

Deepdive into Machine Learning Using Autonomous Database

Course outline:

Using Statistical Functions

- An overview of statistical functions
- List the advantages of performing statistical functions inside the database
- Explain the descriptive statistics supported inside the database
- Describe hypothesis testing and work through some examples
- Describe correlation analysis and work through some examples
- Describe cross-tabulations and work through some examples

Classification Model

- Overview of classification modeling
- Describe the testing of a classification model
- Describe biasing a classification model
- List the types of classification algorithms (Decision Tree, Naive Bayes,

Generalized Linear Models, Random Forest, Support Vector Machines, Neural Network, MSET-SPRT, XGBoost)

Regression

- Describe regression modeling
- Describe the testing of a regression model
- List the types of regression algorithms (Generalized Linear Models, Neural Network,

Support Vector Machines)

Using Attribute Importance

- Overview of attribute importance
- List the types of attribute importance algorithms (Minimum Description Length,

Principal Comp Analysis, CUR matrix decomposition)

Implementing Anomaly Detection

- Describe anomaly detection
- Explain the anomaly detection algorithm (One-Class Support Vector Machines)
- Discuss and recognize applicable use cases

Using Clustering

- Describe clustering
- Explain hierarchical clustering
- Discuss how to evaluate a clustering model
- List the types of clustering algorithms (Expectation Maximization, k-Means,

Orthogonal Partitioning Clustering)

Association Rules

- Describe association rules
- Explain transactional data
- Discuss the Apriori algorithm, a type of association algorithm

Using Feature Selection and Extraction

- Describe feature selection
- Describe feature extraction
- List the types of feature extraction algorithms:

Explicit Semantic Analysis

Non-Negative Matrix Factorization

Singular Value Decomposition

Prediction Component Analysis

Using Time Series

- Describe time series
- Select a time series model
- Explain time series statistics
- Discuss Exponential Smoothing, a type of time series algorithm