

Assignment 1

Ahmed Abdul-Rahman

Greater Works Institute of Technology

Descriptive Analysis

Descriptive analysis focuses on summarizing the key features of a dataset. It provides a way to represent data in a meaningful manner through measures of central tendency, such as the mean, median, and mode. Additionally, measures of variability, like range and standard deviation, are used. Graphical representations, such as histograms, bar charts, and pie charts, help in visualizing patterns and trends in the data, making it easier to interpret large datasets.

Diagnostic Analysis

Diagnostic analysis examines historical data to determine why certain events or outcomes occurred. It identifies underlying causes and relationships within the data by tracing anomalies or correlations. By analyzing various variables, diagnostic analysis aims to explain the factors that contributed to the results, answering "why" something happened. Techniques like regression and correlation analysis are commonly used to find these connections.

Predictive Analysis

Predictive analysis uses past data combined with statistical models to forecast future outcomes. By analyzing patterns from historical data, techniques such as regression analysis, machine learning algorithms, and time series forecasting are used to estimate future trends. This type of analysis helps in anticipating events, trends, or behaviors, assisting decision-makers in preparing for potential scenarios.

Prescriptive Analysis

Prescriptive analysis builds upon the results of descriptive, diagnostic, and predictive analyses to provide actionable recommendations. It involves the use of optimization algorithms, simulations, and decision-making tools to suggest the best possible actions to achieve desired outcomes. By analyzing potential future outcomes, prescriptive analysis helps organizations make informed decisions about how to allocate resources and manage risks effectively.