Homework #5
Engineering 0711/ - Fall 2009

Due: Monday, September 28

Part 1

Your task is to write a MATLAB script that will find the basic statistical information of a data set. The script should:

1. Have a section that allows the user to enter the name of a data file.
2. Create two external data files that contain the data shown at the bottom of the page. The first data file should contain all the data shown and should contain 78 data points. The second data file should contain the same data without the data point 100. This will cause this file to have 77 data points.
3. Have the script find the Mean of the data and display it to the screen. But do not use the mean command, instead program the equation shown in the text.
4. Find the Minimum, Maximum, without using the min and max command. You can use the min and max command as a check.
5. Use the sort command to sort the data into a new variable. Then have the script find the Median of this data and display it to the screen. Do not use the median command, instead have the program sort the data and find the median from the sorted array. Make sure the script can find the median for either an odd or even set of data. (You can use the Median command as a check if you want).
6. Have the script find the Variance of the data and display it to the screen. But do not use the var command, instead program the equation shown in the text. (You can use the var command as a check if you want).
7. Have the script find the Standard Deviation of the data and display it to the screen. But do not use the std command, instead program the equation shown in the text. (You can use the std command as a check if you want).
8. Have the script produce two histograms. Plot both histograms on the same plot using subplots. Use the hist command to produce one of the plots and use the bar command to produce the second histogram. The user should be able to input the number of bins.
9. Have a section that will allow the user to enter the x and y axis labels to both subplots.
10. Put the title "Using the bar command" on the bar plot and put the title "Using the HIST command" on the other histogram.
11. Use the gtext command to allow the user to place their name on each plot.
12. Once the user is satisfied with the results, the script should allow the user to enter a new set of data without ending the program. Do not use a menu for this. Make sure the script allows for user input error.

Part 2

Solve the same set of data but do it in Excel

1. Import each data set into Excel.
2. Have a different worksheet for each data set.

3. Find the Mean, Median, Minimum, Maximum, Variance, Standard Deviation for each data set.
4. Plot a histogram using 12 bins for each data set.
5. Add a plot title, and x and y axis labels.

Procedure: Given below is a table containing the data. For the MATLAB section, data set 1 should be the entire data set, and named data1a.dat. Data set 2 should be the same data set with the 100 value removed, and named data1b.dat.

43	81	78	94
82	69	68	88
60	87	87	94
73	63	53	84
88	91	91	83
95	94	99	80
93	89	92	65
98	94	89	88
97	91	89	89
72	89	80	93
83	87	79	97
80	83	81	93
74	82	76	87
93	95	83	83
81	85	88	82
83	78	88	53
94	86	81	82
95	72	83	96
68	97	63	100
82	51		

Deliverable:
Each group will drop a folder with the data sets, the m-file and the Excel file.

Note: Your script must have a header section in comments that identifies:
Team members
Engineering 0012 M, W 00:00-00:00
Instructor:
Date:

Assignment number (i.e., Homework 5)
Statement of the purpose of script
Throughout the script use comments to define the purpose of every variable.

Also, you will be graded on programming style. Use whitespace, comments, indenting, etc.

Hint:
This is going to be a very long program. Layout the logic before you start, and built the program in sections. Do you have existing programs that you can reuse? Make sure each section works before you go onto the next step. If you design your script by following the numbered list above you might find it helpful. Have fun!!!