Introduction To Descriptive Stats

Descriptive statistics is a branch of statistics that deals with the analysis, organization, and interpretation of data. It is used to summarize and describe the key features of a dataset, such as its central tendency, variability, and distribution. Descriptive statistics are essential in providing insights into the characteristics of a population or a sample, which can inform decision-making processes in a variety of fields, from business to healthcare.

Types of Descriptive Statistics:

1. **Measures of Central Tendency:**
   Measures of central tendency are statistical measures that describe where the center of a distribution of values lies. The three most commonly used measures of central tendency are the mean, median, and mode. The mean is the sum of all values in the dataset divided by the number of observations. The median is the middle value when the dataset is arranged in order of magnitude. The mode is the value that occurs most frequently in the dataset.
2. **Measures of Variability / Measures of Dispersion:**
   Measures of variability are statistical measures that describe how spread out the values in a dataset are. The three most commonly used measures of variability are the range, variance, and standard deviation. The range is the difference between the maximum and minimum values in the dataset. The variance is the average of the squared differences between each value and the mean. The standard deviation is the square root of the variance.
3. **Measures of Distribution:**
   Measures of distribution are statistical measures that describe the shape of a distribution of values. The two most commonly used measures of distribution are skewness and kurtosis. Skewness measures the degree of asymmetry of the distribution. Positive skewness indicates that the distribution has a longer tail to the right, while negative skewness indicates a longer tail to the left. Kurtosis measures the degree of peakedness of the distribution. High kurtosis indicates a sharp peak and a heavier tail, while low kurtosis indicates a flatter peak and lighter tails.
4. **Frequency Distributions:**
   Frequency distribution is a statistical technique that helps to organize and summarize a large set of data by showing how often each value or range of values occurs in the data. It is a table that lists all the possible values or intervals of the variable being studied and the corresponding frequency or count of each value or interval.