**OVERVIEW OF DATA ANALYSIS**

The process of scrutinizing raw data with the purpose of drawing conclusion about that information is called data analysis. Data analysis is the science of examining data to conclude the information to make decisions or expand knowledge on various subjects. It consists of subjecting data to operations. This process happens to obtain precise conclusions to help us achieve our goals, such as operations that cannot be previously defined since data collection may reveal specific difficulties. The main aim of data analysis is to convert the available cluttered data into a format which is easy to understand, more legible, conclusive and which supports the mechanism of decision-making. The whole process of data analysis begins with the question “what is to be measured?” The answers to this question gives a researcher a clear idea about the main motive that the analysis should address. The potential of data analysis is in its ability to solve business problems and provide new opportunities. Data analysis includes analyzing both quantitative data (e.g., profits and sales) and qualitative data (e.g., surveys and case studies). The process of data analysis is initiated only after all the required data has been collected. The next phase comprises of scrutinizing and displaying the data. Characteristics of the data may be described and explored by drawings and charts and doing cross tabulations and further, the data is assayed using various statistical tools. Data analysts are typically expected to be proficient in software like Excel and, in some cases, querying and programming languages like SQL, R, SAS, and Python. Data analysis tools make it easier for users to process and manipulate data, analyze the relationships and correlations between data sets, and it also helps to identify patterns and trends for interpretation. Analysts need to be comfortable using such tools and languages to carry out data mining, statistical analysis, database management and reporting. There are numerous techniques used in data analysis, each with its unique purpose and application which helps any business or organization identify performance problems that require some sort of action. Sophisticated analysis of data can substantially improve decision making, minimize risks, and unearth valuable insights that would otherwise remain hidden. Data analysis unlocks significant values by making certain facts and information transparent and recognizable. It allows the identification of important and often mission- critical trends. Financial institutions can quickly find that data analysis is adept at identifying fraud before it becomes widespread, preventing further damage. Governments have turned to data analysis to increase their security and combat outside cyber threats. The healthcare industry uses data analysis to improve patient care and discover better ways to manage resources and personnel. The data analysis software available today, are of major benefits to the healthcare sector. As information becomes increasingly available, comparable and unambiguous, patients will also be empowered and more involved in their own treatment through online health applications, which can integrate patient information with their health records and make it available to clinicians. Data analysis on student behavior can provide the concerned authority with important insights, such as if a student requires more attention, the class understanding of a topic is not clear, or if the course has to be modified. Telecommunications companies and other utilize data analysis to prevent customer churn which also planning the best ways to optimize new and existing wireless networks. Markets have quite a few easy to utilize data. One involves sentiment analysis, where marketers can collect data on how customers fell about certain products and services by analyzing what consumers post on social media. Data analytics allows you to personalize the content or look and feel of your website in real time to suit each consumer entering your website, depending on, for instance, their sex, nationality or from where they ended up on your site. The best-known example is probably offering tailored recommendations: Amazon and Flipkart are using real-time, item-based filtering to fuel its ‛Frequently bought together’ and ‛Customers who bought this item also bought’ features. And the approach works as Amazon and Flipkart have recorded an increased revenue via this method.

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