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Fundamental Concept مفاهيم أساسية

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Terms Statistical Some :

That the word “statistics” is derived from the Latin word “status” (case) that solves facts and information for the collection of private information. You can benefit from it in the matter of taxes, determining the labor force, and so on. There are many definitions of statistics and they varied in terms of content and comprehensiveness according to the development of the development of science and the expected benefits. Here are some of the definitions:

1 -Statistics are categorized facts from information about an individual and a country

2 -Statistics is the science concerned with collecting, analyzing and interpreting numerical data .

3 -Statistics is the science of estimates and probability.

Definition (1): Statistics is defined as the scientific method that is concerned with collecting data and facts about a particular phenomenon or group of phenomena, organizing and classifying these data and facts in a way that can be analyzed and interpreted in an easier way and to reach the appropriate decision-making.

Statistics is divided into two main branches:

- 1) *Descriptive Statistics:* This section studies the methods and methods that are used to collect data and information about a particular phenomenon or group of phenomena. And how to organize, classify and classify this data and ways to display it in tables, graphs, and calculate its possible statistical indicators.
- 2) *Inferential Statistics:* This branch is concerned with the study of the two subjects of Estimation and Hypotheses Testing.

Definition (2): Population Statistical is defined as a set of vocabulary that shares an attribute or characteristic. Specific characteristics. The sample is defined as a specific group that is taken from the vocabulary of the study population.

The statistical community is divided into two types:

- Finite Population Statistical.
- Infinite Population Statistical.

Definition (3): Experiment Random Although it is known certain conditions are known.

Definition (4): The sample space for a particular random experiment is the set of all possible outcomes for that experiment. Usually for the sample space with the symbol Ω . Each element of the sample space is called the sample point (event). An event is a subset of a sample space Ω of a random experiment. Events are usually denoted by letters. A large event such as Ω, D, C, B, A , the event that does not contain any sample point is called the impossible event and is symbolized by φ With the symbol Ω , an event that contains one sample point is called a simple event. On more than one sample point, it is called the event compound (in other words it is said about the event). It is complex if not simple. As for the event Ω , which is called the Certain Event.

Definition (4): It is said about a sample space Ω for a specific random experiment as:

- 1) Finite (if Ω is a finite set)
- 2) Discrete (if Ω is a countable set)
- 3) Continuous (if Ω is an uncountable set)

Definition (5): Random is a value that expresses each item of the sample or population.

Definition (6): Variable Random is defined as a function with a measurable real value defined over the sample space. The random variable is denoted by one of the uppercase letters $X, Y, , \dots$ and the values that the variable takes when the experiment is carried out in one of the x, y, z, \dots lowercase letters.

Definition (7): Variable is defined as an adjective or member that is subject to change in type or quantity from one singular to another in the same the society.

Definition (8): Qualitative Variable They are the variables whose values cannot be measured by the usual means of measurement, but are in the form of adjectives for example. For example, people can be classified according to the color of their eyes or their nationality, in this case the eye color or gender is considered descriptive variable.

Definition (9): Quantitative Variables They are the variables that can be measured by the usual means of measurement, such as the number of students in a particular class, the lengths of a set of centimeters of persons, prices of a group of goods, etc., and this type of variables is in turn divided into two parts:

- 1) For scattered variables: (The quantitative variable X is said to be of the scattered type if it is the set of values taken by X is a countable set).
- 2) Variables Continuous: The quantitative variable X is said to be of the scattered type if the set of values taken by X was an uncountable set.

The importance of statistics in scientific research

Scientific research is the best way to obtain knowledge, understand phenomena, and use the statistical method in research. Scientific means providing data and information about the phenomena to be studied in that research, and this means that the possibility of applying . The statistical method in scientific research is related to the possibility of expressing the studied phenomenon quantitatively. The method is distinguished. Statistic is that it provides the researcher with an objective scientific method so that there is no interference or bias in the research results and this advantage. The statistical method has been used by researchers in the fields of pure sciences or humanities and others, and as a result of using Statistics in these fields has appeared names for statistics coupled with the name of another science and this does not change the goal of the science of statistics.

Data collection methods : data collection errors. When the researcher collects the data and information required by the research, he may fall into some errors that occur due to poor the use of the statistical method is one of the most important of these errors.

- i)* **Bias Error** Sometimes the researcher collects data and information (whether in the comprehensive record or samples) from sources Change its original sources, for example, if we have a study on the desires of children, then the main source of data is About the child is the mother, and information about him should be collected from her because of her living with them, and in the event that information is taken from other than the mother For children, it is very likely to make this kind of mistake.
- ii)* **Chance Error:** This error occurs when the researcher relies on his personal information to collect data or collects incomplete data. Or deliberately collecting data from some vocabulary and not others, despite their presence in the sample. Tabulation of Data: The data that was collected and not organized is called primary, original, raw, or unclassified data. They were collected and organized in tables called tabulated data, and the process of categorizing and unloading data into tables is called tabulation. Data tab methods: There are several ways to tabulate data that are of interest to you * (Manual tabulation) This method is used when the number of data is few. This method is summarized in the following steps: a) Cases are sorted one by one b) A sign (such as 1) is placed in front of each case to represent each word in it c) Signals are collected and translated into numbers ** (Auto tab) This method is used when the number of data is large, and this method relies on the use of machines to help To make tabulating a lot of data easy, there are four machines that carry out the tabulation process, which are: the perforating machine, the Probe, sorting machine and labeling machine.

QUESTIONS:

- 1- An event that contains one sample point is called
a-Certain Event b- Simple Event
- 2- Statistics is the scientific method that collects...
a- Phenomenon b-Data
- 3- Statistics is divided into two main branches
a- B-.....
- 4- Aevent that contains on more than one sample point is called
a-Event compound b- Simple Event
- 5- Number of student in particular class Consider
a-Qualitative Variable b- Quantitative Variable
- 6- Nationality of the people
a-Qualitative Variable b- Quantitative Variable