Statistics Assignment

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**Course Name:** Data Science

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Mean:

* In statistics, the mean is one type of the measure of central tendency, apart from a mode and median. In other word, Mean is the average of the given set of values. The mean can easily to be calculated with many programming languages.
* Mean is a statistical measurement, it tells that what the expected outcome is when we comparing all the data points together. It doesn’t give us guarantee future results but mean help us to know that the set of expectation of a future outcome based on what already has happened.

**Definition:**

* Mean is the average of the given numbers and is calculated by dividing the sum of giving numbers by the total number of numbers.

**Formula:**

*Mean =* *Sum of observations/Number of observations*

We can calculate the mean for both the population and the sample.

The formulas are the same and uses different symbols to refer to the population mean(μ) and sample mean (x-bar)

**Example:**

* Find the mean of this data:

5, 6, 10, 15, 60, 70, 25, 3, 5, 9

* Add this data:

5+6+10+15+60+70+25+3+5+9 = 208

* Now, In this data we have 10 points:

So, Mean = Sum of observations/Number of observations

Mean = 208\10 = 20.8

Here mean is 20.8

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Hypothesis:

Hypothesis testing in statistics is a way to test the results of a experiment to see if we have meaningful result or not. Basically testing whether our results are valid by figuring out the odds that our results have happened by chance. If our result have happened by chance, the experiment won’t be repeatable and so has little use. It is used to estimate the relationship between two statistical variables.

All hypotheses are tested using a four-step process:

1. The first step is for the analyst to state the two hypotheses so that only one can be right.
2. The next step is to formulate an analysis plan.
3. The third step is to brings the plan and physically analyse the sample data.
4. The fourth and final step is to analyse the results and either reject the null hypothesis, or state that the null hypothesis is reasonable which we have a data.

Null Hypothesis And Alternative Hypothesis:

The Null Hypothesis is the assumption that the event will not occur.

H0 is the symbol of null hypothesis and it’s called a H-naught.

Sometimes the null hypothesis is rejected. If null hypothesis is rejected means that the model could be invalid.

Example: Average = 95%

The Alternate Hypothesis is the logical opposite of the Null Hypothesis. The alternative hypothesis follows the rejection of the null hypothesis.

H1 is the symbol of alternate hypothesis.

Example: The average is less than 95%