

R-Language

Introduction to R-Language

- History of R-language
- Why to learn R-language
- Importance of R-language
- Installation and setup Environment

Basics of R-language

- Arithmetic in R
- Variables
- Vector Basics
- Vector Operations
- Vector Indexing and Slicing
- Practical exercise

Matrix operations

- Introduction to R Matrices
- Creating a Matrix
- Matrix Arithmetic
- Matrix Selection and Indexing
- Factor and Categorical Matrices
- Practical Exercise

Data Frames

- Data Frame Basics
- Data Frame Indexing and Selection
- Operations on Data Frame
- List Basics operations
- Practical Exercise

Data input & output

- CSV Files with R
- Excel Files with R
- SQL with R

Getting start with R Programming

- Operators
- Conditional Statements
- Loops & Functions
- Built-in R Features & Apply
- Dates and Timestamps
- Package Building

Data Visualization

- Understanding & Working with Graph Libraries.
- Overview of ggplot2
- Histograms
- Scatterplots
- Bar Plot
- Boxplots
- 2 Variable Plotting
- Coordinates and Faceting
- Visualizations based **case study**

Data Manipulation

- Introduction of Data Manipulation
- Data Manipulation Using Dplyr
- Pipe Operator
- R with Tidyr

Machine Learning with R-language

- Introduction to Machine Learning
- Data Munging in R
- Cyclical vs Seasonal Analysis
- Introduction to Regression and Classification algorithm
- Linear Regression with R
- Logistic Regression with R
- K Nearest Neighbors

Decision Trees and Random Forests with R

- Example of Decision Tree with R- programming
- Explanation and introduction Random Forests in R-language

Clustering

- What is clusters
- Type of clusters
- K Means Clustering with R

Additional Concepts

- Natural Language Processing
- Neural Net

Real-world based project