**Statistics Assignment 1**

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

Descriptive Statistics is that branch of statistics that is concerned with describing the population under study. It Organizes analyzes and presents data in a meaningful way. in the form of Charts, Graphs and Tables. it is primarily used to describe a situation. It explains the data, which is already known, to summarize the sample.

Inferential Statistics is a type of statistics, that focuses on drawing conclusions about the population, on the basis of sample analysis and observation. It Compares, tests and predicts data. It shows result in form of Probability. it is primarily used to explain the chances of occurrence of an event.It attempts to reach the conclusion to learn about the population, that extends beyond the data available.

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

|  |  |
| --- | --- |
| **Population** | **Sample** |
| * The measurable characteristic of the population like the mean or standard deviation is known as the parameter. | * The measurable characteristic of the sample is called a statistic. |
| * Population data is a whole and complete set. | * The sample is a subset of the population that is derived using sampling. |
| * A survey done of an entire population is accurate and more precise with no margin of error except human inaccuracy in responses. However, this may not be possible always. | * A survey done using a sample of the population bears accurate results, only after further factoring the margin of error and confidence interval. |
| * The parameter of the population is a numerical or measurable element that defines the system of the set. | * The statistic is the descriptive component of the sample found by using sample mean or sample proportion. |

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

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Descriptive Statistics** | **Inferential Statistics** |
| 1. | It gives information about raw data which describes the data in some manner. | It makes inference about population using data drawn from the population. |
| 2. | It helps in organizing, analyzing and to present data in a meaningful manner. | It allows us to compare data, make hypothesis and predictions. |
| 3. | It is used to describe a situation. | It is used to explain the chance of occurrence of an event. |
| 4. | It explain already known data and limited to a sample or population having small size. | It attempts to reach the conclusion about the population. |
| 5. | It can be achieved with the help of charts, graphs, tables etc. | It can be achieved by probability. |
|  |  |  |

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

|  |  |  |  |
| --- | --- | --- | --- |
| **S.N.** | **Character** | **Quantitative Data** | **Qualitative Data** |
| **1.** | **Definition** | These are data that deal with quantities, values, or numbers. | These data, on the other hand, deals with quality. |
| **2.** | **Measurability** | Measurable. | They are generally not measurable. |
| **3.** | **Nature of Data** | Expressed in numerical form. | They are descriptive rather than numerical in nature. |
| **4.** | **Research Methodology** | Conclusive | Exploratory |
| **5.** | **Quantities measured** | Measures quantities such as length, size, amount, price, and even duration. | Narratives often make use of adjectives and other descriptive words to refer to data on appearance, color, texture, and other qualities. |
| **6.** | **Method of collection** | Statistics is used to generate and subsequently analyze this type of data. | They are only gained mostly through observation. |
| **7.** | **Approach** | Objective | Subjective |
| **8.** | **Data Structure** | Structured | Unstructured |
| **9.** | **Determines** | Level of occurrence | Depth of understanding |
| **10.** | **Reliability** | The uses of statistics add credence or credibility to it so that quantitative data is overall seen as more reliable and objective. | Less reliable and objective. |
| **11.** | **Data Collection Techniques** | Quantitative surveys, Interviews, Experiments | Qualitative surveys,  Focus group methods, Documental revision, etc. |
| **12.** | **Sample** | A large number of representative samples | A small number of non-representative samples |
| **13.** | **Outcome** | Develops initial understanding | Recommends the final course of action |

5. What is the definition of a percentile?

Percentiles should not be confused with [percentages](https://www.thoughtco.com/how-to-calculate-percent-608321). The latter is used to express fractions of a whole, while percentiles are the values below which a certain percentage of the data in a data set is found. In practical terms, there is a significant difference between the two. For example, a student taking a difficult exam might earn a score of 75 percent. This means that he correctly answered every three out of four questions. A student who scores in the 75th percentile, however, has obtained a different result. This percentile means that the student earned a higher score than 75 percent of the other students who took the exam. In other words, the percentage score reflects how well the student did on the exam itself; the percentile score reflects how well he did in comparison to other students.