Critical Thinking Four- Option One

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MIS500- Foundations of Data Analytics

Colorado State University- Global

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February 8, 2020

**Implementing SAS Hypothesis Testing**

Hypothesis testing evaluates data under a provided assertion. The outcome of the evaluation enables analysts to draw conclusions and make decisions based on those outcomes. The analysts determine whether the assertion is plausible or if the assertion has been debunked. Hypothesis testing uses the statistics of population samples to determine the trueness of given data.

In this assignment, we were instructed to run a program to test the effects of tutoring on the test scores of twelve students by running what is basically a before and after code. I believe, in this case we performed a Paired T-Test. The deliverables for this assignment was to take screenshots of our results as well as the output code after running the program to get a visual representation of the test results. SAS Studio returned outputs of different graphs and codes with explanative notes written into the program.

Please, find below, the deliverables after running the program.

A screenshot of a cell phone

Description automatically generated

In the above screenshot, we can see an overall improvement in the grades of the students after tutoring, where nine out of twelve experienced an increase.

Below is a bell curve that depicts the distribution of difference.

A screenshot of a social media post

Description automatically generated

A screenshot of a computer

Description automatically generated

In the above picture we see a line graph with multiple lines showing the before and after scores as well as the mean score. However, below is a scatter plot of the before and after scores which provides a better picture of the increase in grades with a line draw through the middle that shows that nine out of twelve students excelled.

A screenshot of a computer

Description automatically generated

The screenshot below shows the Q-Plot that shows the quantile.

A screenshot of a cell phone

Description automatically generated

Please, find below screenshots of the SAS code with NOTES after the program was run.

A screenshot of a computer

Description automatically generated

A screenshot of a cell phone

Description automatically generated

A screenshot of a computer

Description automatically generated

Reference

Brownlee, J. (2018). Machine Learning Mastery. A Gentle Introduction to Statistical Hypothesis Testing. Retrieved from https://machinelearningmastery.com/statistical-hypothesis-tests/