Arabian Institute For Training

Machine Learning and Predictive Models

Why Attend

- Predictive models have become accessible to all users with the advancement of technology. This course offers a complete overview of supervised Machine Learning algorithms, and their role in the enhancement of predictions in most industries and by most organizations.
- This course covers all models utilized under different technologies (SAS, Statistica and SPSS), enabling participants to become expert practitioners by evaluating and selecting appropriate solutions with suitable technical packages for their organizations.

Course Methodology

- This course includes interactive discussion and the use of exercises and case studies. Each Machine Learning algorithm is supported by its own case study with step by step outputs that go in parallel with its multi stage analysis. All algorithms are detailed with sequential screen shot applications on comparative technologies such as SPSS, SAS, Statistica and Excel.

Course Objectives

By the end of the course, participants will be able to:

- Understand the true meaning of Machine Learning
- Comprehend the key differences between Data Analysis and Machine Learning
- Apply testing and validating samples into Machine Learning models
- Submit an overview of the best analytic solutions
- Implement fine tuned estimation with complete predictive models

Target Audience

- Any level of professional interested in how Machine Learning can assist their organization, would benefit from this course. These include professionals from industries including, but not limited to, banking, insurance, retail, government, manufacturing, healthcare, telecom, and airlines.

Target Competencies

- Predictive Analysis
- Predictive Models
- Data Analysis
- Data Analytic Models

Data Analysis and Simple Regression

- Introduction to Data Analysis Logic
- Testing two groups on their means and proportions
- Profiling two groups in one single chart
- Testing multiple groups on their means and proportions
- Profiling multiple groups in one single chart
- Simple regression
- Regression vs. Correlation
- Sensitivity analysis of quantitative variables

Multiple and Logistic Regressions

- Introduction to Machine Learning
- The Gradient Descent logic
- Multiple Regression vs. Simple Regression
- Variability analysis for estimations
- Dummy variables
- Similarities and differences between Logistic and Multiple regressions
- Simplifying complex models
- Stepwise regression

Discriminant Analysis

- Optimized Profiling
- Two-Group Discriminant Function
- Attribution of Cases
- Model Evaluation
- Classification Functions
- Mahalanobis Squared Distances

Decision Trees

- What are Decision Trees?
- Binary Trees
- Quality of a Decision Tree
- Rules of pruning
- CART: Classification Tree
- CART: Regression Tree

Nearest Neighbor, Bayesian, Neural Network and Deep Learning

- Conditional probabilities
- Prediction by probabilities
- Distance from neighbors
- K nearest distances from neighbors
- Weights in a Neural Network model
- Hidden layers role
- Neural Network pros and cons
- Deep Learning
- Introduction to Big Data

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