Teacher's Name: - Dr. Sudhkar T
Faculty Seating: - 38-603-CH12

CAP446:DATA WAREHOUSING AND DATA MINING

L:3 T:0 P:0 Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: understand data warehouse concepts, architecture and data mining

CO2 :: apply different data preprocessing tasks on data

CO3 :: apply data mining methodologies for finding hidden and interesting patterns in data

CO4 :: analyze data using various supervised and unsupervised learning techniques

Unit I

Data warehousing and online analytical processing : Basic concepts, Data warehouse modeling: data cube and OLAP, Data warehouse design and usage, Data warehouse implementation

Unit II

Introduction to data mining : Basic concepts of data mining, Different types of data repositories, data mining functionalities, Concept of interesting patterns, Data mining tasks, Current trends, Major issues and ethics in data mining

Unit III

Data Preprocessing : Data cleaning, Data integration and transformation, Data reduction, Discretization and concept hierarchy generation

Unit IV

Association and correlation analysis : Basic concepts of frequent pattern and association rule, Frequent itemset generation with Apriori algorithm and FP Growth algorithm, Rule generation, Applications of association rules

Unit V

Clustering algorithms and cluster analysis : Measures of similarity, K means partitioning method, k medoids method, CLARANS method, Agglomerative and divisive clustering hierarchical method, BIRCH method, Density based methods, Cluster evaluation, Outlier detection and analysis

Unit VI

Classification : Basic concepts of binary classification, Bayes theorem and Naive Bayes classifier, Association based classification, Rule based classifiers, Nearest neighbour classifiers, Decision Trees, Random Forest, Model overfitting, Cross validation

Text Books:

1. DATA MINING: CONCEPTS AND TECHNIQUES by JAWEI HAN, MICHELINE KAMBER AND JIAN PE, MORGAN KAUFMANN

References:

1. INTRODUCTION TO DATA MINING by PANG-NING TAN , MICHAEL STEINBACH , VIPIN KUMAR, PEARSON