

€ TRAINING

Data Mining Essentials



1 - 5 September 2024
Dubai (UAE)



Data Mining Essentials

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Introduction:

In today's business and research landscape, data mining and analysis are pivotal for deriving actionable insights and facilitating informed decision-making. With vast data available, extracting valuable information becomes paramount. Data mining techniques unveil hidden patterns, trends, and correlations, empowering stakeholders to optimize processes, identify opportunities, and mitigate risks.

Program Objectives:

By the end of this program, participants will be able to:

- Master fundamental data mining concepts and techniques.
- Develop proficiency in various data analysis methods and tools.
- Understand data preprocessing, transformation, and cleaning processes.
- Apply statistical techniques and machine learning algorithms for analysis.
- Gain expertise in interpreting and visualizing data mining results.
- Apply data mining techniques to real-world datasets and scenarios.

Targeted Audience:

- Data analysts and scientists.
- Business intelligence professionals.
- Researchers and academics.
- Industry professionals.
- Employees from various sectors.

Program Outlines:

Unit 1.

Introduction to Data Mining:

- Overview of data mining concepts and techniques.

- Explanation of data mining process steps.
- Introduction to data preprocessing and cleaning.
- Understanding different types of data mining algorithms.
- Practical examples of data mining applications.

Unit 2.

Data Preprocessing and Transformation:

- Exploring methods for data cleaning and handling missing values.
- Techniques for data transformation and normalization.
- Understanding feature engineering and selection.
- Exploring dimensionality reduction methods.
- Implementing preprocessing techniques using software tools.

Unit 3.

Statistical Analysis for Data Mining:

- Introduction to statistical concepts relevant to data mining.
- Exploring descriptive statistics and probability distributions.
- Understanding hypothesis testing and statistical inference.
- Learning regression analysis techniques.
- Applying statistical analysis methods to real-world datasets.

Unit 4.

Machine Learning Algorithms:

- Overview of machine learning concepts and algorithms.
- Understanding supervised, unsupervised, and semi-supervised learning.
- Exploring classification and regression algorithms.
- Learning clustering and association rule mining techniques.
- Practical examples of machine learning applications.

Unit 5.

Data Visualization and Interpretation:

- Importance of data visualization in data mining.
- Exploring different types of data visualization techniques.
- Understanding best practices for effective data visualization.
- Interpreting data mining results through visualization.
- Hands-on exercises in creating visualizations using software tools.