CS130 Assignment #3

Date assigned: Wednesday, October 5, 2011
Date due: Wednesday, October 12, 2011
Points: 75

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.

A pretty comprehensive list of caffeinated drinks can be found at http://www.energyfiend.com/the-caffeine-database.

1) Import the table of Drink, Fluid Ounces, Caffeine (mg), and mg/oz, and category (Energy Drink, Energy Shots, …) from the Web into your Excel workbook **PUNetIDExcel** from assignment #1. Name your new worksheet **Caffeine Drinks**. Get rid of ALL extraneous text such that your worksheet has a proper title, column headings for the data, and the full list of data under the column headings. Make sure your worksheet looks very professional.

Note: As this worksheet will be opened in SPSS, you want the column headings to have good names with no spaces in the names as the Excel names will become SPSS variables.

2) Using SPSS, create a dataset **Caffeine.sav** from the Excel data in 1). Find the Mean, Median, Std Deviation, Minimum, and Maximum values for the column of data representing mg/floz. Paste the table of values created by SPSS in your Word document under the heading **Assignment #3 - Question 1**.

3) Using SPSS, create a bar graph that shows the number of Coffee, Energy Drinks, Energy Shots, Other, Soda, and Tea totals in the entire dataset. Display the bars in blue and display the total number of each category on the bar as we've discussed in class. Make sure your bar graph has a proper title and appropriate axis names. Paste your graph under the heading **Assignment #3 – Question 2**.

4) Using SPSS, create a pie graph that shows the number of Coffee, Energy Drinks, Energy Shots, Other, Soda, and Tea totals in the entire dataset. Display the total number in each category on each piece of the pie as a percent as we've discussed in class. Make sure your pie graph has a proper title. Paste your graph under the heading **Assignment #3 – Question 3**.

5) Using Excel, create the same pie graph as in 4). There is no need to display the total number in each category on each piece of the pie. Make sure your pie graph has a proper title. Paste your graph under the heading **Assignment #3 – Question 4**. Make sure the graph is also displayed in the worksheet to the right of the data and at the top of the worksheet. In Excel, the process is a little more tedious as you need to list each category and then in a cell next to each category, use the COUNTIF function to count the number of entries in each category.

6) Question: Is the milligrams per ounce higher for energy shots as opposed to energy drinks. Under the heading **Assignment #3 – Question 5**, answer each of the following questions in order in your Word document:

a) What hypothesis test will you use to answer this question? Explain in detail why you selected the test you did.

b) State the Null Hypothesis.

c) Perform the correct hypothesis test.

d) Paste in the results produced by SPSS.

e) Do you accept or reject the Null Hypothesis? Why?

f) State your conclusion.

For question a) through f) above, first type **a)** and then place your answer for a), and so on.

7) Question: After finding the mean of the milligrams per fluid ounce for ONLY the sodas, you are to determine whether the mean milligrams per fluid ounce is greater than 2.75 in a statistically significant way.

Under the heading **Assignment #3 – Question 6**, answer each of the following questions in order in your Word document:

a) What hypothesis test will you use to answer this question? Explain in detail why you selected the test you did.

b) State the Null Hypothesis.

c) You will need to grab only the soda observations from the Excel file and place these observations in SPSS. Save the SPSS dataset as **Soda.sav**, then perform the correct hypothesis test. There is an easy way to grab only the soda observations from the Excel dataset and a hard way.

d) Paste in the results produced by SPSS.

e) Do you accept or reject the Null Hypothesis? Why?

f) State your conclusion.

For question a) through f) above, first type **a)** and then place your answer for a), and so on.

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.

How to Submit and Grading Policies

A copy of your single **folder** (PUNetIDSolution3) with all of the files (properly named) is to be placed in the CS130 Drop folder by **4:45pm** 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.