***E370, Spring 2016***

***Lab Activities week of 1/25/2016***

***Valued at 25 points***

Solve the following problems. Please follow the instructions given and show your work to obtain full credit. The data sets required for this activity can be found in Oncourse under *Resources🡺Lab Manual Data* or in Box at <https://iu.box.com/E370-Files> **in the folder Lab Manual Data Files.**

1. Use the dataset “**Hotdogs.xlsx”**. Answer the following questions. (12 points)
   1. Compute all descriptive statistics of sodium content for the hot dogs.

|  |  |
| --- | --- |
| *Sodium* | |
| *Mean* |  |
| *Standard Error* |  |
| *Median* |  |
| *Mode* |  |
| *Standard Deviation* |  |
| *Sample Variance* |  |
| *Kurtosis* |  |
| *Skewness* |  |
| *Range* |  |
| *Minimum* |  |
| *Maximum* |  |
| *Sum* |  |
| *Count* |  |

* 1. Using the statistics you obtained in part a to describe the distribution of sodium content for hot dogs. (*Remember the three dimensions of distributions you must discuss to answer this question.)*
  2. Use Excel command to check whether the standard deviation obtained in part a is sample or population statistics.
  3. Calculate the mean, variance, and standard deviations of calories for the following three categories: meat hot dogs, beef hot dogs, and poultry hot dogs.

* 1. Of the three types of hot dogs, which on average has the fewest calories?
  2. Of the three types of hot dogs, which has the most variability when it comes to calories?
  3. Compare the variability of calories and sodium content for all hot dogs, which one is higher?

1. Use the data set “**Friends.xlsx**”. (13 points)
   1. Compute the mean of “Friends” using an Excel command.
   2. Compute the median of “Friends” using an Excel Command.
   3. Does the mean and median number of “Friends” differ much? If so, provide a statistical explanation.
   4. What is the most common category of “College” in the dataset? Write the Excel command.
   5. Calculate the standard deviation of the variable “Comments.”
   6. Suppose the data set was a population. Calculate the standard deviation of the variable “Comments” again. How would the standard deviation calculation differ from the one just calculated in part e?
   7. What can you say about the relative dispersion of “Comments” and “Friends”? Which statistics you choose to use?
   8. Of “Comments” and “Friends”, which is more symmetric? How do you know?