1. **What is the purpose of descriptive statistics?**

   The purpose of descriptive statistics is to summarize and describe the main features of a dataset. Descriptive statistics provide a way to organize and simplify large amounts of data in a meaningful and interpretable manner.
   The purpose of descriptive statistics is to provide a clear and concise summary of the essential features of the data, such as central tendency, variability, and distribution.Descriptive statistics measure central tendency and spread to help us understand the typical or average value and the variation in the data.

2. **Can you explain the difference between mean, median and mode.**

   Mean, median, and mode are all measures of central tendency.

- Mean: The average value of a set of observations. It's calculated by dividing the sum of the observations by the number of observations. Mean represents the average and is sensitive to outliers.
- Median: The middle value of a set of observations when they are arranged from smallest to largest. If there are two numbers in the middle, you should take the average of those two numbers. Median is the middle value and is not influenced by extreme values.
- Mode: The most repeated value in a set of observations and may not be unique or exist in every dataset.

3. **How do you interpret the standard deviation of a dataset?**

Standard deviation is a measure of how spread out a set of data is from the mean.

If the standard deviation is low, it means that the values in the dataset are close to the mean. There is less variability or spread around the average.This suggests that the data points are relatively consistent and similar to each other.

If the standard deviation is high, it indicates that the values in the dataset are more spread out from the mean. There is greater variability, and the data points are more dispersed.This suggests that there may be more diversity or fluctuation among the values.

4. **Describe the concept of skewness in statistics.**

Skewness is a statistical measure that assesses the asymmetry of a probability distribution. It measures how much a data distribution is asymmetrical from the normal distribution, where distribution is equally divided on each side

Skewness can be positive, zero, negative, or undefined. Positive skewness indicates a longer tail on the right side of the distribution, while negative skewness indicates a longer tail on the left side.

5. **What is the main goal of inferential statistics?**

The main goal of inferential statistics is to use information from a sample to make predictions or inferences about a larger population.This can involve:

- Testing hypotheses about the relationship between variables
- Making predictions about future outcomes

Inferential statistics is a branch of statistics that is used when it is not practical to study the entire population. Instead, a representative sample is taken. The goal is to generalize the findings from the sample to the population as a whole.

Inferential statistics can be used to:

- Provide population estimations
- Discover some general pattern about a large group
- Compare the sample and population mean when the population variance is unknown.

6. **Explain the difference between a population and a sample.**

A population is the entire group that you want to draw conclusions about.

A sample is the specific group that you will collect data from. The size of the sample is always less than the total size of the population.

7. **What is confidence interval, and how is it useful in inferential statistics?**

   A confidence interval is a statistical tool used in inferential statistics to estimate the range within which a population parameter, such as a mean or

proportion, is likely to fall. Confidence intervals are useful in inferential statistics because they can help determine the probability that the results of a study occurred by chance or were due to the true effect on the population.

8. **Define p-value.**

The p value is a number, calculated from a statistical test, that describes how likely you are to have found a particular set of observations if the null hypothesis were true. P values are used in hypothesis testing to help decide whether to reject the null hypothesis. The smaller the p value, the more likely you are to reject the null hypothesis.

9. **Techniques of Inferential statistics.**

Inferential statistics is a branch of statistics that uses a sample to draw conclusions about a population. Some techniques of inferential statistics include:

Hypothesis testing - A type of inferential procedure that uses sample data to evaluate the credibility of a hypothesis about a population

Regression analysis - A form of inferential statistics that uses p-values to determine if the relationships observed in a sample also exist in the larger population.

Confidence intervals - Help researchers understand how representative their sample is of the general population.