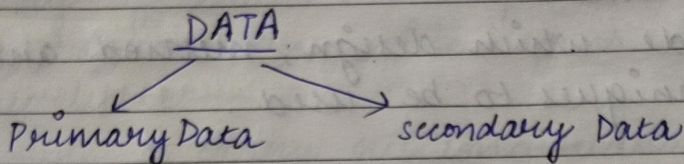


## Types of Data

Based on the methods and sources by which the data may be collected, data is classified into



Primary Data - Data that has been generated by the researcher himself/herself, surveys, interviews, experiments, specially designed for understanding and solving the research problem at hand

### Examples

- The data collected by organization during market research, product research, and competitive analysis.
- Is collected directly from its original source which are the existing & potential customers
- Most of the people who collect primary data are government authorized agencies, investigators, research-based pvt institutions etc.

### Advantages of Primary Data:

- Specific to the needs of the researcher and he is able to control the kind of data that is being collected.
- It is accurate and is not subjected to personal bias. The authenticity can be trusted.



- The researcher has ownership of the data collected and he or she can make it available publicly, patent it, or even sell it.
- Primary data is up to date because it collects data in real-time.
- He can decide which design, method and data analysis techniques to be used.

### Disadvantages of Primary Data:

- Primary data is very expensive compared to secondary data. Therefore, it might be difficult to collect primary data.
- It is time consuming.
- It may not be feasible to collect primary data in some cases due to its complexity and required commitment.

Secondary Data - Secondary data is data gathered from studies, surveys or experiments that have been run by other people or for other research.

### Examples

- Books
- Journal
- Newspapers
- Websites
- Blogs
- Diaries
- Published sources
- Unpublished personal sources
- Podcasts
- Govt records



## Advantages of Secondary Data

- It is easily accessible
- Is available on diff platforms that can be accessed by the researcher
- It is very affordable. It requires little to no cost to acquire them. The time spent on collecting is also very little.
- It is possible to carry out longitudinal studies without having to wait for a long time to draw conclusions.
- It helps to generate new insights into existing primary data.

## Disadvantages of Secondary Data

- It may not be authentic and reliable. A researcher may need to further verify the data collected from the available sources.
- May have to deal with irrelevant data before finally finding the required data.
- Some of the data is exaggerated due to the personal bias of the data source.
- Secondary data sources are outdated with no new data to replace the old ones.

→ Not specific to your needs

→ You don't have control over your data quality.

→ Data can be biased in favor of the person who gathered it.

→ Data might be out of date.

→ Anyone can access the data.



## PRIMARY DATA

## SECONDARY DATA

	PRIMARY DATA	SECONDARY DATA
Meaning	Primary data is collected directly from the first hand experience. This is the info that you gather for the purpose of a particular research project.	It is the data that has been already collected for another purpose. The data is collected by someone else instead of the researcher himself.
Main Source	Interviews, surveys, questionnaires, field observations, experiments, action research, case studies and etc.	Previous research, mass media products, Govt reports, official statistics, web info, historical data etc.
Data Time	Real-time data	Past Data
Specific to researcher's needs	Always specific to the researcher's needs	often, it is not specific to the researcher's needs
Costs	Expensive	Low cost / free
Level of control over data quality	higher level of control	Lack of control over data quality
Time consuming	More time consuming	Less time consuming
Proprietary information	You are the owner of the data. info can remain hidden from competitors	You are not the owner of the data. Your competitors have the access to it.
Capability	More capable to solve a specific problem.	Less capable to solve a specific problem

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## Statistics Meaning

The word 'statistics' and 'statistical' are all derived from the Latin word 'status', means a political state

Statistics is concerned with scientific methods for

- collecting
- organizing
- summarizing
- presenting & analysing data
- as well as deriving valid conclusions & making reasonable decisions on the basis of this analysis.

## Objectives

In the singular sense, statistic may be defined as the science of collection, presentation, analysis and interpretation of numeric data.

In plural sense, statistics mean numerical facts or observation collected with a definite purpose.

Statistics as Data  
(PLURAL)

- ① It is plural
- ② It refers to series of data
- ③ maybe primary/secondary nature
- ④ Is in the form of raw materials

Statistics as Method  
(SINGULAR)

It is singular.

It refers to statistical methods.

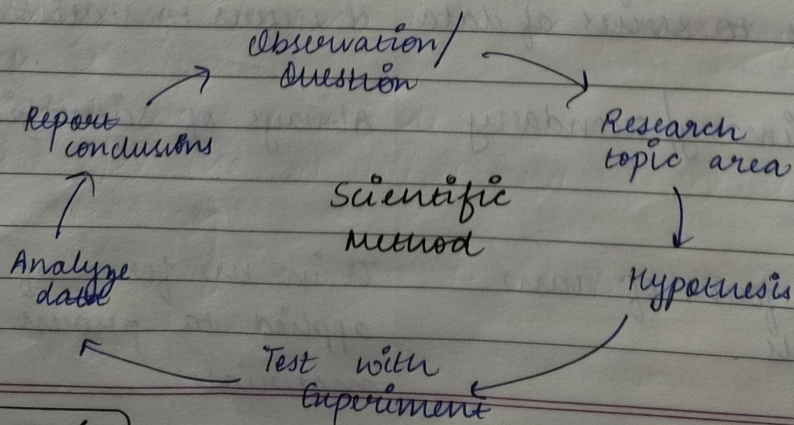
Always of scientific nature.

Is in the form of tools applied to process the materials.



## Features of statistics

- ① Aggregate of facts Single and isolated numerical expressions are not called statistics as they can not be put in relation to others.
- ② Affected to a substantial extent by a variety of reasons. Statistical data are more related to social sciences and as such, changes are affected to a combined effect of many factors.
- ③ Numerally Expressed Qualitative phenomena which cannot be numerally expressed, cannot be described as statistics. eg. honesty, goodness etc.
- ④ Statistics are Enumerated or estimated according to reasonable standards of accuracy. The standard of estimation and of accuracy differs from enquiry to enquiry or from purpose to purpose.
- ⑤ Statistics are collected in a systematic manner. In order to have reasonable standard of accuracy statistics must be collected in a very systematic manner.





## Functions of statistics

- Helps in understanding patterns & variations in nature's phenomena using quantitative data.
- Drawing valid inferences about population from samples.
- Helps in collecting appropriate quantitative data.
- Proper & efficient planning of a statistical enquiry.
- Clear comprehension of data with tables & graphs.

## Importance of Statistics

- Simplifies mass of data.
- Getting concrete info about the statistical enquiry.
- Helps in reliable and objective decision making.

## Advantages of Primary Data over Secondary Data

- Direct from main sources.
- Authentic data
- Specific to researcher's needs
- contain more sources
- More reliable and accurate
- Availability is simple
- Researchers put more involvement
- Real-time data

## Scope of statistics

- Business
- Economics
- Banking
- Accounting
- State Administration
- Astronomy
- Research work.



## Limitations of statistics

- Does not deal with an individual. It is used in plural sense
- Not suitable for qualitative phenomena
- Based on the collected data which may not be 100% correct, can lead to wrong results.
- It is liable to be misused
- ↳ should be analysed and used by experts.
- Study of numerical facts only
- Study of aggregates only.
- not the only method
- homogeneity of data
- results are true only on an average
- without reference, results may prove wrong
- can be used only by experts
- misuse of statistics is possible
- only means and not a "sol"

## Questions for unit 1

- ① Control over data is more in **Primary data research**
- ② The methods of collecting data in primary research is **expensive**.
- ③ Data can be biased in the **secondary data**.
- ④ Difference b/w the calculated and the exact value is **statistical error**.
- ⑤ Error occurs while addition, subtraction etc is **error of calculation**



- ⑥ Error when the respondent fails to interpret is called **error of misinterpretation**.
- ⑦ The standards of **estimation** and **accuracy** differ from purpose to purpose
- ⑧ To have a better accuracy, data must be collected in a **systematic** manner
- ⑨ Statistics can only be studied for **quantitative** data and not **qualitative** data.
- ⑩ Statistics can help in drawing **valid conclusions** from data.
- ⑪ Statistics helps in **simplifying mass of data**.

