

DATA MINING SYLLABUS

Module 1: Data Warehousing

- Introduction to Data Warehousing
- Data Warehouse Models
- Data Warehouse Architecture
 - Three-Tier Data Warehouse Architecture
- Data Warehouse Modeling
 - Data Cube and OLAP
 - Star Schema
 - Snowflake Schema

Module 2: Introduction to Data Mining

- Introduction to Data Mining
- Data Mining Functionalities
- Steps in the Data Mining Process
- Classification of Data Mining Systems
- Major Issues in Data Mining

Module 3: Data Preprocessing

- Data Preprocessing Overview
- Data Cleaning
- Data Integration
- Data Reduction
- Data Transformation

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Module 4: Frequent Pattern Mining

- Frequent Pattern Mining: Basic Concepts and Road Map
- Efficient and Scalable Frequent Itemset Mining Methods
 - Apriori Algorithm
 - FP-Growth Algorithm
- Mining Frequent Itemsets Using Vertical Data Format

Module 5: Classification Techniques

- General Approach to Classification
- Bayes Classification Methods
- Model Evaluation and Selection
- Techniques to Improve Classification Accuracy
- Advanced Classification Methods
 - Bayesian Belief Networks
 - Lazy Learners

Module 6: Cluster Analysis

- Types of Data in Cluster Analysis
- Partitioning Methods
- K-Medoid Clustering
- Density-Based Methods
- Grid-Based Methods
- Outlier Analysis

Module 7: Data Mining Trends and Research Frontiers

- Overview of Web Mining
- Temporal and Spatial Mining
- Other Methodologies of Data Mining
 - Statistical Data Mining
- Data Mining Applications