CJC Stats Module 2 Homework

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Before we get started, please save this file as “Module 2 Homework – lastname”

Part 1: SPSS

Open SPSS from <https://apps.ufl.edu/vpn/index.html>

Download hourlywagedata.sav from sample files (tab at the bottom).

The descriptions of all of the sample datasets we will be using come from:

<https://www.ibm.com/support/knowledgecenter/en/SSLVMB_22.0.0/com.ibm.spss.statistics.tut/spss/tutorials/data_files.htm>

**hourlywagedata.sav.** This is a hypothetical data file that concerns the hourly wages of nurses from office and hospital positions and with varying levels of experience.

First, we are going to get some basic descriptive statistics.

1. Analyze – Descriptive statistics – Frequencies
2. Move “Nurse type,” “Age range,” and “Years experience” into the Variables box. Click OK.
3. Copy the Frequency tables below.

Frequency tables:

Now we are going to create some graphs. First, we will make a histogram of Years experience.

1. Analyze – Descriptive statistics – Frequencies
2. Move “Nurse type” and “Age range” back to the box on the left so that only “Years experience” is in the Variables box
3. Charts – Histogram. Click Continue then OK
4. Copy the Histogram below.

Histogram:

Finally, we are going to create a box plot.

1. Graphs – Chart Builder – OK
2. From the Gallery tab, choose Boxplot
3. Drag the 1-D Boxplot (the rightmost of the three) up into the empty box above.
4. Drag Hourly Salary into the X-axis box on the left of the graph. Click OK.
5. Copy the boxplot below.

Boxplot:

Feel free to play around with different types of graphs, or to make anything look prettier. Also, I encourage you to view any relevant tutorials that are available for making any type of chart that you would like. Many tutorials are available through UF at <https://bolt.mph.ufl.edu/software/spss/>

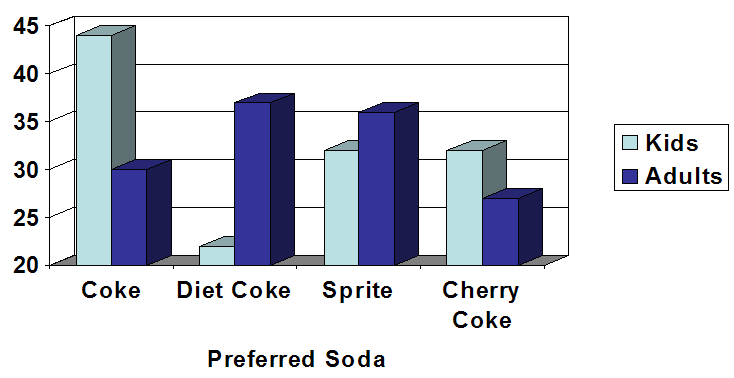
but you can easily Google some others.

Part 2: Questions from Online Stat Book

Chapter 1

1. Give an example of an independent and a dependent variable. ([relevant section](http://onlinestatbook.com/2/introduction/variables.html))
2. Categorize the following variables as being qualitative/categorical or quantitative: ([relevant section](http://onlinestatbook.com/2/introduction/variables.html))
   1. Rating of the quality of a movie on a 7-point scale
   2. Age
   3. Country you were born in
   4. Favorite Color
   5. Time to respond to a question
3. Specify the level of measurement used for the items in Question 2 above. ([relevant section](http://onlinestatbook.com/2/introduction/levels_of_measurement.html))

Chapter 2

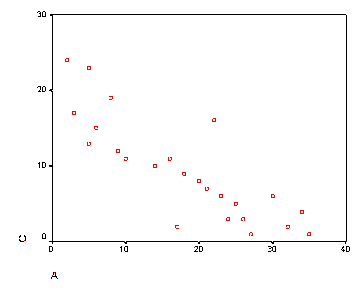
1. A graph appears below showing the number of adults and children who prefer each type of soda. There were 130 adults and kids surveyed. Discuss some ways in which the graph below could be improved. ([relevant section](http://onlinestatbook.com/2/graphing_distributions/graphing_qualitative.html))  
     
   

Chapter 3

1. Make up three data sets with 5 numbers each that have:   
   (a) the same mean but different standard deviations.  
   (b) the same mean but different medians.  
   (c) the same median but different means.  
   ([relevant section](http://onlinestatbook.com/2/summarizing_distributions/measures.html) & [relevant section](http://onlinestatbook.com/2/summarizing_distributions/variability.html))
2. Your younger brother comes home one day after taking a science test. He says that someone at school told him that "60% of the students in the class scored above the median test grade." What is wrong with this statement? What if he said "60% of the students scored below the mean?" ([relevant section](http://onlinestatbook.com/2/summarizing_distributions/measures.html))

Chapter 4

1. Describe the relationship between variables A and C. Think of things these variables could represent in real life. ([relevant section](http://onlinestatbook.com/2/describing_bivariate_data/intro.html))



1. Would you expect the correlation between High School GPA and College GPA to be higher when taken from your entire high school class or when taken from only the top 20 students? Why? ([relevant section](http://onlinestatbook.com/2/describing_bivariate_data/restriction_demo.html))

3. For a certain class, the relationship between the amount of time spent studying and the test grade earned was examined. It was determined that as the amount of time they studied increased, so did their grades. Is this a positive or negative association? ([relevant section](http://onlinestatbook.com/2/describing_bivariate_data/intro.html))

4. For this same class, the relationship between the amount of time spent studying and the amount of time spent socializing per week was also examined. It was determined that the more hours they spent studying, the fewer hours they spent socializing. Is this a positive or negative association? ([relevant section](http://onlinestatbook.com/2/describing_bivariate_data/intro.html))

Chapter 5

1. (a) What is the probability of rolling a pair of dice and obtaining a total score of 9 or more? (b) What is the probability of rolling a pair of dice and obtaining a total score of 7? ([relevant section](http://onlinestatbook.com/2/probability/basic.html))
2. A box contains four black pieces of cloth, two striped pieces, and six dotted pieces. A piece is selected randomly and then placed back in the box. A second piece is selected randomly. What is the probability that:
   1. both pieces are dotted?
   2. the first piece is black and the second piece is dotted?
   3. one piece is black and one piece is striped?   
      ([relevant section](http://onlinestatbook.com/2/probability/basic.html))
3. A card is drawn at random from a deck. (a) What is the probability that it is an ace or a king? (b) What is the probability that it is either a red card or a black card? ([relevant section](http://onlinestatbook.com/2/probability/basic.html))

Chapter 6

1. What is the effect of test length on the reliability of a test?
2. Distinguish between predictive validity and construct validity.
3. Distinguish "between-subject" variables from "within-subjects" variables.
4. Define interaction.

Chapter 7

1. What are the mean and standard deviation of the standard normal distribution?
2. The normal distribution is defined by two parameters. What are they?  
   ([relevant section](http://onlinestatbook.com/2/normal_distribution/intro.html))
3. (a) What proportion of a normal distribution is within one standard deviation of the mean? (b) What proportion is more than 2.0 standard deviations from the mean?
4. A normal distribution has a mean of 20 and a standard deviation of 4. Find the Z scores for the following numbers: ([relevant section](http://onlinestatbook.com/2/normal_distribution/standard_normal.html)) (a) 28 (b) 18 (c) 10 (d) 23