Homework assignment 05

Use black text (if possible) for everything you include in this document. Keep both your answers and the original questions. Save this document in PDF format and submit it on Canvas. Include your last name, the course number and the module number in the name of your file.

1. Show a documentation header. The documentation header is a description of who wrote the program, when it was written, what the purpose of the program is (briefly), and what restrictions (if any) that you may place on the program. For SPSS, you can just type the documentation as free format text. For other programs, you might use the comment feature (such as /\* and \*/ in SAS).

The following is the assignment from last year. I am keeping it around until I finalize this year’s assignment.

(10 points) **Part 1:** C Reactive Protein is a marker for inflammation. The CRP data set, Data Set: HW #5 comes from a study investigating an intervention to improve caregiver’s attention to oral health in patients residing in a long term care facility in Manitoba, Canada. Data include baseline CRP and 6 week CRP as mg/L. **You will be using the BASELINE CRP data for this assignment.**

The purpose of this exercise is to assess a set of data for normality then transform that data to make it normally distributed.

Create all of the required output and then copy and paste it into the HW word document as directed.

**The order of the graphs and tables pasted into the homework from the output should be presented as follows:**

**Baseline CRP Histogram, Log10 Transformed Baseline CRP Histogram, Baseline CRP PP Plot, Log10 Transformed Baseline CRP PP plot, Baseline CRP QQ Plot, Log10 Transformed Baseline CRP QQ plot, Baseline CRP Box and Whisker plot, Log10 Transformed Baseline CRP Box and Whisker plot, Baseline CRP Tests of Normality, Log10 Transformed Baseline CRP Tests of Normality, Statistics Table.**

**These tables and graphs must be presented in the above order.**

**Your Name MUST appear in the variable label of all graphs generated for this HW assignment.**

**Please be sure to type your answers in a font color that is NOT black.**

**Steps:**

1. Open *CRP Skewed Data.sav*
2. Go to Variable View
   1. For variable Baseline\_CRP type in **the Label** *“Your name” Baseline CRP*. You must have your own name appear in the **Label** to receive points for this exercise.
   2. Once you have done this, return to Data View.
3. Create a graph of ***Baseline\_CRP***
   1. Analyze>>Descriptive Statistics>>Frequencies
   2. Click *Baseline\_CRP* to Variables Box
   3. Click Charts
   4. Click Histogram and Show Normal Curve on Histogram
   5. Click Continue
   6. Click OK
4. Transform the data using Log10 as per the directions in the practice directions. \*\* **DO NOT add 1 to each value. All values are positive.**
   1. Name this new variable Log10CRP
   2. **Label this variable *“Your name” Log10 CRP****.*  Your Label **MUST** include your own name. If the label does not include your name you will not receive points for this exercise.
5. Create a graph of this newly transformed variable as in Step 3.
6. Create the Normal P-P Plots of Baseline CRP and Log10 CRP
   1. Analyze>>Descriptive Statistics>>P-P Plots…
   2. Click the variables *Baseline CRP* and *the Log10 Transformed Baseline CRP* to the Variables box
   3. Click OK
7. Calculate the output for Skewness and Kurtosis
   1. Analyze>>Descriptives>>Frequencies>>
   2. In the Frequencies box Click *Baseline\_CRP* and *Log10CRP* to the Variables box
   3. Check the box Display frequency tables
   4. Click on Statistics
   5. Click on Mean, Median, Mode, Std. Deviation, Variance, Skewness and Kurtosis
   6. Click Continue
   7. Click OK
8. Run the Kolmogorov-Smirnov and Shapiro-Wilkes tests to assess the data for normality. You will also obtain the Histogram, Normal Q-Q plots and the Boxplots while doing this.
   1. Analyze>>Descriptive>>Explore
   2. Click Baseline\_CRP and Log10CRP to the Dependent List
   3. Under Display, the bubble beside Both should be clicked on
   4. Click on Plots
   5. Uncheck Stem and Leaf
   6. Check Histogram
   7. Check the box for Normality Plots with tests
   8. Click continue
   9. Click OK
9. Calculate the Z-scores for Skewness and Kurtosis (found in the Normality lecture.) Show your work.
   1. Compare these calculated scores against the 99% Z-score (2.58)
      1. Prior to transformation, was there skewness and/or kurtosis present?
      2. Following transformation, was there skewness and/or kurtosis present?
10. Make a final assessment of this transformation using all of the pieces of information obtained from all of these tests.
    1. Did the tests and graphs show normalization of the data distribution following transformation?
       1. You must assess all transformed graphs and tests individually and indicate which found normality and which did not find normality.
          1. Create a table with a description of each test or graph and state if normality was attained, was closely attained, or was not attained.
          2. Include the table here.
    2. \*The overall decision: Did the transformation normalize the data? (Yes or No)
       1. Explain your reasoning for this decision.
    3. \*Would you use a parametric statistical analysis method to analyze this transformed data? (Yes or No)
       1. Explain your reasoning for this decision.

\* This your decision as a statistician. Please explain the reason for your decisions .

\*\*Many of the procedures provide additional output that you already may have. There are often many ways to generate the desired output from SPSS. I have directed you to use many different methods which provide redundant output.

The purpose of running all of the processes as done above is to provide you with different approaches.