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Course: Data Analytics Lab
Experiment: 3

AIM: Perform Statistical Analysis and perform Hypothesis testing on the data.

Theory:
The purpose of statistical inference is to draw conclusions about a population on the basis of data obtained from a sample of that population. Hypothesis testing is the process used to evaluate the strength of evidence from the sample and provides a framework for making determinations related to the population, ie, it provides a method for understanding how reliably one can extrapolate observed findings in a sample under study to the larger population from which the sample was drawn. The investigator formulates a specific hypothesis, evaluates data from the sample, and uses these data to decide whether they support the specific hypothesis.

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Colab link:
https://colab.research.google.com/drive/1lN14mO3QoF_ayRkIltYuW5tJb_Zxn9Zx?usp=sharing

Conclusion:

- I took a dataset of exercises performed by the students and checked for null values. Since the data was clean I continued with statistical analysis and hypothesis testing
- I used the functions like describe to know minimum, maximum values, standard deviation of the numerical values of data.
- Plotted pairplots, heatmap to better understand the data and found some correlation between height, weight and the type of exercises that could by performed by a certain weighted person.
- I performed hypothesis testing next assuming I didn't have the population data. I took a sample of 20 observations and assumed the required hypothesis as per the tests.
- Thus I understood that typically, every research starts with a hypothesis—the investigator makes a claim and experiments to prove that this claim is true or false.