

CS130 Assignment #3

Date assigned: 1/19/11
Date due: 1/20/11 by 4pm
Points: 50

Create a Word document **PUNuetIDAnswers.doc** using your PUNetID that will contain answers to each of the following questions in order when applicable. Your answer document and any other files created are to be placed in a folder called **PUNetIDSolution3** once again using your PUNetID.

Problem #1

Create Worksheet #5 - named "Crickets"

As crickets move their wings faster, the chirping sound produced becomes higher. It is believed that warmer ground temperatures cause crickets to move their wings faster. A study was done and here is the data:

ChirpsPerSecond	Ground Temperature (F)
20	88.6
16	71.6
19.8	93.3
18.4	84.3
17.1	80.6
15.5	75.2
14.7	69.7
17.1	82
15.4	69.4
16.2	83.3
15	78.6
17.2	82.6
16	80.6
17	83.5
14.1	76.3

1) Add worksheet #5 with a title and properly formatted to your Excel workbook used for assignments 1 & 2. The worksheet is to contain the above data.

2) Perform a linear regression on the data. Make sure that the independent variable is on the X-axis and the dependent variable is on the Y-axis.

3) Paste a copy of the Scatterplot with the regression equation and R^2 value in your Word document under a heading **Problem #1 - Question 1**.

4) Would this correlation be considered a "strong" correlation based on our discussions in class? Why or why not? Answer this question in your Word document under the heading **Problem #1 - Question 2**.

5) If the ground temperature was 92%, at what approximate rate would you expect the crickets to be chirping. Answer this question in your Word document to two decimal places under the heading **Problem #1 - Question 3**.

6) If the crickets were chirping about 16 times per second, what was the approximate ground temperature to two decimal places. Answer this question in your Word document under the heading **Problem #1 - Question 4**.

Problem #2

A nice list of the caffeine content of drinks can be found at <http://www.energyfiend.com/the-caffeine-database>.

1) Import the table of Drink, Ounces, Caffeine (mg), and mg/oz from the Web into Worksheet #6. Name your worksheet "Caffeine". Read questions 2) and 3) before leaving Excel. You will need to do additional work in Excel before importing the data into PASW.

2) Using PASW, find the Mean, Median, Mode, Std Deviation, Minimum, and Maximum values for the variable Caffeine(mg). Paste your solution in your Word document under the heading **Problem #2 - Question 1**.

3) Let's assume that caffeine consumption is as follows: less than 100mg is LOW, greater than 300mg is HIGH, and all other values are considered moderate. Create a Pie chart in PASW that shows the percentage of caffeine in the various drinks using these levels. Make sure your Pie chart is properly labeled. Paste your solution in your Word document under the heading **Problem #2 - Question 2**.

Problem #3

Using the sample data set entitled "TreeData.txt" found in the CS130 Public folder and PASW create a dataset called **TreeData.sav** and report in the Word document PUNetIDAnswers.doc the answers to each of the following questions. When asked for, place a graph into your document with the appropriate explanation.

1) List each variable in the dataset TreeData.sav. Further, list the type and measure that each variable should be and briefly explain why. You will not get full credit if you select the wrong type or the wrong measure. Answer this question under a heading of **Problem #3 - Question 1**.

2) What is the mean, median, mode, and standard deviation for each of the variables: (a) Trunk Girth and (b) Weight. Paste in your answers to this question under a heading of **Problem #3 - Question 2**.

3) Construct a single bar chart that shows the Mean Weight of each root category. Paste in the answer to this question under a heading of **Problem #3 - Question 3**.

4) Using PASW, perform the correct linear regression on weight and trunk girth. Make sure you properly identify the Dependent and Independent variable. Paste in only the **Coefficients** table. Answer this question under a heading of **Problem #3 - Question 4**.

5) Which variable is independent? Why? Give a detailed explanation for full credit. Answer this question under a heading of **Problem #3 - Question 5**.

6) Which variable is dependent? Why? Give a detailed explanation for full credit. Answer this question under a heading of **Problem #3 - Question 6**.

Note1: Make sure all of your graphs are properly and accurately labeled.

Note2: The Word document answers are to be in the exact order as specified above. As an example, do not put Step #6 results ahead of Step #2 results in the Word document.

How to Submit and Grading Policies

A copy of your single Excel **folder** (PUNetIDSolution3) with all of the files (properly named) is to be placed in the CS130 Drop folder by **4:00pm** on the due date to be considered on time.

Grading will be based on:

- Correctness of your results
- Completeness of your results
- Professional look of the worksheets and charts as described above and discussed in class
- Ability to perform a what-if analysis in any worksheet by changing any of the user input data with accurate results computed and displayed in the worksheet.