**Statistics Assignment 1**

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

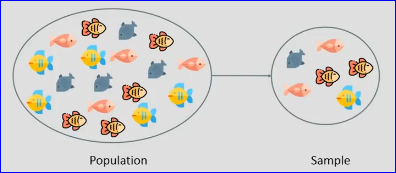
Ans.

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| --- | --- |
| **Descriptive Statistics** | **Inferential Statistics** |
| It consists of organizing & summarizing of data.  i) Measure of Central tendency  1. Mean 2. Median 3. Mode ii)Measure of dispersion  1. Variance 2.Standard Deviation | It Makes inference about population using sample drawn from the population  It allows us to compare data, make hypothesis & predictions |
| It is used to describe a solution | It is used to explain the chance of occurrence of an event |
| It can be achieved with help of charts, graph & tables | It can be achieved by probability |

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

Ans)

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| **Population** | **Sample** |
| A population is the entire group that you want tp draw conclusion about. It denoted by "N" | A sample is the specific group that you will collect data from. It denoted by "n" |
| The measurable quality is called a parameter. | The measurable quality is called a statistic. |
| The population is complete set. | Sample is subset of the population. |
| It contains all members of a specified group. | It is subset that represents the entire population. |
| Reports are true representation of opinion | Reports have a margin of error and confidence interval |



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

Ans) Descriptive statistics uses the data to provide descriptions of the population, either through numerical calculations or graphs or tables. Inferential statistics makes inferences and predictions about a population based on a sample of data taken from the population

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

Ans)

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| **Quantitative** | **Qualitative** |
| Quantitative data can be measured numerical | Based on some characteristic we can derive some categorical variables |
| Eg: Age,Height and weight | Eg: Gender - Male/Female ,Qualification |
| On quantitative data we can perform addition, subtraction , multiplication and division operations | On qualitative data can't perform mathematical operations |

1. What is the definition of a percentile?

Ans)

A percentile is a value below which a certain percentage of observation lie.

Percentiles are commonly used to report scores in tests, like the SAT, [GRE](https://www.ets.org/s/gre/pdf/gre_guide_table1a.pdf)and LSAT. For example, the 70th percentile on the 2013 GRE was 156. That means if you scored 156 on the exam, your score was better than 70 percent of test takers.

Example: Consider a dataset {2,2,3,4,5,5,6,7,8,8,8,8,8,9,9,**10**,11,11,12} What is the percentile ranking of 10?

***Percentile rank of 10 = (No. of Value below 10/No. of elements) / 100***

= (16/20)\*100

= 80 %

80% data in dataset is below 10