

**SUBJECT - BUSINESS STATISTICS**

**LECTURE- 2**

{ TYPES OF DATA AND DATA SOURCES }

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## TYPES OF DATA AND DATA SOURCES

in statistics, data are classified into two broad categories: **quantitative data and qualitative data.**

This classification is based on the kind of characteristics that are measured.

**Quantitative data** are those that can be quantified in definite units of measurement. These refer to characteristics whose successive measurements yield quantifiable observations. Depending on the nature of the variable observed for measurement,

**quantitative data can be further categorized as continuous and discrete data.**

**(i) Continuous data** represent the numerical values of a continuous variable.

A continuous variable is the one that can assume any value between any two points on a line segment, thus representing an interval of values.

All characteristics such as weight, length, height, thickness, velocity, temperature, tensile strength, etc., represent continuous variables.

Thus, the data recorded on these and similar other characteristics are called continuous data.

It may be noted that a continuous variable assumes the finest unit of measurement. Finest in the sense that it enables measurements to the maximum degree of precision.

**(ii) Discrete data** are the values assumed by a discrete variable. A discrete variable is the one whose outcomes are measured in fixed numbers. Such data are essentially count data. These are derived from a process of counting, such as the number of items possessing or not possessing a certain characteristic.

The number of customers visiting a departmental store everyday, the incoming flights at an airport, and the defective items in a consignment received for sale, are all examples of discrete data.

Qualitative data refer to qualitative characteristics of a subject or an object.

A characteristic is qualitative in nature when its observations are defined and noted in terms of the presence or absence of a certain attribute in discrete numbers.

These data are further classified as nominal and rank data.

(i) Nominal data are the outcome of classification into two or more categories of items or units comprising a sample or a population according to some quality characteristic. Classification of students according to sex (as males and females), of workers according to skill (as skilled, semi-skilled, and unskilled), and of employees according to the level of education (as matriculates, undergraduates, and post-graduates), all result into nominal data. Given any such basis of classification, it is always possible to assign each item to a particular class and make a summation of items belonging to each class. The count data so obtained are called nominal data.

(ii) Rank data, on the other hand, are the result of assigning ranks to specify order

in terms of the integers 1,2,3, ..., n. Ranks may be assigned according to the level of performance in a test, a contest, a competition, an interview, or a show. The candidates appearing in an interview, for example, may be assigned ranks in integers ranging from 1 to n, depending on their performance in the interview. Ranks so assigned can be viewed as the continuous values of a variable involving performance as the quality characteristic.

## Data sources could be seen as of two types, viz., secondary and primary.

be defined as under:

(i) Secondary data: They already exist in some form: published or unpublished - in an identifiable secondary source. They are, generally, available from published source(s), though not necessarily in the form actually required.

(ii) Primary data: Those data which do not already exist in any form, and thus have to be collected for the first time from the primary source(s). By their very nature, these data require fresh and first-time collection covering the whole population or a sample drawn from it.