Math 151 at the University of Tennessee, Knoxville - Chat for September 16, 2015 with the course instructor, Louis Gross.

I will be online starting at 7:30PM and will be happy to answer questions regarding any aspect of the course, assignments, etc. You can type in this document to ask questions - note that you need to be logged into your UTK Google Drive account to be able to type in this.

When you ask a question, please do not use your name because this document will be saved and publicly posted after we close it. I will be on-line at least until 8:30PM but will stay on longer if there are still questions.

I am on line now
Lou

-matlab will not let me calculate range. it says 'you might need fixed-point designer'

This is probably because you did not have the
Statistics Toolbox downloaded when you installed Matlab. But it is OK - in the project .m file just calculate the range as
range1=max(x)-min(x)
if you have put the data into the variable x

Lou

can you explain 2. B part i.?

Sorry - do you mean in the Project or an example in the text? Where is this?
Lou

Do you mean the Matlab project in which you are doing the scatter plots?
Lou

yes, sorry

OK This is just the
plot(y,x,'+')
command if you have placed the data for the RH into the variable y and the TSNA data into the variable x

so in that case, what it be ‘plot(TSNA+RT)’ ?
If you do this, Matlab first sums the two variables TSNA and RT, and then plots the data points in this with a series of integers as the horizontal values. that is not what the project is asking for.
Lou

Then you can add the regression line in (iii) to this and I would just include the graph with the regression line in the Word document you print out to hand in. If you aren’t sure how to save a graph to include in the Word document, ask me
Lou

I am not entirely sure what we print out. the editor or the command window?

You use a Wordprocessor (like Word) to compose the answers to each section, and copy the .m file you have written into this document. You can also use the Wordprocessor to create a table of statistics as asked for in part 3 (a)
Lou

Could you explain how to find and add the regression line?

The regression line is obtained from
c=polyfit(x,y,1)
where x has for example the RH values and y has the TSNA values
then c(1) is the slope of the regression line and c(2) is the intercept. To se how to display this in Matlab, look at the text on P. 64 which has the Matlab code for this in the line 32 of the Matlab code.

Also in that code, lines 35-40 show how to include the regression line on the plot
If you still don’t follow this let me know and I’ll go through it step by step.
Lou

Hello! For the table that is in our project, would you accept a table that was made in excell or numbers or do you want it made in Matlab? Also, if you want it in Matlab, how do I do that?

We have not discussed how to create a Table in Matlab. So it is fine to do the Table in Word or excel - do it the easiest way for you. Just use the Matlab code to calculate the values.

Lou

How would you plot the regression line on the scatter plot?

If you have the data for TSNA in the variable y and the data for RH in the variable x then if you set
plot(x,y,'+')
by itself you get the scatter plot with just the points plotted. To add the line there are several ways. One is to set up a two-element variable
m=[min(x) max(x)]
and calculate the values of the regression line at these two points using
c=polyfit(x,y,1)
mhat=polyval(c,m)
then plot the scatterplot with the line using
plot(x,y,'+',m,mhat)
which will add a line between the points specified by m and mhat

there are other ways though - for example in the text on 64 in lines 35-38 of the Matlab code it shows how to calculate the linear fit values for each of the x values and draw the line using all these values. But of course two points determine a line, so you really only need to find the linear values at two points (like the min and max ones I did using m)
Lou

How do you find and display the equation for the least-squares regression line?Part 2(b)(ii)

This is first found as above by using
c=polyfit(x,y,1)
to find the slope and intercept and this puts those into c(1) and c(2) respectively. Then to display the equation of the line use the same command as shown in the code on P. 64 in line 32

fprintf('equation for linear fit is y = %f x + %f\n',c(1),c(2))

Here the \n just adds a new line in the printout displayed
Lou

It gives me an error, when trying to display the equation using exactly that. Illegal use of the word "for"
Got it

I'm going to guess here that the first ' is missing - it is then interpreting the for as part of a for loop. Make sure this starts with
fprinf('

Lou.

Once you get the equation, how do you plot it?

See the above response where I suggested using
c=polyfit(x,y,1)
mhat=polyval(c,m)
then plot the scatterplot with the line using
plot(x,y,'+',m,mhat)
which will add a line between the points specified by m and mhat
Lou

I am going off-line for tonight. I'll open a new Chat on Sunday evening at 7:30
Lou