



# R Programming



# About Course

**R is a programming language for statistical computing and graphics that you can use to clean, analyze, and graph your data. It is widely used by researchers from diverse disciplines to estimate and display results and by teachers of statistics and research methods.**

**It is a reservoir of statistical utilities and libraries. It makes mathematical machine learning algorithms easy to learn. It is actually a programming environment and language made specifically for graphical applications and statistical computations.**

# R PROGRAMMING

## CURRICULUM

### 1 FUNDAMENTALS OF R

Installation of R & R Studio  
Features of R  
Variables in R  
Constants in R  
Operators in R  
Datatypes and R Objects  
Accepting Input from keyboard  
Important Built-in functions

### 2 VECTORS

Creating Vectors  
Accessing elements of a Vector  
Operations on Vectors  
Vector Arithmetic

### 3 CONTROL STATEMENTS

statement  
if...else statement

- if else() function
- switch() function
- repeat loop
- while loop
- for loop
- break statement
- next statement

## ④ FUNCTIONS IN R

- Formal and Actual arguments
- Named arguments
- Global and local variables
- Argument and lazy evaluation of functions
- Recursive functions

## ⑤ MATRICES

- Creating matrices
- Accessing elements of a Matrix
- Operations on Matrices
- Matrix transpose

## ⑥ STRINGS

- Creating strings
- paste() and paste0()



○ Formatting numbers and string using format()  
○ String manipulation

## 7 LISTS

○ Creating lists  
○ Manipulating list elements  
○ Merging lists  
○ Converting lists to vectors

## 8 ARRAYS IN R

○ Creating arrays  
○ Accessing array elements  
○ Calculations across array elements

## 9 R FACTORS

○ Understanding factors  
○ Modifying factors  
○ Factors in Data frames

## 10 DATA FRAMES IN R

○ Creating data frame  
○ Operations on data frames  
○ Accessing data frames  
○ Creating data frames from various sources



## 11 DATA VISUALIZATION IN R

Need for data visualization

Bar plot

Plotting categorical data

Stacked bar plot

Histogram

plot() function and line plot

pie chart / 3D pie chart

Scatter plot

Box plot

## 12 STRINGR PACKAGE

Important functions in stringr

Regular expressions

## 13 DPLYR PACKAGE

Load data into dataframe

Viewing the data

Selecting columns

Selecting rows

Reordering the rows

Pipe operator

Group operations



 [www.softcrayons.com](http://www.softcrayons.com)

 [info@softcrayons.com](mailto:info@softcrayons.com)

 (+91) 854 501 2345

 693, Sector 14-A, Vasundhara, Ghaziabad (U.P.), 201012

   @softcrayons