1. Introduction to Statistics

Our day-to-day lives comprise of observing various activities and their quantitative relationships. In our observation, we gather fact/figures (which could be numerical). When gathered with a definite purpose, these figures represent what is known as **data**. Data is the plural form of the Latin word ‘datum’.

The rapid integration of data in our lives appeals us to know how to extract meaningful information from such data. The branch of Mathematics that deals with the extraction of meaningful information from data is known as Statistics.

1. Measures of Central Tendency

Measures of central tendency, better known as averages, our representative values of a set of data which allow us to extract important characteristics of the aforementioned set of data.

The three most common measures of central tendency are:

1. Arithmetic Mean

The arithmetic mean or simply mean represents the average value of a set of data. It is also known as the average. The arithmetic mean is denoted by .

In the case of ungrouped data, it is obtained by summing all the class marks (denoted by Σxi) and dividing this sum by the total number of instances (denoted by n).

arithmetic mean of ungrouped data, =

When data is in the form of discrete groups, we first convert them into continuous groups. The average is then obtained by summing all the values obtained by multiplying the frequency (denoted by fi) with the corresponding class mark (denoted by xi) and dividing this sum (denoted by Σfixi) by the sum of all frequencies (denoted by Σfi).

arithmetic mean of grouped data, =

1. Median

The median of a set of data gives the value which represents the center-most value of the set.

In the case of ungrouped data, the median is obtained as follows:

1. Arrange the data in ascending order.
2. Obtain the total number of observations.

* If the total number of observations are odd numbered, divide the total by 2.
* If the total number of observations is even numbered, the value of the observation of the median value is
* This value would give the value of the observation of the median value.

1. Mode