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Submitted to

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Stats & Prob

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**Descriptive Statistics:**

Descriptive statistics are brief informational coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of a population. Descriptive statistics are broken down into measures of central tendency and measures of variability (spread). Measures of central tendency include the mean, median, and mode, while measures of variability include standard deviation, variance, minimum and maximum variables, kurtosis, and skewness.

**Key Benefits:**

Descriptive statistics can be useful for two purposes:

1) to provide basic information about variables in a dataset

2) to highlight potential relationships between variables.

The three most common descriptive statistics can be displayed graphically or pictorially and are measures of:

* Graphical/Pictorial Methods
* Measures of Central Tendency

**Graphical Method:**

There are several graphical and pictorial methods that enhance researchers' understanding of individual variables and the relationships between variables. Graphical and pictorial methods provide a visual representation of the data. Some of these methods include:

* Histograms
* Scatter plots
* Geographical Information Systems (GIS)
* Sociograms

**Measures of Central Tendency:**

Measures of central tendency are the most basic and, often, the most informative description of a population's characteristics. They describe the "average" member of the population of interest. There are three measures of central tendency:

**Mean** -- the sum of a variable's values divided by the total number of values  
**Median** -- the middle value of a variable  
**Mode** -- the value that occurs most often

**Real Life Examples of Descriptive Statistics**

**1.Stock Market Data Analysis:**

Stock market analysis is a classic example of statistical analysis in real life. The investor or the consumer willing to invest in the market tends to take all the available data from the market and perform research and analysis on it with the help of various statistical models to determine the performance portfolio of different investments. This helps the user improve his/her chances of making the most appropriate choice of all the available options. To simplify this process, a variety of software, web pages, and mobile applications have been developed and are available over the internet to educate a person about the working of the stock market and to properly guide him/her throughout the process of making an investment.

**2.Medical Records:**

Hospitals, medical institutes, research and development labs, etc. receive a bulk of data on daily basis and tend to store the received data in a structured, unstructured, or semi-structured

manner. The data obtained at healthcare organizations is crucial and should be maintained properly. Generally, the information contained in

medical records include the name, age, and gender of the patient, date of admission, type of disorder, medical history, assigned medical personnel, prescribed medicines and treatment, etc. Using statistics in medical records helps in the proper organization of the

information regarding a patient in a particular format, segregation of the

information or data points of one patient’s record from the other, keeps the records up to date and readily accessible at every point of time, reduces chances of fatal errors, eases the billing procedure, etc.

**3.Educational Data:**

Educational data is a collection of all the information regarding a student studying, a teacher teaching, or any other professional working at an educational institute. The information or data points typically include name, date of birth, date of enrolment, the current status of involvement in different institutional practices, roles and responsibilities, performance parameters, achievements, etc. The storage of such bulk data is a difficult task as the data keeps building up every day. To resolve this difficulty and to minimize the complexity to interpret the data, statistical analysis tools are generally employed. Implementation of statistics in managing educational data helps organize the data in a presentable manner that is easy to be analyzed.