

# Machine Learning with R

## Hands on Sessions (14 Session Series)

### Detailed Contents

#### R Programming

1. Introduction Analytics Tool(R)
  - a. Introduction to Data Analysis
  - b. What is R
  - c. R Studio
  - d. R Environment
  - e. R Basics operations
  - f. R Packages
  - g. R Datatypes
  - h. R Scripts and Saving the work
  - i. My First R Program
  - j. R Functions
  - k. Most common errors in R
  - l. R- Help
2. Data Handling in R
  - a. Data importing from files
  - b. Database server connections
  - c. Working with datasets
  - d. Manipulating the datasets in R
  - e. Creating new variables in R
  - f. Sorting in R & Removing Duplicates
  - g. Exporting the R datasets into external files
  - h. Data Merging
  - i. Telecom and Classic models data case study
3. Basic Descriptive Statistics
  - a. Taking a random sample from data
  - b. Descriptive statistics
  - c. Central Tendency
  - d. Variance
  - e. Quartiles, Percentiles
  - f. Box Plots
  - g. Census data case study
  - h. Bank telemarketing data case study
  - i. Graphs
4. Reporting and Data Validation

- a. Raw Data - issues
- b. Data Exploration
- c. Data Validation
- d. Data Sensitization techniques
- e. Loans data case study and data cleaning

## Machine Learning with R

1. Regression Analysis
  - a. Correlation
  - b. Simple Regression models
  - c. R-Square
  - d. Multiple regression
  - e. Multicollinearity
  - f. Individual Variable Impact
  - g. Air passenger's data case study
  - h. SAT score data case study
2. Logistic Regression
  - a. Need of logistic Regression
  - b. Logistic regression models
  - c. Validation of logistic regression models
  - d. Multicollinearity in logistic regression
  - e. Individual Impact of variables
  - f. Confusion Matrix
  - g. Service Provider Attrition data case study
3. Decision Trees
  - a. Segmentation
  - b. Entropy
  - c. Information gain
  - d. Building Decision Trees
  - e. Validation of Trees
  - f. Pruning the trees
  - g. Fine tuning the trees
  - h. Prediction using Trees
  - i. Fiber bits data case study
4. Model Selection and Cross validation
  - j. How to validate a model?
  - k. What is a best model?
  - l. Types of data
  - m. Types of errors
  - n. The problem of over fitting
  - o. The problem of under fitting
  - p. Bias Variance Tradeoff
  - q. Cross validation
  - r. Boot strapping
  - s. House price index data case study
  - t. Firebrats data case study
5. Neural Networks

- a. Neural network Intuition
  - b. Neural network and vocabulary
  - c. Neural network algorithm
  - d. Math behind neural network algorithm
  - e. Building the neural networks
  - f. Validating the neural network model
  - g. Neural network applications
  - h. Image recognition using neural networks
  - i. Digit recognition case study
- b. SVM
    - a. Introduction
    - b. The decision boundary with largest margin
    - c. SVM- The large margin classifier
    - d. SVM algorithm
    - e. The kernel trick
    - f. Building SVM model
    - g. Digit recognition case study
    - h. Loans data case study
- c. Random Forest and Boosting
    - a. Introduction
    - b. The decision boundary with largest margin
    - c. SVM- The large margin classifier
    - d. SVM algorithm
    - e. The kernel trick
    - f. Building SVM model
    - g. Conclusion
    - h. Image classification case study

[Statinfer.com](http://Statinfer.com)

## Data Science Training and R&D

Training on  
Data Science  
Bigdata Analytics  
Machine Learning  
Predictive Modelling  
Data Visualizations

---

### Contact us

Corporate Training  
Classroom Training  
Online Training

info@statinfer.com

+91-080 4851 1820

+91-98867 60678

Follow us on Social  
Media for more  
course material

Twitter: <https://twitter.com/statinfer>

Facebook: <https://www.facebook.com/statinfer/>

Google Plus: <https://plus.google.com/u/0/104559910764943078938>

LinkedIn: <https://www.linkedin.com/company/statinfer-software-solutions-llp>

#647, 100 feet road, Indra Nagar, Namma Metro pillar No 48, Bangalore, India