

1. Data Analytics Overview

- Study of techniques for analyzing data to gain insights.

2. Evolution of Data Analytics

- Shift from traditional reports to real-time, predictive, and prescriptive analytics.

3. Types of Data Analytics

- Descriptive, Diagnostic, Predictive, Prescriptive.

4. Importance and Benefits of Data Analytics

- Informed decisions, cost reduction, customer targeting.

5. Different Applications of Analytics in Business

- Marketing, finance, operations, HR.

6. Text Analytics

- Extracting info from unstructured text using NLP.

7. Web Analytics

- Analyzing website data to improve performance.

8. Text Analytics vs Web Analytics

- Text focuses on text data; web focuses on site data.

9. Skills for Business Analytics

- Statistics, programming, data visualization, domain knowledge.

10. Fundamentals of Statistical Methods

- Collection, organization, analysis, and interpretation of data.

11. Descriptive Statistics – Measures of Central Tendency & Dispersion

- Mean, median, mode, range, variance, standard deviation.

12. Inferential Statistics – Hypothesis Testing

- **Making decisions based on data samples.**

13. Inferential Statistics – Confidence Intervals

- **Range estimates for population parameters.**

14. Exploratory Data Analysis – Identifying Patterns & Trends

- **Summarizing data to find insights.**

15. Exploratory Data Analysis – Detecting Outliers

- **Finding anomalies in data.**

16. Regression Analysis

- **Analyzing relationships between variables.**

17. Classification Techniques

- **Assigning categories (e.g., decision trees, k-NN).**

18. Clustering Methods

- **Grouping similar data points (e.g., k-means).**

19. Time Series Analysis

- **Analyzing data over time for trends/forecasts.**

20. Optimization Techniques

- **Finding the best solution under constraints.**

21. Simulation and Risk Analysis

- **Modeling and analyzing uncertain outcomes.**

22. Importance of Data Visualization

- **Communicating complex info simply.**

23. Business Forecasting Techniques

- **Predicting future business metrics.**

24. Principles of Effective Data Visualization

- Clarity, accuracy, simplicity.

25. Basic Visualization Tools

- Pie Chart, Bar Chart, Histogram, Line Chart, Scatter Plot, Box Plot.

26. Advanced Visualization Techniques (1)

- Heat Map, Gantt Chart, Waterfall Chart.

27. Advanced Visualization Techniques (2)

- Area Chart, Network Diagram, Word Cloud.

28. Emerging Trends in Business Data Analytics & Visualization

- AI integration, augmented analytics, real-time dashboards.

29. Spreadsheet Modeling for Data Analytics

- Using Excel/Sheets for calculations, modeling.

30. Text Analytics & Web Analytics

- Combined use for customer insights and behavior.

31. Applications in Business Analytics

- Customer segmentation, churn prediction, performance analysis.

32. Real-World Applications – Business

- Retail recommendations, sales forecasting.

33. Real-World Applications – Healthcare

- Patient risk scoring, treatment optimization.

34. Real-World Applications – Finance

- Fraud detection, credit scoring, algorithmic trading.