





BASIC MODULE


INTRODUCTION TO R SOFTWARE	Pre-Lecture Videos for Self-Study <ul style="list-style-type: none"> ■ Introduction to Data Types ■ Basic Operations in R ■ Missing Values in R ■ In Built Functions ■ Text Manipulation ■ Matrix Computation ■ Apply Functions ■ Subsetting Functions ■ Implementing Decision Construct in R ■ Conditional Flow Statements ■ Converting Data Types/Structures ■ Filtering Data ■ Data Structures ■ Importing and Exporting data ■ Variable Creation ■ Subsetting Data ■ Date Functions ■ Writing Functions ■ Functions with Parameters 	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ R Base Software ■ Understanding CRAN ■ RStudio The IDE ■ Basic Building Blocks in R ■ Sequence of Numbers in R ■ Understanding Vectors in R ■ Handling Missing Values in R ■ Subsetting Vectors in R ■ Matrices and Data Frames in R ■ Logical Statements in R ■ Using the Lapply, sapply, vapply and tapply Functions
	DURATIONS  6 HOURS	Classroom Delivery 8 HOURS


BASIC STATISTICS	Pre-Lecture Videos for Self-Study <ul style="list-style-type: none"> ■ Descriptive Statistics Theory ■ Descriptive Statistics - Univariate Analysis ■ Descriptive Statistics - Bivariate Analysis ■ Inferential Statistics Theory ■ Inferential Statistics - Statistical Tests ■ Theory of Sampling ■ Understanding Statistical Tests 	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ What is Data? ■ Meaning of Variables ■ Understanding Data Types ■ Measures of Central Tendency in Data ■ Understanding Skewness in Data ■ Measures of Dispersion ■ Understanding Data Distribution
	DURATIONS  2 HOURS	Classroom Delivery 2 HOURS


LINEAR REGRESSION	Pre-Lecture Videos for Self-Study <ul style="list-style-type: none"> ■ Theory of Linear Regression ■ Build Basic Linear Regression Model ■ Theory of Multivariate Analytics - 1 ■ Application of Multivariate Analytics - 1 ■ Application of Multivariate Analytics - 2 and Theory of PCA 	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ Covariance and Correlation in Data ■ Multivariate Analysis ■ Assumptions of Linearity ■ Hypothesis Testing ■ Limitations of Regression
	DURATIONS  2 HOURS	Classroom Delivery 2 HOURS

CASE STUDY FOR LINEAR REGRESSION	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ Case for Prediction Problem ■ Extract the Data in R ■ Univariate Analysis of Data ■ Apply Data Transformations ■ Bivariate Analysis ■ Identify Multicollinearity in Data ■ Treatment on Data ■ Identify Heteroscedasticity ■ Discuss what could be the reason for Heteroscedasticity ■ Modelling of Data ■ Variable Significance Identification ■ Model Significance Test ■ Bifurcate Data into Training / Testing Data set ■ Build Model on Training Data Set ■ Predict using Testing Data Set ■ Validate the Model Performance 	
	DURATIONS 	Classroom Delivery 4 HOURS

LOGISTIC REGRESSION	Pre-Lecture Videos for Self-Study <ul style="list-style-type: none"> ■ Theory of Logistic Regression - 1 ■ Theory of Logistic Regression - 2 	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ Reason for using Logistic Regression ■ The Logistic Transform ■ Logistic Regression Modelling ■ Model Optimisation ■ Understanding the ROC Curve 		
	DURATIONS 	30 MINUTES	<table border="1"> <tr> <td> Classroom Delivery 2 HOURS </td> <td> Online Virtual Class Delivery 2 HOURS </td> </tr> </table>	Classroom Delivery 2 HOURS
Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS			

CASE STUDY FOR LOGISTIC REGRESSION	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ Case for Prediction Problem ■ Same steps as Linear regression Case ■ Model Parameter Significance Evaluation ■ Drawing the ROC Curve ■ Estimating the Classification Model Hit Ratio ■ Isolating the Classifier for Optimum Results 	
	DURATIONS 	Classroom Delivery 4 HOURS

DECISION TREE	Pre-Lecture Videos for Self-Study <ul style="list-style-type: none"> ■ Theory Of Decision Tree - 1 ■ Theory Of Decision Tree - 2 ■ Building a Basic Decision Tree- 1 	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ Classification Trees ■ Regression Trees 		
	DURATIONS 	1 HOUR	<table border="1"> <tr> <td> Classroom Delivery 2 HOURS </td> <td> Online Virtual Class Delivery 2 HOURS </td> </tr> </table>	Classroom Delivery 2 HOURS
Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS			

CASE STUDY FOR DECISION TREE	Instructor-Led Training Coverage <ul style="list-style-type: none"> ■ Case for Prediction ■ Case for Classification 	
	DURATIONS 	Classroom Delivery 2 HOURS

SEGMENTATION	Pre-Lecture Videos for Self-Study	Instructor-Led Training Coverage	
	<ul style="list-style-type: none"> ■ Clustering - 1 ■ Clustering - 2 	<ul style="list-style-type: none"> ■ An Overview of Clustering ■ Understanding the Working of Kmeans Algorithm ■ Cluster Size Optimisation vs Definition Optimisation ■ K- medioid and Fuzzy K means 	
DURATIONS	🕒 1.1 HOUR	Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS

CASE STUDY FOR SEGMENTATION	Instructor-Led Training Coverage	
	<ul style="list-style-type: none"> ■ Case for Clustering on Bank Customer Data Set ■ Drawing Parallels with RFM Analysis ■ Using Definitions for Profiling 	
DURATIONS	Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS

ADVANCED MODULE

ASSOCIATION RULE MINING	Pre-Lecture Videos for Self-Study	Instructor-Led Training Coverage	
	<ul style="list-style-type: none"> ■ Theory of Market Basket Analysis ■ Application of Association Rule Mining 	<ul style="list-style-type: none"> ■ Understanding Supervised vs. Unsupervised Learning ■ Understanding Use of Recommendation Engines ■ Understanding Top Up Shopper Vs Basket Shopper ■ Concept of Association Rule Mining ■ The Apriori Algorithm ■ Demystifying Support, Confidence and Lift Parameters ■ Reading the Rules 	
DURATIONS	🕒 30 MINUTES	Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS

CASE STUDY FOR MARKET BASKET ANALYTICS	Instructor-Led Training Coverage	
	<ul style="list-style-type: none"> ■ Case on Hyper Market Shoppers Dataset for MBA ■ Data Cleaning ■ Data Transformation ■ Creation of Sparse Matrix for Processing in Algo ■ Create and Export Rules 	
DURATIONS	Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS

CASE STUDY FOR TIME SERIES	Instructor-Led Training Coverage	
	<ul style="list-style-type: none"> ■ Case on Automobile Sales Data ■ Importing Data in R ■ Coverting into Time Series Data ■ Decomposing Data ■ Identifying Stationarity ■ Transforming to Stationery Data ■ Modelling ■ Prediction ■ Evaluating Model Performance 	
DURATIONS	Classroom Delivery 2 HOURS	Online Virtual Class Delivery 2 HOURS

K NEAREST NEIGHBOURS ALGORITHM FOR CLASSIFICATION WITH CASE STUDY

Instructor-Led Training Coverage

- Lazy Learning Notion
- Computation of Distance Matrix
- The Optimum K Value
- Data Transformations as a Pre Processing Phase
- Model Building on Training Data Set
- Model Validation on Testing Data Set
- Evaluation of Model
- Advantages & Disadvantages of KNN Models

DURATIONS



Classroom Delivery
4 HOURS

Online Virtual Class Delivery
4 HOURS

NAÏVE BAYES ALGORITHM FOR MULTI CLASS PREDICTIONS WITH CASE STUDY

Instructor-Led Training Coverage

- Bayesian Theorem
- Probabilities - The Prior and Posterior Probabilities
- Conditional and Joint Probabilities Notion
- Traditional Approach - Extract Important Features
- Naive Approach - Independence of Features Assumption
- Data Processing - Discretization of Features
- Model Building / Testing / Validation
- Advantages & Disadvantages of Naive Bayes Models

DURATIONS



Classroom Delivery
4 HOURS

Online Virtual Class Delivery
2 HOURS

ARTIFICIAL NEURAL NETWORKS WITH CASE STUDY

Instructor-Led Training Coverage

- Understanding Neural Networks
- The Biological Inspiration
- The Activation Function
- The Structure of Network
- The ANN Model
- Training the Model
- Testing and Validation

DURATIONS



Classroom Delivery
4 HOURS

Online Virtual Class Delivery
4 HOURS

SUPPORT VECTOR MACHINES WITH CASE STUDY

Instructor-Led Training Coverage


- Understanding SVM
- Concepts of Linearly separable vs non separable data
- Build the Model
- Training the Model
- Testing and Validation
- Tuning the Model

DURATIONS



Classroom Delivery
4 HOURS

Online Virtual Class Delivery
2 HOURS

ENSEMBLE MODELS WITH CASE STUDY	Pre-Lecture Videos for Self-Study	Instructor-Led Training Coverage	
	<ul style="list-style-type: none"> ■ Association Rule Mining Concept ■ Application of Association Rule Mining 	<ul style="list-style-type: none"> ■ Understanding Entropy ■ Information Value ■ Model Building on Training Data Set ■ Selecting the Best Split in Data ■ Pruning a Decision Tree ■ Model Validation on Testing Data Set ■ Improve Model Performance ■ Bagging Trees ■ Boosting Trees ■ Random Forests 	
DURATIONS	 1.5 HOURS	Classroom Delivery 4 HOURS	Online Virtual Class Delivery 4 HOURS

INTERVIEW PREPARATION - HR	Instructor-Led Training Coverage		
	<ul style="list-style-type: none"> ■ Resume Building + Interview Preparation ■ Stage 1 - Preparation ■ Stage 2 - First Impressions Count ■ Stage 3 - The Interview ■ Stage 4 - The Final Stage ■ Questions You May Wish To Ask ■ How To Ace The 50 Most Common Interview Questions 		
DURATIONS		Classroom Delivery 3 HOURS	Online Virtual Class Delivery 2 HOURS

MOCK INTERVIEWS - HR AND DOMAIN	Instructor-Led Training Coverage		
	<ul style="list-style-type: none"> ■ Panel Mock Interviews with Industry Veterans to Clear the HR and Technical Round of Interviews to Give You Confidence to Face Real World Scenarios 		
DURATIONS		Classroom Delivery 4 HOURS	Online Virtual Class Delivery 2 HOURS