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**DEPARTMENT OF COMUTER SCEIENCE LAHORE LEADS UNIVERSITY IQBAL TOWN CAMPUS  
  
SUBMITTED TO**: SIR ALI IRSHAD

**SUBJECT**: Statistics and Probability

**PROGRAM**: ADP-CS 24-26 Evening

**DATE**: 30/11/24

**INFORMATION OF STATISTICS BY MUHAMMAD USMAN**

**Define Statistics**

The science of

* Collection of data
* Presentation of data
* Analysis of data
* Interpretation and conclusion of data

**Branches:**

1. DESCRIPTIVE
2. INFERENTIAL

**DESCRIPTIVE:**

The science Collection of data Presentation of data Analysis of data is called descriptive.

**INFERENTIAL:**

The science of interpretation and conclusion of data is called inferential.

**DATA:**

Data has two types:

1. Primary data
2. Secondary data

**Primary Data:**

Data has been collected by researcher, himself is called primary data.

**Sources:**

* Interview
* Experiments
* Questioner

**Secondary Data:**

Data and information that has already been collected by someone else is called secondary data.

**Sources**:

* Website
* Books
* Articles

**Variable**:

Variable has two types:

1. Quantitative
2. Qualitative

**Quantitative:**

Data and information can be measured or counted and expressed as number is called quantitative.

Quantitative has also two types:

* Discrete
* Continuous

**Discrete**:

A discrete random variable is a variable that can take on a finite or countably infinite number of possible values, each with a specific probability. For example, in a dice roll, the outcomes (1, 2, 3, 4, 5, 6) are discrete.

**Continuous**:

Continuous variables can take any value within a given range and are usually the result of measurement (e.g., height, weight, temperature).

**Qualitative**:

Data and information cannot be measured or counted and expressed as number is called quantitative.

**Population:**

Population includes the entire group being studied (all students, all lightbulbs, etc.).

**Sample:**

Sample a smaller group taken from the population, used to make estimates or inferences about the population.

**Parameter:**

A numerically value which is calculated from population is called parameter.

**Statistic:**

A numerically value which is calculated from sample is called statistic.

**Functions of statistics:**

|  |  |
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| **Merits** | **Scope** |
| Statistics provide an objective and scientific way of analysing data. | Statistics helps with market research, sales forecasting. |
| Large amounts of complex data are simplified using statistics. | Statistics is used for clinical trials, medical research. |
| Statistics are essential in guiding decisions. | Use statistics to study human behaviour, social patterns. |
| The use of statistical techniques increases the accuracy. | Help in analysing data related to climate change, pollution levels. |
| By using past data, statistics can help forecast future. | Governments rely on statistics for census data, economic planning and public welfare program. |
| Statistics used to calculate risks and devise mitigation strategies. | In the education sector, statistics are used to assess student performance, evaluate teaching. |