**Assignment- 02**

1. **What is difference between inferential statistics and descriptive statistics?**

**Descriptive Statistics:** Descriptive statistics describe a data in graph and chart. For e.g. suppose in a City, You want to know how much percentage of people who are a teacher? There are 20000 populations. Then make a sample of that population data.

You take a sample of 200 people. According to this data you find out that 15% people are a teacher.

**Inferential Statistics:** Inferential Statistics allows you to make prediction from data from sample and make decision.

1. **What is difference between population and sample in inferential statistics?**

**Population:** Population is a complete set of data. Population is the entire group that you want to draw conclusion about

**Sample:** Sample is a part of population data which is used in analysis. A sample is a specific group that you will collect data from. The size of a sample is always less than the total size of the population

1. **Most common characteristics used in descriptive statistics?**

There are some characteristics as follows:

* Range
* Variance
* Standard deviation.
* Covariance

1. **How to calculate range and interquartile range?**

Range is the Difference between lowest and highest value.

For e.g. The Range- 3, 4, 5,9,2,4. Then 9-2=7

In [descriptive statistics](https://www.scribbr.com/statistics/descriptive-statistics/), the **interquartile range** tells you the spread of the middle half of your distribution.

Quartiles segment any distribution that’s ordered from low to high into four equal parts. The interquartile range (IQR) contains the second and third quartiles, or the middle half of your data set.

Q1 Median Q3

48 52 57 61 64 72 76 77 81 85 88

First half second half

IRQ= Q3-Q1; 81-57=24

1. **How is the statistical significance of an insight assessed?**

Statistical significance can be accessed using hypothesis testing:  
– Stating a null hypothesis which is usually the opposite of what we wish to test (classifiers A and B perform equivalently, Treatment A is equal of treatment B)  
– Then, we choose a suitable statistical test and statistics used to reject the null hypothesis  
– Also, we choose a critical region for the statistics to lie in that is extreme enough for the null hypothesis to be rejected (p-value).  
– We calculate the observed test statistics from the data and check whether it lies in the critical region.

Some common tests are:

* Variance
* P Test
* F Test