Statistics is the science of producing unreliable facts from reliable figures.

Evan Esar

BASICS OF STATISTICS

A single death is a tragedy; a million deaths is a statistic.

Joseph Stalin

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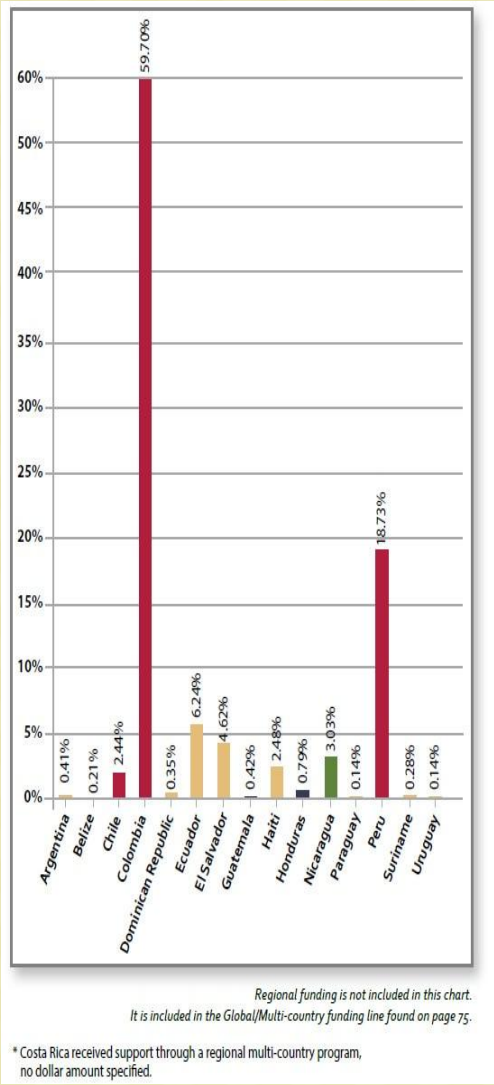
OUTLINE

- INTRODUCTION
- APPLICATION OF STATISTICS
- TYPES OF STATISTICS
- CLASSIFICATION OF DATA
- MEASUREMENT SCALES
- SOURCES OF DATA

INTRODUCTION

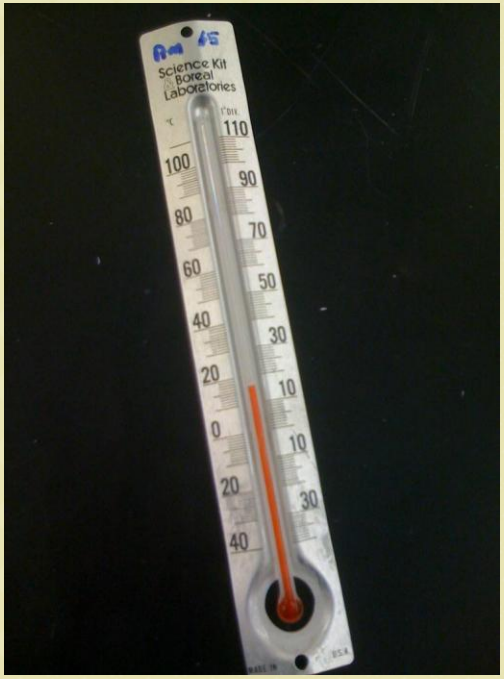
- In everyday life we make many predictions.
- For example, we keep the alarm for the morning when we don't know that we will be alive in the morning or not. Here we use statistics basics to make predictions.
- Statistics keeps us informed about, what is happening in the world around us.
- Statistics are important because today we live in the information world and much of this information's are determined mathematically.



BASICS OF STATISTICS

INTRODUCTION

- Everybody watches weather forecasting.
- Have you ever thought of how do you get that information?
- There are some computer models built on statistical concepts.
- These computer models compare prior weather with the current weather and predict future weather.



BASICS OF STATISTICS

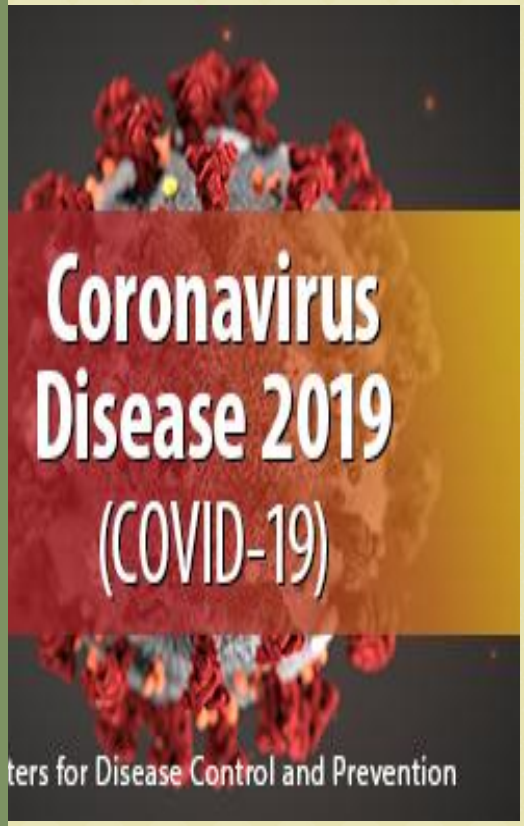
INTRODUCTION

- What do you understand by insurance?
- Everybody has some kind of insurance, whether it is medical, home or any other insurance.
- Based on an individual application, some businesses use statistical models to calculate the risk of giving insurance.
- In financial market also statistic plays a great role. Statistics are the key of how traders and businessmen invest and make money.

BASICS OF STATISTICS

INTRODUCTION

- Statistics play a big role in the medical field.
- Before any drugs are prescribed, scientist must show a statistically valid rate of effectiveness.
- Statistics are behind all the study of medical.
- Statistical concepts are used in quality testing.
- Companies make many products on a daily basis and every company should make sure that they sold the best quality items.
- But companies cannot test all the products, so they use statistics sample.

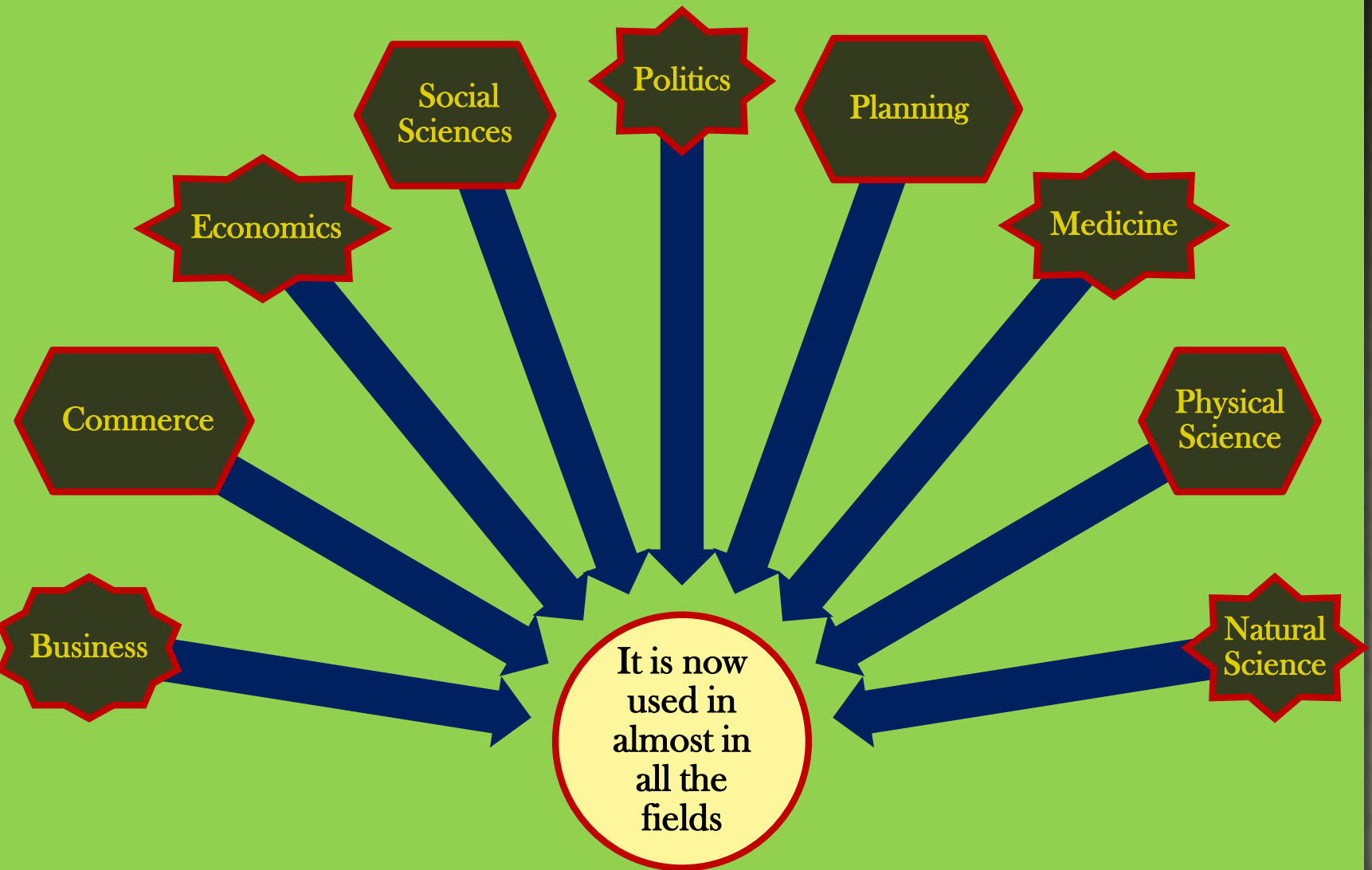


BASICS OF STATISTICS

INTRODUCTION

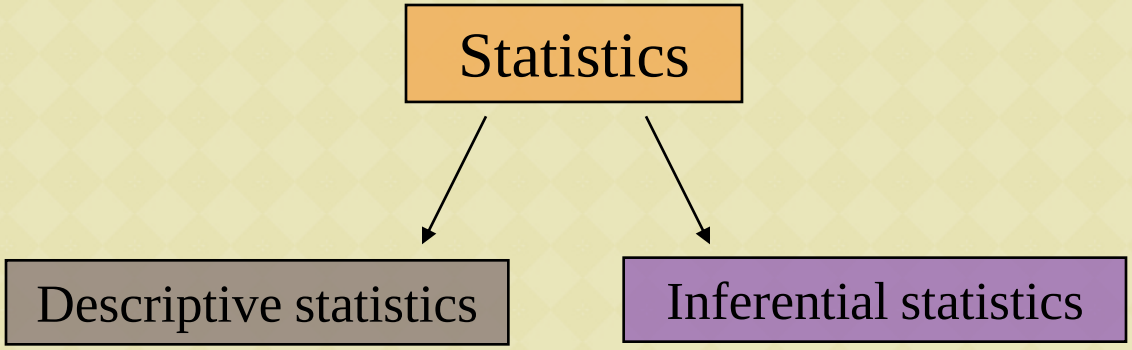
- Suppose a survey shows that 75%-80% people have cancer and not able to find the reason.
- Statistics is involved here, so that you can have a better idea of how the cancer may affect your body or is smoking is the major reason for it.
- News reporter makes a prediction of winner for elections based on political campaigns.
- Here statistics play a strong part in who will be your government.
- The internet is a device which helps us to collect the information.
- The fundamental behind the internet is based on statistics and mathematical concepts.

APPLICATION OF STATISTICS



TYPES OF STATISTICS

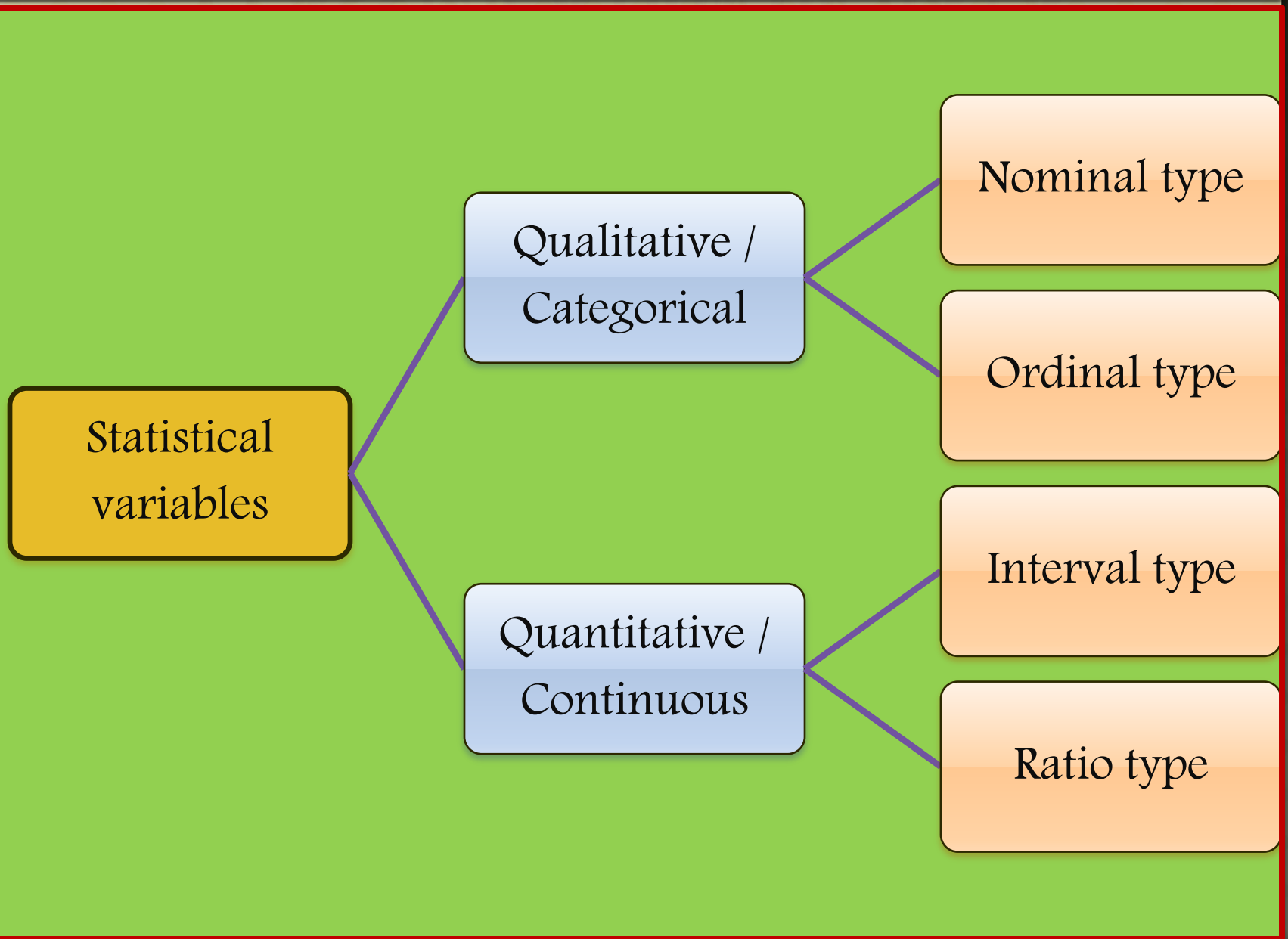
The study of statistics has two major branches: **descriptive statistics** and **inferential statistics**.



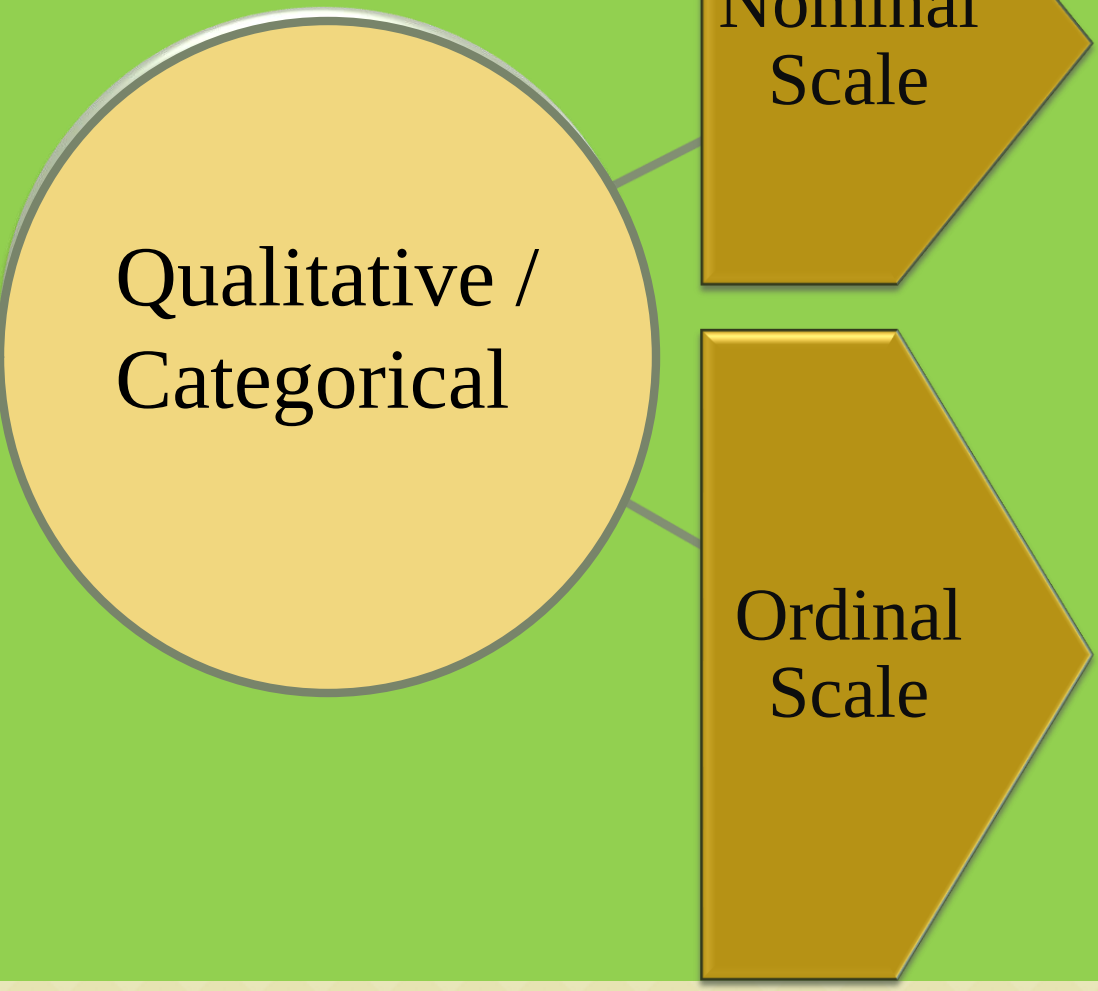
Involves the organization, summarization, and display of data.

Involves using a sample to draw conclusions about a population.

CLASSIFICATION OF DATA



MEASUREMENT SCALES OF DATA

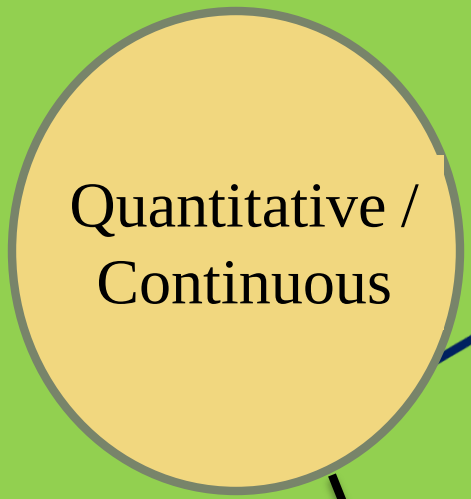


- Calculated using names, labels, or qualities.
- No mathematical computations can be made.
- No natural order
- Non-numerical value
- Ex. Gender(M/F), marital status(Married/Unmarried), color(Red/blue), Yes/No

- Can be arranged in order or ranked
- Cannot place a "value" to the ranks
- Ex. Do you like carrot?
- Your answer may be “Yes very much/ not at all/ a little”.
- Here there are 3 categories which can be arranged in order but cannot be given value.

BASICS OF STATISTICS

MEASUREMENT SCALES OF DATA



Interval type

- **Discrete**
  - values are distinct and separate.
  - Data can only take on certain values.
  - Can't be measured but it can be counted.
  - Ex. Number of heads in 100 coin flips.
- **Continuous**
  - Can't be counted but they can be measured
  - They don't have a true zero.(ie., that there is no such thing as no temperature)
  - With interval data, we can add and subtract, but we cannot multiply, divide or calculate ratios.
  - Ex. The height of a person, temperature of a place

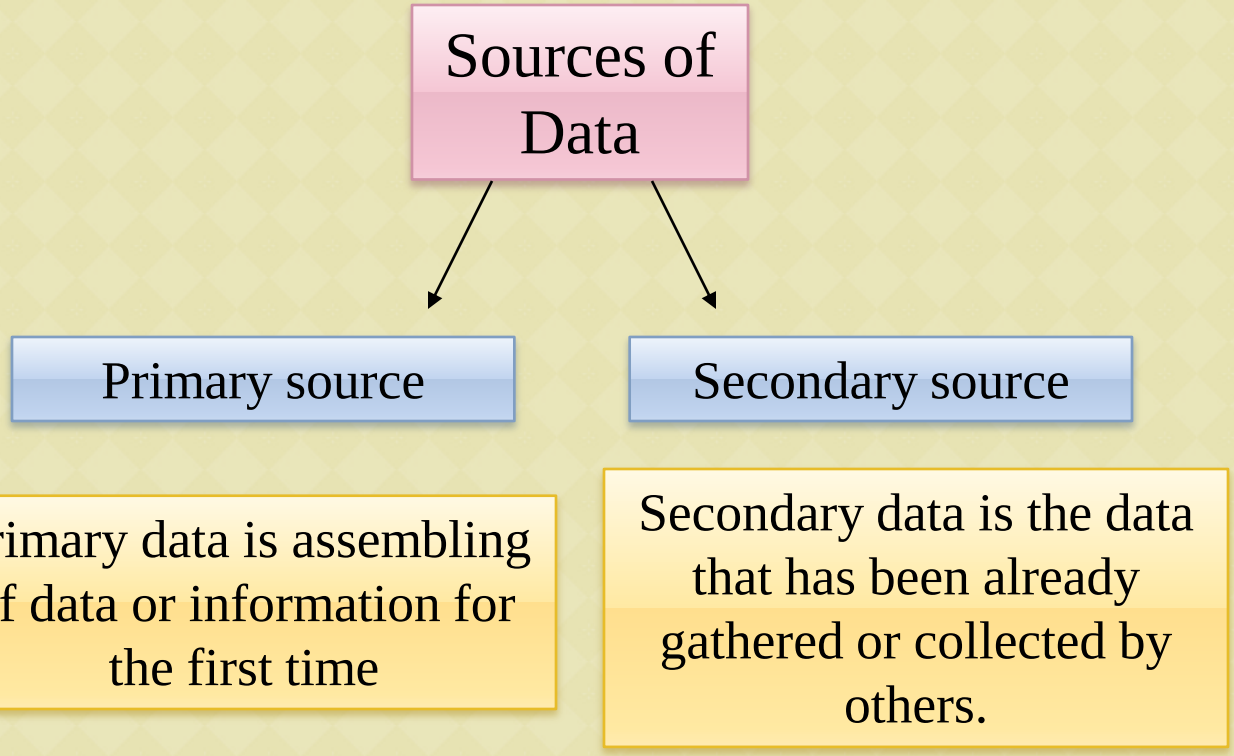
Ratio type

- Ordered units that have the same difference.
- Has an absolute zero.

BASICS OF STATISTICS

SOURCES OF DATA

The method of collecting information is divided into two different sections as



PRIMARY DATA

- Primary data is the data collected for the first time through personal experiences or evidence, particularly for research.

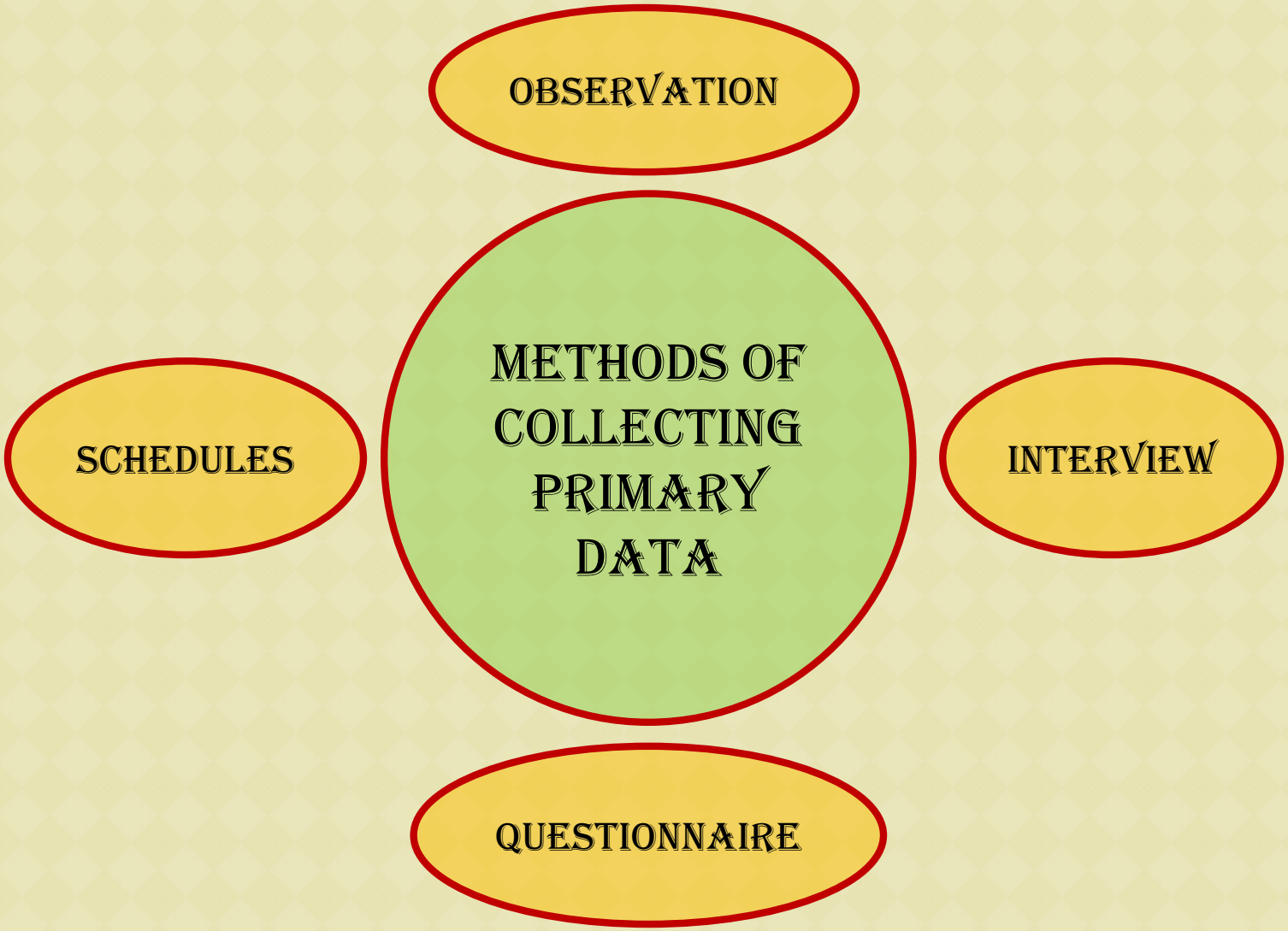
- It is also described as raw data or first-hand information.

- The mode of assembling info is costly, as the analysis is done by an agency or an external organization and need human resources and investment.

- The investigator supervises and controls the data collection process directly.

- Mostly the data is collected through observations, physical testing, mailed questionnaires, surveys, personal interviews, telephonic interviews, case studies, and focus groups, etc.

METHODS OF COLLECTING PRIMARY DATA



METHODS OF COLLECTING PRIMARY DATA

Observation Method

- Observation method is used when the study relates to behavioral science.
- This method is planned systematically.
- It subjects many controls and checks. The different types of observations are:

•Structured and unstructured observation

•Controlled and uncontrolled observation

•Participant, non-participant and disguised observation

Interview Method

The method of collecting data in terms of oral or verbal responses.

- Personal Interview

❑ In this method, a person known as an interviewer is required to ask questions face to face to the other person.

❑ The personal interview can be structured or unstructured, direct investigation, focused conversation etc.

- Telephonic Interview

❑ In this method, an interviewer obtains information by contacting people on the telephone to ask the questions or views orally.

Questionnaire Method

- In this method, the set of questions are mailed to the respondent.

- They should read, reply and subsequently return the questionnaire.

- The questions are printed on the definite order on the form. A good survey should have the following things:

•Short and simple

•Should follow a logical sequence

•Provide adequate space for answers

•Avoid technical terms

•Should have good physical appearance such as colour, quality of the paper to attract the attention of the respondent

Schedules

- This method is similar to the questionnaire method with a slight difference.
- The enumerations are specially appointed for the purpose of filling the schedules.
- It explains the aims and objects of the investigation and may remove misunderstandings if any have come up.
- Enumerations should be trained to perform their job with hard work and patience.

SECONDARY DATA

- Secondary data is data collected by someone other than the actual user.
- It means that the information is already available, and someone analyses it.
- The secondary data includes magazines, newspapers, books, journals etc. It may be either published data or unpublished data.
- Published data are available in various resources including

✓Government publications

✓Public records

✓Historical and statistical documents

✓Business documents

✓Technical and trade journals

- Unpublished data includes

✓Diaries

✓Letters

✓Unpublished biographies etc.

DIFFERENCE BETWEEN DATAS

BASICS OF STATISTICS

Primary Data	Secondary Data
Definition	
Primary data are those which are collected for the first time.	Secondary data refers to those data which have already been collected by some other person.
Originality	
Primary data is original because these are collected by the Investigator for the first time.	Secondary data are not original because someone else has collected these for his own purpose.
Nature of data	
Primary data are in the form of raw materials.	Secondary data are in the finished form.
Reliability and Suitability	
Primary data are more reliable and suitable for the enquiry because it is collected for a particular	It is less reliable and less suitable as someone else has collected the data which may not perfectly match our purpose.
Time and Money	
Collecting primary data is quite expensive both in time and money terms.	Secondary data requires less time and money so it is economical.
Precaution and Editing	
No special precaution or editing is required while using primary data as these have been collected with a definite purpose.	Both precaution and editing are essential as secondary data were collected by someone else for his own purpose.

Real life application of Statistics: YouTube link
https://youtu.be/HUThHJ6E3rY

THANK YOU