**Module Assignment**

**Module 4**

**QMB-6304 Analytical Methods for Business**

Write a simple R script to execute the following:

**Preprocessing**

1. Load the data you find in “6304 Module 4 Assignment Data.xlsx” into R. This data comes from an anatomical study of 1000 Tamil adult men in which their total height was measured as well as the length of their left foot. The data is given in pounds and inches. This will be your master data set.
2. Using the numerical portion of your U number and the method demonstrated in class take a random sample from your master data set of size n=70. This will be your primary data set.

**Analysis**

1. Using your primary data set calculate and report the correlation coefficient for the foot length and height variables. State whether you believe the correlation coefficient indicates a close relationship between the two variables.
2. Conduct a simple linear regression on the data with height as the independent variable and foot length as the dependent variable. As a part of this be sure to:
   1. Report the beta coefficients and associated p values and confidence intervals from your model.
   2. Give a written interpretation of your beta coefficients.
   3. Assess your model’s conformance with the LINE assumptions of regression.
   4. For a given Tamil man 5.5 feet tall use your model to predict the length of the left foot in inches. Include both types of prediction intervals discussed in class and calculated to the 95% level. Give a written interpretation of both intervals explaining the difference between the two.
3. A Tamil gentleman has brought to you his 10-year-old son. The son is 4 feet in stature. Explain whether you believe your model could accurately predict the length of the boy’s left foot.

Your deliverable will be a single MS-Word file showing 1) the R script which executes the above instructions, 2) the results of those instructions, and 3) any interpretations which may needed. Your name should appear at the top of the first page of your deliverable. Results should be presented in the order in which they are listed here. Deliverable due time will be announced in class and on Canvas. **This is an individual assignment to be completed and submitted by the time stated on Canvas. No collaboration of any sort is allowed on this assignment. Please remember the prohibition on using screenshots in your deliverable.**

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