



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...*  
*Empowering Communities...*

## LECTURE-2

# TYPES OF DATA

- Qualitative (categorical) –simple arithmetic operations are not possible on these data.
- Quantitative (numerical)





**Qualitative Data** are nonnumeric in nature and can't be measured. Examples are gender, religion, and place of birth.

**Quantitative Data** are numerical in nature and can be measured. Examples are balance in your savings bank account, and number of members in your family.

Quantitative data can be classified into discrete type or continuous type.

**Discrete type** can take only certain values, and there are discontinuities between values, such as the number of rooms in a hotel, which cannot be in fraction.

**Continuous type** can take any value within a specific interval, such as the production quantity of a particular type of paper (measured in kilograms).

# TYPES OF MEASUREMENT

- Nominal scale – It classifies data into various distinct categories in which no ordering is implied (for name sake only). Eg. Red, green, Blue .
- Ordinal scale – It classifies data into distinct categories in which ordering is implied. Eg. Students ranks, faculty rank. (It only ranks but does not tell by how much)
- Interval scale – is an ordered scale in which difference between measurements is a meaningful quantity that does not involve a true zero point. Eg. 5.00am & 10.00am, 2.00pm & 7.00 pm.(difference has same meaning anywhere on the scale).
- Ratio scale- in which the difference between measurements involve a true zero point. Eg. Height, weight, age, salary, profit.



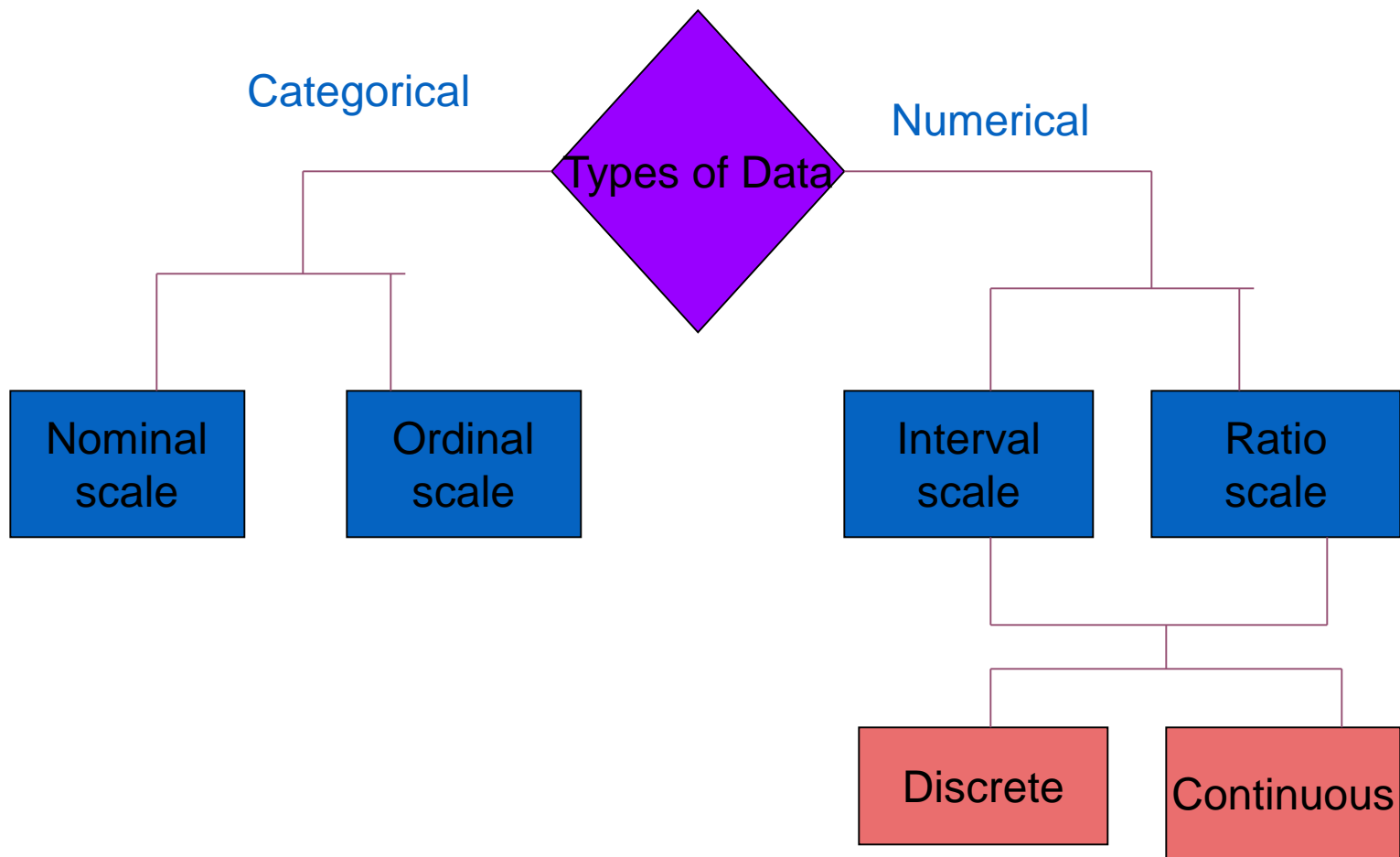
# TYPES OF DATA MEASUREMENT

## *Type of Measurement*

- Nominal
- Ordinal
- Interval
- Ratio



Information content  
increases





**Centurion**  
UNIVERSITY  
*Shaping Lives...  
Empowering Communities...*

## Answer them:

For each of the following, indicate *whether the study is descriptive or analytical (inferential)*, give reasons.

1. A management institute would like to determine the reasons for a decline in the number of applicants to its MBA programme in the last three years.
2. The proprietors of a magazine would like to know whether an increase in the subscription rate will adversely affect the number of subscribers.
3. A company is interested to know whether its advertisements are followed by favorable results in the form of increased sales.
4. A company would like to know as to how many applicants who have sent in their applications for a job are graduates of a foreign university.



## Answer them:

**For each of the following random variables, determine whether the variable is categorical or numerical. If variable is numerical, determine whether the variable is discrete or continuous. Also, determine the level of measurement.**

- a. Amount of money spent on clothing in the last month.**
- b. Number of winter coats owned.**
- c. Favorite cinema hall.**
- d. Amount of time spent shopping for clothing in the last month.**
- e. Most likely time period which shopping for clothing takes place ( weekdays, weeknight, weekends).**
- f. Primary type of transportation used when shopping for clothing.**





**Centurion**  
**UNIVERSITY**  
*Shaping Lives...*  
*Empowering Communities...*

# IMPORTANCE OF DATA

For a business to thrive, it must collect and generate facts that reflects its current status. These facts or data, need to be changed to information, in order to support rational decision making. To change data to information we need statistics (processing and analyzing data).



## Reason for collecting data:

- To provide the necessary input to a survey.
- To provide necessary input to a study.
- To measure performance of an ongoing production process
- To evaluate conformation to standards.
- To assist in formulating alternative courses of action.
- To satisfy our curiosity.



## Sources of Data

### Primary Source:

Data collector may conduct

- Experiment
- Survey using questionnaire
- An observational study

### Secondary Source:

Data may be already collected  
And distributed and published  
By any other organization  
Or .



# SOURCES OF DATA

- **Primary Data** are collected by the organisation itself for a particular purpose of its own.

Benefits:

1. Fits the needs exactly
2. Are up to date
3. Are reliable.

- **Secondary Data** are collected by other organisations or for other purposes.

Benefits:

1. Cheaper
2. Faster to collect