Arabian Institute For Training

Applied Data Analysis Masterclass Visualization, Statistics and Advanced Programs

Why Attend

- Effective data analysis starts with good data collection and/or selection. Conducting this requires good comprehension of all data types and their multiple sources. Furthermore, structuring that properly allows the ease of its visualization under different charts and describes all the results with adequate and efficient descriptive statistics measures.
- This course starts with key points in designing a smart data collection process, sampling best approach, validating the quality of the information stored for analysis, and understanding all the visualization possibilities and their corresponding descriptive statistical KPIs. Moreover, this course explores all techniques and tools for comprehensive data analysis, prior to kicking off any work or even a career in the world of data. The course also serves as a primer to any Machine Learning course/program.
- In addition, this course is designed to make participants have a clear and complete understanding of data structuring for efficient data analysis, of profiling different groups scientifically by analyzing data smartly and efficiently, and of appropriately manipulating several technology tools now in the market.

Course Methodology

- Each statistical tool or methodology used during the course is supported by its own case study with step by step outputs that go in parallel with multi stage analysis.
- In addition to group discussions, all analysis tools are detailed and demonstrated with sequential screen shot applications on comparative technologies (EXCEL – STATISTICA and SAS – R and Python).

Course Objectives

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

- Comprehend and plan the lifecycle of a good data analysis project
- Translate any business into a comprehensive database
- Evaluate data quality for analysis and reporting
- Describe and interpret data basics with complete descriptive statistics
- Explore the complete story behind data analysis

Target Audience

- Applied Data Analysis is the foundation for all Machine Learning and Artificial Intelligence (AI) practitioners. It is prerequisite knowledge that is applicable in all industries and data related functions.

Target Competencies

- Project Design
- Findings Visualization
- Data Analysis
- Problem Solving using analytical tools

Data visualization and descriptive statistics

- The different types of Data
- Data sources
- Data
- Variables
- Data visualization
- Pies, Doughnuts, Bars
- Histograms, Lines, Scatter plots
- Heat maps and Tuckey boxes
- Geographical maps
- Central tendency measurements
- Average
- Median
- Mode
- Scatter tendency measurements
- Quartile
- Variance
- Standard deviation
- Estimations
- Punctual

Comparing two groups

- Two mean test
- Equal variances (t-test)
- Unequal variances (t-test – Welch correction)
- Two variance test (F-Test)
- Two proportion test (Chi Square test)
- Two distribution test (Chi Square test)
- Attraction – Repulsion Matrix
- Vertical and horizontal profiling

Comparing multiple groups

- Multiple mean test
- Equal variances (F-Test and ANOVA Table)
- Unequal variances (F-Test – Welch Correction)
- Multiple Variance test
- Levene test
- Chi Square test
- Multiple proportion test (Chi Square test)
- Multiple distribution test (Chi Square test)
- Attraction – Repulsion Matrix
- Vertical and horizontal profiling
- Mean pair comparisons methods:
- General
- Bonferroni
- Tukey - Kramer

Simple regressions

- Simple linear regression
- Line equation
- Testing the regression line validity (t-nullity test)
- R vs. R Square interpretation
- ANOVA table analysis
- Simple logistic regression
- Probabilistic model
- Testing the model validity (Chi Square test)
- Predicting classification
- Odds ratio interpretation

Data analysis project best practices

- Data analysis project best practices
- Ask
- Design
- Preview
- Analyze
- Communicate
- Sampling methods
- Random and systematic
- Multilevel, stratified and cluster
- Convenient, quota and judgmental
- PMP for research projects overview
- Integration, cost, scope, time, cost, quality, communication
- Risk, procurement and stakeholders

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