Foundations of Data Analytics

Duration: 03 days (24 hours)

Table of Contents

1. Introduction to Business Reporting

1.1 **Writing and Improving the Quality of Business Reports**
Outcome: Understand how to write structured business reports that are clear, and accurate, and improve decision-making processes.
1.2 **Compiling Reports to Ensure Content and Format Are Appropriate**
Outcome: Learn to organise and compile reports with attention to both content and format, ensuring they meet organizational standards.

2. Fundamentals of Business Intelligence and Data Analytics

2.1 **Learning the Terms, Jargon, and Impact of Business Intelligence Skills**
Outcome: Gain familiarity with key terminology and concepts used in business intelligence and understand their impact on decision-making.
2.2 **Scope and Application of Data Analysis**
Outcome: Comprehend the breadth and depth of data analysis and its application in solving business challenges.

3. Performance Measurement and Process Improvement

3.1 **Techniques to Measure Performance of Business Processes**
Outcome: Explore methods to assess and improve the performance of business operations using data-driven techniques.
3.2 **Identifying Improvement Opportunities in Business Processes**
Outcome: Learn how to identify weaknesses and opportunities for efficiency and growth within current business processes.

4. Root Cause Analysis in Business

4.1 **Describing the Need for Tracking and Identifying the Root Causes of Deviation or Failure**
Outcome: Understand the importance of root cause analysis and how to implement tracking mechanisms to prevent process deviations.
4.2 **Implementing Root Cause Analysis Techniques**
Outcome: Gain practical knowledge on tools and methodologies for conducting root cause analysis to improve process reliability.

5. Introduction to Probability Theory in Data Analytics

5.1 **Basic Principles and Properties of Probability Theory**
Outcome: Learn the fundamental principles of probability theory and its relevance in data analytics.
5.2 **Application of Probability Theory in Business Scenarios**
Outcome: Develop the ability to apply probability theory to forecast business outcomes and assess risks.

6. Understanding Data Distribution

6.1 **Central Tendency, Variance, and Normal Distribution**
Outcome: Learn to calculate and interpret key statistical measures, including mean, median, mode, variance, and their significance in normal distributions.
6.2 **Non-Normal Distributions and Their Application**
Outcome: Understand different data distributions beyond normal distribution and how they apply to real-world business data.

7. Data-Driven Decision Making

7.1 **Fundamentals of Data-Driven Decision Making**
Outcome: Master the principles of making informed business decisions using data as the primary foundation.
7.2 **Identifying Research Questions for Data Analysis**
Outcome: Learn how to frame research questions that drive meaningful data analysis for business problem-solving.

8. Microsoft Excel for Statistical Analysis

8.1 **Organizing Data in Microsoft Excel for Statistical Analysis**
Outcome: Acquire skills to effectively organize and manage datasets within Excel for statistical evaluation.
8.2 **Conducting Statistical Analysis in Microsoft Excel**
Outcome: Perform advanced statistical calculations and analyses using built-in Excel functions and tools.

9. Data Interpretation and Visualization

9.1 **Interpretation of Outcomes**
Outcome: Develop the ability to analyze and interpret statistical outcomes and derive actionable business insights.
9.2 **Data Presentation and Visualization Techniques**
Outcome: Gain proficiency in presenting data through charts, graphs, and visual aids to support decision-making and stakeholder engagement.

10. Introduction to Statistical Inference

10.1 **Understanding Statistical Inference**
Outcome: Learn the concepts of statistical inference, including hypothesis testing and drawing conclusions from sample data.
10.2 **Drawing Conclusions about a Data Population**
Outcome: Apply statistical inference to generalize findings from a sample to the broader population, ensuring reliable business conclusions.

11. Forecasting and Regression Analysis

11.1 **Introduction to Forecasting**
Outcome: Understand basic forecasting techniques and how they can be applied to predict future business trends.
11.2 **Simple Linear Regression Analysis**
Outcome: Learn the fundamentals of linear regression and how to use it for predicting business outcomes based on data trends.

12. Sample Size and Confidence Intervals

12.1 **Importance of Sample Sizes in Data Analysis**
Outcome: Learn how sample size affects the accuracy and reliability of statistical analyses.
12.2 **Confidence Intervals and Limits: How They Influence Accuracy**
Outcome: Understand the role of confidence intervals in estimating population parameters and improving analysis accuracy.