RESEARCH METHODOLOGY

LECTURE-39 Data editing

Data editing is the application of checks to detect missing, invalid or inconsistent entries or to point to data records that are potentially in error. No matter what type of data you are working with, certain edits are performed at different stages or phases of data collection and processing.

Data coding is the process of driving codes from the observed data. In qualitative research the data is either obtained from observations, interviews or from questionnaires. The purpose of data coding is to bring out the essence and meaning of the data that respondents have provided.

DATA TABULATION

The process of placing classified data into tabular form is known as tabulation. A table is a symmetric arrangement of statistical data in rows and columns. Rows are horizontal arrangements whereas columns are vertical arrangements. It may be simple, double or complex depending upon the type of classification. Tabulation is a systematic & logical presentation of numeric data in rows and columns to facilitate comparison and statistical analysis. It facilitates comparison by bringing related information close to each other and helps in further statistical analysis and interpretation.

Data Analysis

Data analysis is the process of collecting, modeling, and analyzing data to extract insights that support decision-making. There are several methods and techniques to perform analysis depending on the industry and the aim of the investigation.

All these various methods are largely based on two core areas: quantitative and qualitative research.

To explain the key differences between qualitative and quantitative research, here's a video for your viewing pleasure:

Gaining a better understanding of different techniques and methods in quantitative research as well as qualitative insights will give your analyzing efforts a more clearly defined direction, so it's worth taking the time to allow this particular knowledge to sink in. Additionally, you will be able to create a comprehensive analytical report that will skyrocket your analysis

Why Is Data Analysis Important?

Before we go into detail about the categories of analysis along with its methods and techniques, you must understand the potential that analyzing data can bring to your organization.

Informed decision-making: From a management perspective, you can benefit from analyzing your data as it helps you make decisions based on facts and not simple intuition. For instance, you can understand where to invest your capital, detect growth opportunities, predict your incomes, or tackle uncommon situations before they become problems. Like this, you can extract relevant insights from all areas in your organization, and with the help of dashboard software, present the information in a professional and interactive way to different stakeholders.

Reduce costs: Another great benefit is to reduce costs. With the help of advanced technologies such as predictive analytics, businesses can spot improvement opportunities, trends, and patterns in their data and plan their strategies accordingly. In time, this will help you save money and resources on implementing the wrong strategies. And not just that, by predicting different scenarios such as sales and demand you can also anticipate production and supply.

Target customers better: Customers are arguably the most crucial element in any business. By using analytics to get a 360° vision of all aspects related to your customers, you can understand which channels they use to communicate with you, their demographics, interests, habits, purchasing behaviors, and more. In the long run, it will drive success to your marketing strategies, allow you to identify new potential customers, and avoid wasting resources on targeting the wrong people or sending the wrong message. You can also track customer satisfaction by analyzing your client's reviews or your customer service department's performance

Advanced data analysis methods

Advanced analytic techniques include those such as data/text mining, machine learning, pattern matching, forecasting, visualization, semantic analysis, sentiment analysis, network and cluster analysis, multivariate statistics, graph analysis, simulation, complex event processing, neural networks.

Discriminant analysis is a technique that is used by the researcher to analyze the research data when the criterion or the dependent variable is categorical and the predictor or the independent variable is interval in nature

Factor analysis is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. There are different methods that we use in factor analysis from the data set:

- Principal component analysis. It is the most common method which the researchers use.
- Common Factor Analysis. It's the second most favoured technique by researchers.
- Image Factoring.
- Maximum likelihood method.
- ✤ Other methods of factor analysis.

Cluster analysis or clustering is the task of grouping a set of objects in such a way that objects in the same group (called a cluster) are more similar (in some sense) to each other than to those in other groups (clusters). The goal of performing a cluster analysis is to sort different objects or data points into groups in a manner that the degree of association between two objects is high if they belong to the same group, and low if they belong to different groups

Clustering methods

Clustering methods are used to identify groups of similar objects in a multivariate data sets collected from fields such as marketing, bio-medical and geo-spatial. They are different types of clustering methods, including: Partitioning methods. Hierarchical clustering. Fuzzy clustering.