# MEANING OF STATISTICS

➡️ **Statistics as a <u>Method</u> (Singular Sense)**

In singular sense, the term 'statistics' means statistical methods, i.e. it is a method of dealing with numerical facts Statistics in singular sense may be defined as the collection, organisation, presentation, analysis and interpretation of numerical data. The given definition covers the following important features of statistical methods:

| Collection of Data | Organisation of Data | Presentation of Data | Analysis of Data | Interpretation of Data |
|---|---|---|---|---|
| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
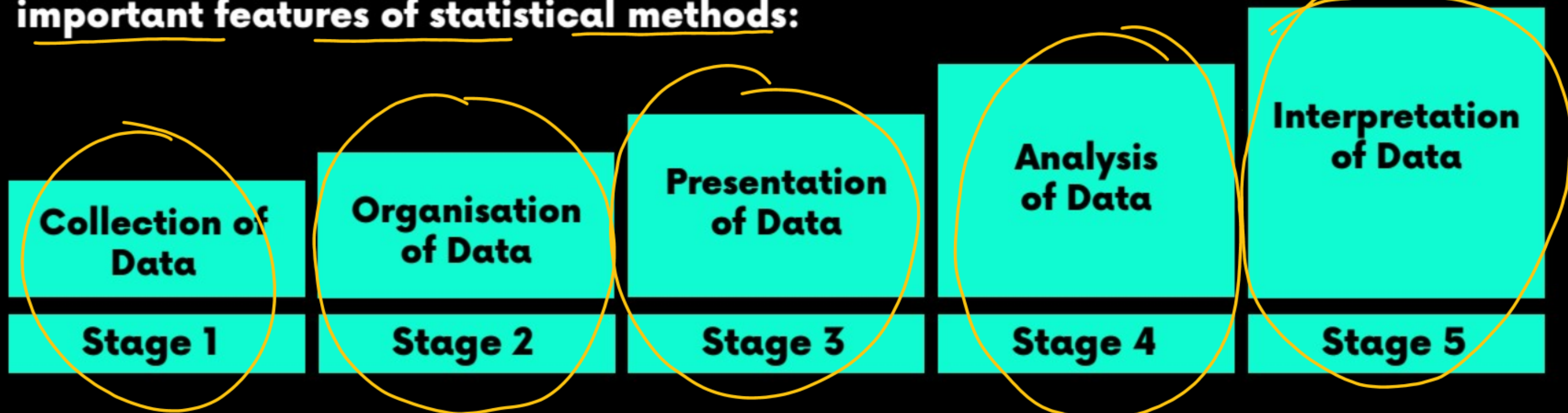
# MEANING OF STATISTICS

➡ **Statistics as Numerical Set of Data (Plural Sense)** *Singular*

**1. Collection of Data:** It is the main and the first step in a statistical enquiry. The technique of collection of data depends upon the objective of the study. The data collected should be from reliable and authentic sources.

**2. Organisation of Data:** After collection, the data is organised in a proper form which iw babalio involves editing and classification.

**3. Presentation of Data:** After classification, the data is presented in some suitable manner, in the form of text, table, diagram or graph.

➡ **Statistics as Numerical Set of Data (~~Plural~~ *Singular* Sense)**

4. **Analysis of Data:** After presentation of data, analysis is done with the help of simple mathematical techniques. These include measures of central tendency, measures of dispersion, correlation and regression, etc.

5. **Interpretation of Data:** It is the last step in the statistical methodology.
- It involves statistical thinking, skill and experience, to derive meaning from analysed data.
- The interpretation provides the final conclusions drawn from the analysed data.

# MEANING OF STATISTICS

➡️ **Plural Sense Vs Singular Sense**

| SR.NO. | PLURAL SENSE | SINGULAR SENSE |
|---|---|---|
| 1. | Statistics in plural sense deals with numerical information. | In singular sense, statistics is a body of various methods and tools. |
| 2. | Statistics in plural sense is descriptive in nature. | In singular sense it is basically a tool of analysis. |
| 3. | Statistics in plural sense is often in the raw state. | In the singular sense it helps in processing the raw data. |
| 4. | Statistics in plural sense is quantitative. | In singular sense it is an operational technique. |

# EMPIRICAL ANALYSIS AND QUANTITATIVE ANALYSIS

**Empirical Analysis** refers to a method in which a subject is studied on the basis of observations or experiments. In empirical analysis, knowledge is acquired as a result of actual experience. Under natural sciences such as physics, chemistry and biology this method is commonly used and relevant laws and statements can be tested and experimented in laboratories.

As against this, economics is a social science, wherein human behaviour is the subject of study and empirical analysis cannot be used to study economics and other social sciences. The problem of social sciences can be effectively studied through the technique of quantitative analysis.

**Quantitative Analysis** is an attempt to level precision' to the facts, so that they can be easily compared. Under it, first of all, facts are expressed in the form of quantities (like 25, 30, 35) and then such numerical data is classified, tabulated and analysed to draw reasonable conclusions.
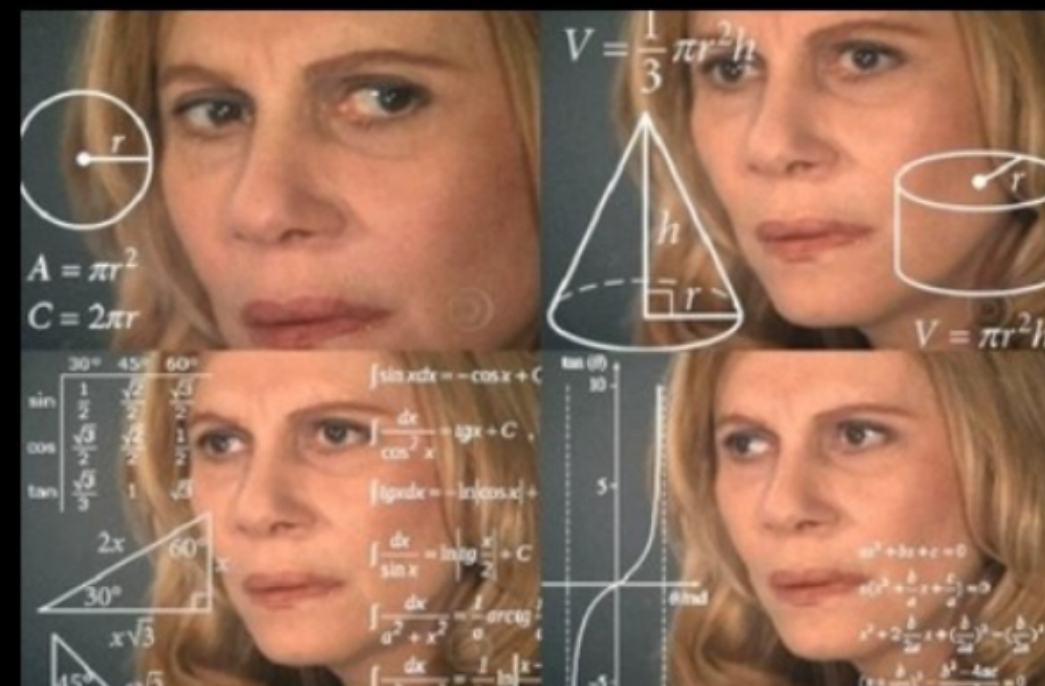
## FUNCTIONS OF STATISTICS

Statistics performs many functions useful to human beings. The broad functions performed by statistics are discussed as under:

- **TO SIMPLIFY COMPLEX FACTS**

It is very difficult for an individual to understand and conclude from huge numerical data. Statistical methods try to present the great mass of complex data into simple and understandable form.

For example, statistical techniques like mean, median, correlation, graphs, etc. make complex data intelligible and understandable in short period and in better way.

- **TO PRESENT FACTS IN DEFINITE FORM**

Quantitative facts can easily be believed and trusted in comparison to abstract and qualitative facts. Statistics summarizes the generalized facts and presents them in a definite form.
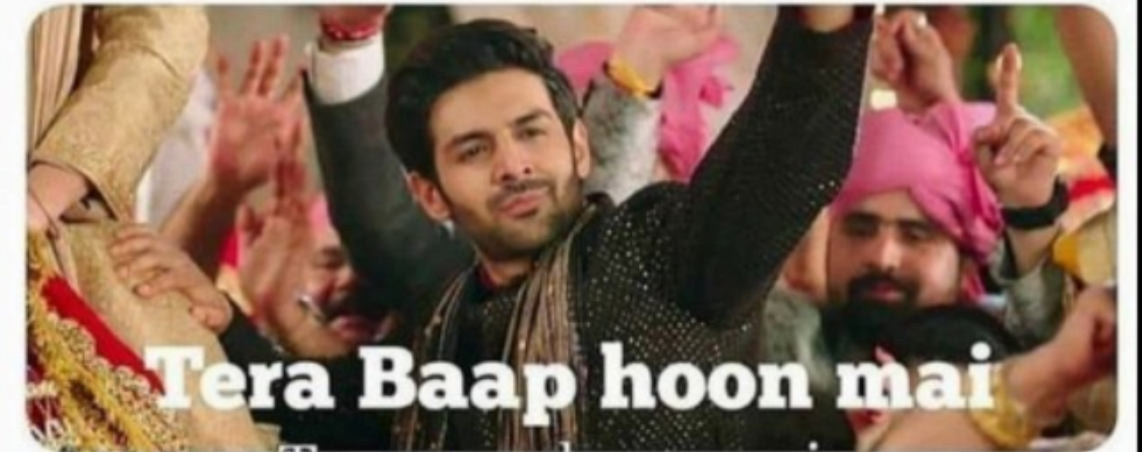
For example, statement like annual rate of inflation in a country is 10%, is more convincing than statement like prices are rising.

Bff: kitne aaye??
Me: 59% tere kitne aaye?
Bff: 58.5%
Me-

Tera Baap hoon mai

## • TO MAKE COMPARISON OF FACTS

Comparison is one of the main functions of statistics as the absolute figures convey a less concrete meaning.

For example, per capita income of developing countries may not be of much use unless we know the per capita income of developed countries.

- Statistics facilitates Inter-sectoral and Inter-temporal comparison.
- Inter-sectoral means comparison across different sectors of the economy. For example, economists may try to find the size of unemployment across rural and urban sectors of the economy.
- Inter-temporal comparison means comparison across different time periods.
- For comparison of data, various statistical methods like average, rates, percentages, ratio, etc. are used.

Me when I get angry

Me explaining why I got angry

# FUNCTIONS OF STATISTICS

- **TO FACILITATE PLANNING AND POLICY FORMULATION**

Statistics help in analysis of causes of an economic problem and facilitates formulation of policies for solving them. On the basis of numerical data and their analysis, businessmen and administrators can plan future activities and shape their policies.

# FUNCTIONS OF STATISTICS

- ## TO HELP IN FORECASTING

As business is full of risks and uncertainties, correct forecasting is essential to reduce the uncertainties of business. Statistical tools (like interpolation, time series analysis, etc.) help in making projections for future.

- ## FORMULATION AND TESTING OF HYPOTHESIS

Statistics methods are extremely useful in formulating and testing hypothesis.
For example, with the help of statistical techniques, we can test the hypothesis, whether a rise in the Railway fares will affect passenger traffic or not.

will it affect people or not?

# FUNCTIONS OF STATISTICS

• **TO ENLARGE INDIVIDUAL KNOWLEDGE AND EXPERIENCE**

Statistics enable people to enlarge their horizon. It sharpens the faculty of rational thinking and reasoning, and is helpful in propounding new theories and concepts.

$3.5L \longleftarrow 1\%$

$1L \longrightarrow 3-4\%$

$50k \longrightarrow 7\%$

$\boxed{24 - 25L}$

$1\%$