AIT 313$_{(ELECTIVE-I)}$ DATA WAREHOUSE AND DATA MINING IN AGRICULTURE 3(2+1)

Objective(s)

This course benefits the students to comprehend the overall architecture of a data warehouse and techniques and methods for data congregation and data preprocessing using OLAP tools. The dissimilar data mining models and techniques will be deliberated in this course. Data mining and data warehousing applications in bioinformatics will also be explored.

UNIT I

Introduction

What is data warehousing and data mining, A Multi-dimensional data model, Multi-dimensional Data Cubes, Star, Star Flakes, & Fact Constellation Schema, Concept Hierarchies, OLAP

UNIT II

Data Warehouse Architecture

Steps for design and construction of data warehouse, 3-tier data warehouse architecture, ROLAP, MOLAP, HOLAP, Data Pre-Processing, Overview, Need for pre-processing Issues related to efficient data handling (Extraction, Transformation, and updating of large databases Data Cleaning Data Integration & Transformation Data Reduction Discretization & Concept Hierarchy Generation

UNIT III

Data mining Primitives, Language, & System Architecture

What defines a data mining task? A data mining Query Language, Architecture of a Data mining System

UNIT IV

Mining frequent patterns and associations, efficient and scalable frequent item set mining methods. Multi-level association rules, association mining and correlation analysis, constraint-based association rules.

UNIT V

Classification and prediction - basic concepts, decision tree, Bayesian classification, rule-based classification. Prediction. Cluster analysis - basic concepts, types of data in cluster analysis. Case Studies related to Data Mining in Agriculture.

Reference Book(s):

1. Han, J., Kamber, M.: Data Mining: Concepts and Techniques. Second Edition. Elsevier Inc.
2. Dunham, M.H.: Data Mining. Introductory and Advanced Topics. Pearson Education

Practical(s)

1. To perform various commands given in PL/SQL in Oracle 8.0(For brushing up.)
2. To perform multi-dimensional data model using SQL queries. With Cube
3. JAVA FILE HANDLUING Programmed
4. Java database
5. Java program for data extraction
6. Java program for data cleaning
7. Java program for data transformation
8. To perform data mining using Weka mining tool.
9. Various Data Mining Experiments like Apriori etc.
10. To perform data mining using Orange mining tool.