Solutions for the Statistics Assignment -1

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1. What exactly is the difference between descriptive and inferential statistics?

Answer: Descriptive statistics is basically concerned with organizing, summarizing, visualizing the data to get the insights/understand the data by various methods. It mainly deals with the summarizing, visualizing and characterizing the data.

Example of some methods are Histogram, Bar Chart, Pie chart, graphs.

Inferential Statistics uses data to derive conclusions and inferences. It uses various statistical methods such as Hypothesis testing, P-Value, T-Test, F-test, Chi-square with the intention of making decisions and inferences of the sample of data collected from the population.

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2. I'm not sure what is the difference between a sample and a population?

Answer:

Population (N)	**Sample (n)**
1. Population is complete set.	1. Sample is the subset of population.
2. Population contains all the members of a specified group.	2. It is the subset that represents the entire population.
3. It is the entire data/population on which the conclusion is to be draw.	3. It is the specific group that you will collect the data from and on this specific group the conclusion is drawn.
4. Ex: Population of people in a country	4. Ex: 1000 people selected from a city of population 1 Lakh people.
5. It is bit difficult to derive the conclusion on entire population.	5. It is feasible to derive the conclusion on sample, as sample represents the population.

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3. What distinguishes descriptive statistics from other types of statistics?

Answer: Descriptive statistics is the branch of statistics which deals with the organizing and summarizing of the data by various methods in order to understand the data. Where as on the other hand inferential statistics mainly deals with deriving the inference/conclusions from the sample of data derived from the population of data. Descriptive statistics helps in gaining the

quick insights from the raw data with the help of graphs, charts and other tools without much diving deep into sample or population of data whereas the inferential statistics needs sample of data or population of data and in turn helps in making hypothesis or predictions.

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4. What is the difference between quantitative and qualitative data?

Answer: The difference between quantitative data and qualitative data.

Quantitative Data refers to the data that can be expressed and represented in the form of numbers.

Ex: Height of a person, age of a person, weight of a person, temperature of cities.

Various methods such as Standard deviation, variance, measure of central tendency such as mean, median and mode are used to analyse the quantitative data. The data is usually collected from different source by experiments.

Qualitative Data refers to the data that can be expressed in the form of non-numerical representation and cannot be done using numbers alone.

Ex: Gender of a person, Tossing of a coin, days in a week, customer rating.

This type is analysed using various qualitative research methods and this type of data in mainly collected through surveys, questionnaire interviews.

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5. What is the definition of a percentile?

Answer: In statistics the percentile can be defined as "the term that describes how a given score compares to other scores from the same set or percentage of values in a set of data scores that fall below a given value". Percentile separates the data into 100 equal parts.

For example, the 35^{th} percentile is the value below which 35% of the observations in the dataset fall. In other words, 35% of the data points are equal to or below the 35th percentile.

Example: The 95th percentile separates the lowest 95% of the values from the top 5%

It is used to compare the distribution of data between two or more groups.

Example: Percentiles are used different exam’s results. A percentile rank of 95 means that the student scored higher than 95% of other exam aspirants.