Focus Training Services
#301, 3rd floor, Nagasuri Plazza,
Satyam theatre Road Ameerpet
Above bank of India (BOI)

Data Science Course Content

Data Science Using SAS & R

A comprehensive business analytics and data science training using SAS and R

An Overview of Analytics and Data Science

- Analytics Methodology and Problem Solving Frameworks
- Models & Algorithms
- Relevance in industry & need of the hour
- Types of analytics – Marketing, Risk, Operations, etc
- Business & Technology drivers for analytics
- Analytics Tool Kit - Popular tools & Techniques in the Industry
- Future of analytics & critical requirement
- Types of problems and business objectives in various industries
- Different phases of Analytics Project

Descriptive Analytics with Statistics

- Descriptive Statistics
- Data Visualization with Excel
- Data Analysis Methods: Data Visualization with Excel
- Basic Statistics - Measures of Central Tendencies and Variance
- Building blocks - Probability Distributions - Normal distribution - Central Limit Theorem
- Inferential Statistics - Sampling - Concept of Hypothesis Testing
- Statistical Methods - Z/t-tests (One sample, independent, paired), Anova, Correlations and Chi-square

R for Data Science

- Introduction to R
- Simple data processing with R
- Data Visualization with R
- Introduction R/R-Studio - GUI
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- Concept of Packages - Useful Packages (Base & other packages) in R
- Data Structure & Data Types (Vectors, Matrices, factors, Data frames, and Lists)
- Importing Data from various sources
- Database Input (Connecting to database)
- Exporting Data to various formats)
- Viewing Data (Viewing partial data and full data)
- Variable & Value Labels – Date Values

Data Wrangling and EDA with R

- Data Pre-Processing - Data Exploration
- Data Pre-Processing - Data Preparation
- Need of Data preparation
- Data Audit Report and its importance
- Data Preparation steps - Consolidation/aggregation - Outlier treatment - Flat Liners - Missing values- Dummy creation - Variable Reduction
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- Variable Reduction Techniques - Factor & PCA Analysis
- Data Manipulation steps(Sorting, filtering, duplicates, merging, appending, subsetting, derived variables, sampling, Data type converstions, renaming, formating etc)
- Data manipulation tools(Operators, Functions, Packages, control structures, Loops, arrays etc)
- R Built-in Functions (Text, numeric, date, utility functions)
- R User Defined Functions
- R Packages for data manipulation(base, dplyr, plyr, reshape,car, sqldf etc)
- Introduction exploratory data analysis
- Descriptive statistics, Frequency Tables and summarization
- Univariate Analysis (Distribution of data & Graphical Analysis)
- Bivariate Analysis(Cross Tabs, Distributions & Relationships, Graphical Analysis)
- Creating Graphs-Bar/pie/line chart/histogram/boxplot/scatter/density etc)
- R Packages for Exploratory Data Analysis(dplyr, plyr, gmodes, car, vcd, Hmisc, psych, doby etc)
- R Packages for Graphical Analysis (base, ggplot, lattice etc)

Testing Hypothesis with Data

- Introduction to Inferential Statistics and Probability concepts
- Hypothesis Testing Concepts and Frameworks
- Advanced Hypothesis Testing

Predictive Analytics with R

- Linear Regression
- Logistic Regression
- Time Series Forecasting in R
- Introduction to Predictive Modeling
- Types of Business problems - Mapping of Techniques
- Different Phases of Predictive Modeling
- Need of Data preparation
- Data Audit Report and its importance
- Data Preparation steps - Consolidation/aggregation - Outlier treatment - Flat Liners - Missing values-Dummy creation - Variable Reduction
- Variable Reduction Techniques - Factor & PCA Analysis
- Introduction to Segmentation
- Types of Segmentation (Subjective Vs Objective, Heuristic Vs. Statistical)
- Heuristic Segmentation Techniques (Value Based, RFM Segmentation and Life Stage Segmentation)
- Behavioral Segmentation Techniques (K-Means Cluster Analysis)
- Cluster evaluation and profiling
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Data Science Course Content

- Interpretation of results - Implementation on new data
- Decision Trees - Introduction - Applications
- Types of Decision Tree Algorithms
- CHAID Vs. CART
- Decision Trees - Validation
- Overfitting - Best Practices to avoid
- Implementation of Solution

Machine Learning Models using R

- Introduction to Machine Learning
- Introduction to Linear Regression
- Linear Regression - Introduction to Over fit
- Logistic Regression
- Tree Based Models
- Neural Networks
- Convolution Neural Network
- ML in R: Linear Regression
- ML in R: Logistic Regression and Decision Trees
- ML in R: Tree Based Models

SAS Language for Data Manipulation and Analytics

- An Introduction to the SAS language
- Data Import into SAS
- Data Manipulation with SAS
- Advanced Data Manipulation with SAS
- Introduction to SAS, GUI
- Concepts of Libraries, PDV, data execution etc
- Building blocks of SAS (Data & Proc Steps - Statements & options)
- Debugging SAS Codes
- Importing different types of data & connecting to data bases
- Data Understanding(Meta data, variable attributes(format, informat, length, label etc))
- SAS Procedures for data import /export / understanding(Proc import/Proc contents/Proc print/Proc means/Proc feq)
- Data Manipulation steps(Sorting, filtering, duplicates, merging, appending, subsetting, derived variables, sampling, Data type converstions, renaming, formatting, etc)
- Data manipulation tools (Operators, Functions, Procedures, control structures, Loops, arrays etc)
- SAS Functions (Text, numeric, date, utility functions)
- SAS Procedures for data manipulation (Proc sort, proc format etc)
- SAS Options (System Level, procedure level)

SAS Language Advanced Practice

- Introduction exploratory data analysis
- Descriptive statistics, Frequency Tables and summarization
- Univariate Analysis (Distribution of data & Graphical Analysis)
- Bivariate Analysis(Cross Tabs, Distributions & Relationships, Graphical Analysis)

- SAS Procedures for Data Analysis(proc freq/Proc means/proc summary/proc tabulate/Proc univariate etc)
- SAS Procedures for Graphical Analysis (Proc Sgplot, proc gplot etc)
- Introduction to Advnaced SAS - Proc SQL & Macros
- Understanding select statement (From, where, group by, having, order by etc)
- Proc SQL - Data creation/extraction
- Proc SQL - Data Manipulation steps
- Proc SQL - Summarizing Data
- Proc SQL - Concept of sub queries, indexes etc
- SAS Macros - Creating/defining macro variables
- SAS Macros - Defining/calling macros
- SAS Macros- Concept of local/global variables
- SAS Macros - Debugging techniques