

Different Types of Data in Statistics

Data refers to the collection of information that is gathered and translated for specific purposes.

A very huge amount of data being produced every day, it is crucial to utilize it in a particular way so that it serves its value to computers and humans for better practices.

Data is organized and stored in charts, graphs, and tables. Data is an invaluable commodity with the potential to reap exceptional benefits for any organization if utilized wisely. In order to be utilized at its maximum efficiency, data has to be stored error-free. The best way to do so is by segmenting it into different sections or types.

There are two forms of data, **Quantitative Data** and **Qualitative Data**. These forms of data are further classified into four categories: *Nominal, Ordinal, Discrete, and Continuous*.

1. Qualitative Data

Also known as categorical data, this type of data is neither measured nor counted in the form of numbers. This form of data is assembled by category, not by numbers and usually consists of text and photographs. Qualitative data talks about the emotions of a person. It helps market researchers know and understand their customers' tastes and preferences, so they can further create new strategies per customers' demands. Qualitative data helps to provide in-depth analysis.

Qualitative Data is divided into two parts:

▪ **Nominal Data** (data that cannot be measured)

The first type of qualitative data is Nominal Data which labels variables without the numerical value. It is a form of data that cannot be measured.

For instance

- the *colour* of a car can be black, red, or orange.

Here we need to realize that no colour is greater than the other. It just represents a particular colour of a car.

Nominal data does not follow any hierarchy.

This kind of data is used in fields such as education, healthcare, and business to collect and make relevant assessments. Analysts collect nominal data with the help of *public surveys* to further analyse and obtain results.

▪ **Ordinal Data** (a mixture of quantitative and qualitative data)

Ordinal data values are also grouped into categories, just like nominal data. This kind of data is considered a **mixture of quantitative and qualitative data** while **it follows a specific pattern of hierarchy**.

For instance,

- the economic status of people within a society.

There are usually three socioeconomic status categories: **High, Middle, and Lower**. Here we can identify that the high class is considered superior to the middle class. Therefore, *ordinal data follows a specific pattern of hierarchy*.

High Class **Superior** —→ to the Middle Class

Nominal Data versus Ordinal Data

- Nominal data cannot be compared with one another, whereas ordinal data can be used to compare different items by natural ordering.
- Nominal data is one type of qualitative data, whereas ordinal data type is referred to be in-between qualitative data and quantitative data.
- Nominal data does not use numerical values, whereas ordinal data uses numerical values.

2. Quantitative Data

In quantitative data, information is **countable** and **measured**. This kind of data can be used for statistical manipulations and are represented on pie charts, histogram, and bar graphs. *Data like these play an important role in statistics.* The researcher uses quantitative data to solve “what” and “how” problems. This form of data is used frequently in math calculations or statistical analysis.

Quantitative data is further divided into two parts:

- **Discrete Data** (can be counted but cannot be measured)

The word discrete means ‘*separate*’. A discrete data value **can be counted but cannot be measured** as it holds **only fixed values**. The data is easy to visualize and calculate since a numerical is usually **a whole number**. The discrete data tends to be easily calculated as it is organized in graphs and scatter plots.

For instance

- the number of chocolates in a box
- students in a class are examples of discrete data.

Discrete data is **represented in bar charts and pie charts**, which are further used to compare different and unique data points.

- **Continuous Data** (quantitative data, that are easy to measure)

Continuous data is a type of quantitative data that represents information in smaller parts **that are easy to measure**. Continuous data is more accurate as compared to other data types.

For instance

- Height, weight, and temperature are examples of continuous data.

Although offering accuracy, continuous data type tends to change over time. For instance, the height of an individual will change over the coming years.

Discrete Data	Continuous Data
- Discrete data is countable.	- Continuous data is measurable.
- The values in discrete data cannot be separated into smaller pieces.	- In continuous data, the complex values can be segmented into smaller, more consumable parts.
- Discrete data is represented by bar graphs .	- Continuous data is represented mainly by histograms .