



1) Basic Statistics

- Data Types
- Random Variables
- Probability
- Measure of Central Tendency(Mean , mode , Median)
- Measure of Dispersion (Variance , Standard Deviation , Range)
- Measure of Skewness and Kurtosis
- Various Graphical Representation of Data for Analysis
 - ✓ Bar Chart
 - ✓ Histogram
 - ✓ Box Plot
 - ✓ Scatter Plot
- Continuous Probability Distribution
- Standard Normal Distribution
 - ✓ Z test
 - ✓ T Distribution
 - ✓ Chi square distribution
 - ✓ QQ plot
 - ✓ Confidence Intervals
 - ✓ Binomial Distribution

2) Hypothesis Testing

- 1 sample, 2sample t test
- Type I and Type II Errors
- 1 sample Z test
- 1 Proportion, 2 proportion test
- Paired Test
- One way Annova
- Chi – square test

3) Regression Analysis

- Linear Regression
 - ✓ Simple Linear Regression
 - ✓ Multiple Linear Regression
- Logistic Regression
 - ✓ Simple Logistic
 - ✓ Multiple Logistic
- Model Building Using Regression Techniques
- Imputation Techniques
 - ✓ List Wise, Pair Wise Deletion
 - ✓ Mean/Mode Substitution
 - ✓ Regression Imputation
 - ✓ Hot Deck, KNN Imputation



4) Data Mining/Machine Learning

- Supervised Techniques
 - ✓ Support vector machines
 - ✓ Classification / pattern mining
 - ✓ K nearest neighbor
 - ✓ Naïve Bayes
 - ✓ Decision tree and random forest
- Unsupervised Techniques
 - ✓ Clustering
 - ✓ Hierarchical
 - ✓ Non – Hierarchical (K means)
 - ✓ Dimension Reduction Techniques
 - ✓ Principal component Analysis
 - ✓ Singular Value Decomposition
 - ✓ Association Rules
 - ✓ Recommendation System



5) Text Mining

- Text extraction from web page
- Word clouds – analysis with context
- Negative and positive words

6) Forecasting

- Strategy of Forecasting
- Components in time series data
- Plots of Time Series Data
- Auto Correlation function / Correlogram
- Methods of Forecast
 - ✓ Moving Average
 - ✓ Smoothing Techniques
 - ✓ Naïve method
 - ✓ Auto Regressive model
 - ✓ ARIMA model
- Types of Error Measure
 - ✓ MeanError (ME),
 - ✓ Mean Absolute deviation (MAD),
 - ✓ Mean Squared Error (MSE),
 - ✓ Root Mean squared Error (RMSE),
 - ✓ Mean Percentage Error (MPE)

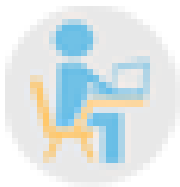
7) Tools

R and R Studio (Installation and Packages)

XL Miner

Minitab

Tableau for Visualization



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