numeric and if not it would ask user to type again. I tested this by putting letters instead of numbers and it prompted me with the right response. For z-value, it would use 0 and 1 as the other values for normcdf, and for x-value it would use the mean and standard deviation.

The tenth option is “Find x or z given probability”. For this process the user will be prompted to enter an probability value and check if it is numeric; I check this by entering a letter and it gave me the right response. The user could enter either a decimal or a percent value. The ideal form is decimal but if user enters a percent value, it would be divided by 100. The user will then be prompted with what value needs to be found. For z-value, the code will use 0 and 1 as other values of norminv and for x-value it would use mean and standard deviation. Then it would prompt user back to the menu. Option 10 is “Exit” and it would let the user exit the menu. The code will end the while loop that lets the user get back to the menu after every function. The same applies if the user closes the menu window.

Overall, the project was interesting to work on and it took several trial and error attempts to work. I am pleased with my efforts and thoroughly working on this project.