**Assignment Name - Concepts of Statistics**

**Problem Statement -**

**Answer the following questions to the best of your knowledge including the concepts taught to you in**

**the level.**

**1. If the variance of a variable/column is 0 then what does it mean? Can we use that variable for our analysis?**

**2. Calculate mean, median, mode, variance and standard deviation for column A**

**Mention all step by step formula calculations in the answer sheet.**

**(see the table in pdf)**

**3. In a group of 12 scores, the largest score is increased by 36 points. What effect will this have on the mean of the scores?**

**4. Explain the difference between Data (Singular) and Data (Plural) with examples?**

**5. How the inferential statistics helps to make decisions out of it?**

**Evaluation Basis**

**This project will be evaluated on following basis -**

**1) Comprehensibility of the answer : You have to answer the given question with full explanation, background information and examples(if required)**

**Deliverables from Candidate**

**1) A Doc or Pdf file containing your answers**

**Warning - Do not submit incomplete assignments. They will result in negative skill score.**

**Descriptive and Inferential Statistics**

[**https://www.cos.edu/Faculty/georgew/Tutorial/Data\_Descr\_Infer.htm**](https://www.cos.edu/Faculty/georgew/Tutorial/Data_Descr_Infer.htm)

Statistics can be broken into two basic types.

The first is known as **descriptive statistics**. This is a set of methods to describe data that we have collected.

Ex. Of 350 randomly selected people in the town of Luserna, Italy, 280 people had the last name Nicolussi. An example of descriptive statistics is the following statement :

"80% of these people have the last name Nicolussi."

Ex. On the last 3 Sundays, Henry D. Carsalesman sold 2, 1, and 0 new cars respectively. An example of descriptive statistics is the following statement :

"Henry averaged 1 new car sold for the last 3 Sundays."

These are both descriptive statements because they can actually be verified from the information provided.

The second type of statistics in **inferential statistics**. This is a set of methods used to make a generalization, estimate, prediction or decision.

Ex. Of 350 randomly selected people in the town of Luserna, Italy, 280 people had the last name Nicolussi. An example of inferential statistics is the following statement :

"80% of all people living in Italy have the last name Nicolussi."

We have no information about *all* people living in Italy, just about the 350 living in Luserna. We have taken that information and *generalized* it to talk about all people living in Italy. The easiest way to tell that this statement is not descriptive is by trying to verify it based upon the information provided.

Ex. On the last 3 Sundays, Henry D. Carsalesman sold 2, 1, and 0 new cars respectively. An example of inferential statistics are the following statements :

"Henry never sells more than 2 cars on a Sunday."

Although this statement is true for the last 3 Sundays, we do not know that this is true for all Sundays.

"Henry is selling fewer cars lately because people have caught on to his dirty tricks."

There is nothing in the information given that tells us that this statement is true.

"Henry sold 0 cars last Sunday because he fell asleep in one of the cars on the lot."

Again, this statement is not verifiable based upon the information provided.

The major use of inferential statistics is to use information from a **sample**to infer something about a **population**.

# Why is inferential statistics important?

<https://www.quora.com/Why-is-inferential-statistics-important>

2 Answers

[Md. Rayhanul Islam](https://www.quora.com/profile/Md-Rayhanul-Islam)

[Md. Rayhanul Islam](https://www.quora.com/profile/Md-Rayhanul-Islam), B.S Statistics & Biostatistics, University of Dhaka (2014)

[Answered Jan 17, 2017](https://www.quora.com/Why-is-inferential-statistics-important/answer/Md-Rayhanul-Islam)

Statistical measure can divide in 2 main parts

1. Descriptive statistics &
2. Inferential statistics.

Descriptive statistics only display the central values, dispersion or variability of the data but to take a decision about the whole population and end up in a conclusion you have to use inferential statistics.

For a data set descriptive statistics works as a bill board but inferential statistics works as a main store.

Just give an example anyone want to know the average IQ scores of the people of Bangladesh. It is quite impossible to collect all the people IQ scores. So select a sample which covers the larger population of Bangladesh, collect IQ scores and infer about the whole population. Inferential statistics are techniques that allow us to use these samples to make generalizations about the populations from which the samples were drawn.

Reference: [Inferential statistics](https://extension.usu.edu/evaluation/files/uploads/Start%20Your%20Engine/Study%20the%20Route/Analyze%20the%20Data/UsingInferentialStatistics.pdf), [Laerd Statistics](https://statistics.laerd.com/statistical-guides/descriptive-inferential-statistics.php), [Inferential statistical tests](https://www.boundless.com/psychology/textbooks/boundless-psychology-textbook/researching-psychology-2/analyzing-and-interpreting-data-30/basic-inferential-statistics-479-16744/)

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[Mccabe Hurley](https://www.quora.com/profile/Mccabe-Hurley)

[Mccabe Hurley](https://www.quora.com/profile/Mccabe-Hurley), Options trader with a keen love of statistics

[Answered Jan 11, 2017](https://www.quora.com/Why-is-inferential-statistics-important/answer/Mccabe-Hurley)

Inferential statistics allows us to use what we've learned from descriptive statistics. Using data from the past and the resulting descriptive stats I.e., mean, mode, median, standard deviation, etc. infential statistics extend beyond the immediate data . Inferential stats are used to infer from the sample data what the population might think. Inferential stats that are also used to make judgements about the probability that an observation is dependable or one that happened by chance in the study.