Homework assignment 01

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. Please follow the general requirements described in the grading rubric.

1. Show a documentation header. Include your name, the purpose of the program, and the conditions under which others may or may not use your results.

2. Download and import the file samara.txt. Review the data dictionary, if needed. Display the first ten rows of data below.

3. There appears to be a relationship between load and velocity. Draw a graph illustrating this relationship with load on the X axis and velocity on the Y axis. Make sure that your graph follows good design principles. Include a trendline in your graph. Describe the graph and highlight unusual values (if any).

4. Calculate a simple linear regression (Analyze | Regression | Linear) using load as the independent variable and velocity as the dependent variable. Show the table with R squared and interpret this number.

5. Show the analysis of variance table and use the F ratio to test the hypothesis that the population slope is zero. Interpret your results.

6. Compute the residuals and examine the normality assumption using a histogram. Interpret your results.

7. The researchers believe that the average velocity is the same for all three trees in the study. Display a boxplot that would provide an informal assessment of this hypothesis.

8. Does the boxplot show evidence of unequal variances or non-normality?

9. Show the analysis of variance table for examining the average velocity across all three trees. Explain what the F ratio is testing and interpret your results.

10. Since the sample sizes in each group are almost equal, you can use the Tukey post hoc test to examine which trees differ from the others. Display the SPSS output associated with this test and interpret the results.