

# Data Science With R



**DATA SCIENCE WITH R**



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## 1 Data Science

- Introduction to Data Science
- Need for Business Analytics
- Data Science Life Cycle
- Different tools available for Data Science
- Pre-requisites of Data Science

## 2 R-Programming

- Introduction to R
- Installation of R
- Windows Installation
- Linux Installation
- Installation of R-Studio

### 2.1 Types of Variables

- Types of Operators
- Arithmetic Operators
- Logical Operators
- Relational Operators
- Membership Operators
- Special Operators
- If-else Flow Control
- Loops in R (While, For, Break, Next)
- Switch-Case

### 2.2 Types of Datatype

- Vectors
- Arrays
- List
- Matrices
- Factors
- Data Frames

## 2.3 Types of Loops

- For loop
- While Loop
- Nested Loops

## 2.4 Functions in R

- Function declaration with parameters
- Function declaration without parameters

## 2.5 R Data Interface

- Reading CSV files
- Reading XML files
- JSON files
- Scraping data from the Web
- SQL with R
- Databases with R

## 2.6 Data Visualization of R

- Pie Chart
- Bar graph
- Line Graph
- Scatter plot
- Stack Plot
- Box-Plot

## 2.7 Statistics in R

- Terminologies of Statistics
- Normal Distribution
- Binomial Distribution
- Regression Analysis
- Poisson Distribution
- Time-Series Analysis
- Chi-square Test Analysis
- Non-linear square analysis

## 2.8 Machine Learning in R

- What is Machine Learning ?
  - Supervised Machine learning
  - Unsupervised Machine learning
  - Application of Machine Learning.
  - AI vs Machine Learning
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- Supervised Learning
    - Classification algorithms
    - Decision Tree
    - Random Forest
    - Naive-Bayes
    - SVM Classifier
  - Regression Learning
    - Linear Regression
    - Multiple Regression
    - Logistic Regression
  - Clustering
    - K-means clustering
    - K-nearest neighbour