R Programming

INTRODUCTION TO R& PYTHON

- History of s/s-plus
- Development with R
- Installing R and R-studio
- CRAN & CRAN Mirrors
- Evolution of R
- Features of R

SETTING UP R ENVIRONMENT

- Search Packages in R Environment
- Search Packages in Machine
- Attach Packages to R Environment
- Install Add-on Packages from CRAN
- Detach Packages from R Environment

DATA TYPES

- Logical
- Integer
- Double
- Complex
- Character

OPERATORS

- Types of Operators
- Arithmetic Operators
- Relational Operators
- Logical Operators
- Assignment Operators
- Miscellaneous Operators
- R as Calculator
- Performing different Calculations

BASIC SYNTAX

- Command Prompt
- Script File
- Comments

DATAhill Solutions, Near Malabar Gold, KPHB, Hyderabad.
Ph: +91 9292005440, +91 7780163743, info@datahill.in, www.datahill.in

FUNCTION

- Function Definition
- Function Components
- Built-in function
- User-defined Function
- Calling a Function
- Lazy Evaluation of Function

STRINGS

- Rules Applied in String Construction
- String Manipulation

STRUCTURES

- Vector
- List
- Matrix
- Data frame
- Array
- Factors

VECTORS

- Vector Creation
- Accessing Vector Elements
- Vector Manipulation

LISTS

- Creating a List
- Naming List Elements
- Accessing List Elements
- Manipulating List Elements
- Merging Lists
- Converting List to Vector

MATRICS

- Accessing Elements of a Matrix
- Matrix Computations

ARRAYS

- Naming Columns and Rows
- Accessing Array Elements
- Manipulating Array Elements
- Calculations across Array Elements

DATA FRAMES

- Extract Data from Data Frame
- Expand Data Frame

FACTORS

- Factors in Data Frame
- Changing the Order of Levels
- Generating Factor Levels

SUB SETTING THE DATA

- Extracting required data from R objects
- Subset
- Joining Columns and Rows in a Data Frame
- Merging Data Frames
- Melting and Casting
- Melt the Data
- Cast the Molten Data
- Data Reshaping

LOADING AND READING DATA

- **DATA EXTRACTION FROM CSV**
  - Getting and Setting the Working Directory
  - Input as CSV File
  - Reading a CSV File
  - Analyzing the CSV File
  - Writing into a CSV File
- **DATA EXTRACTION FROM URL**
- **DATA EXTRACTION FROM CLIPBOARD**
- **DATA EXTRACTION FROM EXCEL**
  - Install “xlsx” Package
  - Verify and Load the "xlsx" Package
  - Input as “xlsx” File
  - Reading the Excel File
- **DATA EXTRACTION FROM DATABASES**
  - RMySQL Package
  - Connecting R to MySql
  - Querying the Tables
  - Query with Filter Clause
  - Updating Rows in the Tables
  - Inserting Data into the Tables

- Creating Tables in MySql
- Dropping Tables in MySql
- Using dplyr and tidyr package

STATISTICAL OBSERVATION

- Mean
- Mode
- Median
- Quantile
- Variance
- Standard Deviation
- Statistical Summaries

PLANNING FOR VISUALIZATION - WHAT PLOT TO USE?

- Plotting single continuous variable
- Plotting single discrete variable
- Plotting two continuous variables
- Plotting one continuous and one discrete variable
- Plotting two discrete variables
- Plotting time series

VISUALIZATION USING BASE COMMANDS

- High Level Plotting Commands
- Low Level Plotting Commands
- Plotting Histogram
- Density Plot
- Box Plot
- Bar Plot
- Scatter Plot
- Box Plot by group
- Pie Chart
- Dot Chart
- Strip Chart
- Mosaic Chart
- Stacked Bar Chart
- Time Series