Department of Artificial Intelligence & Data Science

III Year V Semester

5AID3-01: Data Mining-Concepts and Techniques

Note: Each assignment of Maximum Marks 10.All question carries equal marks.

ASSIGNMENT-I

Q1 What are the primary functionalities of data mining?	BLT-2	CO-1
Q2 Outline the steps involved in the data mining process.	BLT-2	CO-1
Q3 Differentiate between data cleaning and data transformation in the context of data preprocessing**.**	BLT-1	CO-1
Q4 Explain the concept of data discretization and why it is important in data analysis.	BLT-2	CO-1
Q5 What are some major issues or challenges encountered in data mining projects?	BLT-3	CO-1

ASSIGNMENT-II

Q1 Describe the general approach to classification in predictive modeling.	BLT-6	CO-2
Q2 Explain how decision tree induction works and provide an example scenario where it could be used.	BLT-2	CO-2
Q3 What are Bayesian classification methods, and what are their advantages in predictive modeling?	BLT-1	CO-2
Q4 Discuss the concept of Support Vector Machines (SVMs) and when they are typically preferred over other classification methods.	BLT-2	CO-2
Q5 What distinguishes "lazy learner" algorithms from other classification approaches, and give an example of a lazy learner algorithm used in practice.	BLT-2	CO-2

ASSIGNMENT-III

Q1 What are the different types of data commonly used in cluster analysis, and how do they affect the clustering process?	BLT-2	CO-3
Q2 Explain the basic idea behind partitioning methods in cluster analysis and provide an example of a popular partitioning algorithm.	BLT-2	CO-3
Q3 Describe how hierarchical methods work in cluster analysis and discuss their advantages compared to partitioning methods.	BLT-2	CO-3
Q4 What is probabilistic model-based clustering, and in what scenarios is it particularly useful?	BLT-1	CO-3
Q5 Discuss the challenges and techniques involved in clustering high-dimensional data.	BLT-2	CO-3

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ASSIGNMENT-IV

Q1 What are the basic concepts in frequent pattern mining, and why is it important in data analysis?	BLT-2	CO-4
Q2 Explain the Apriori algorithm and its steps for mining frequent itemsets.	BLT-2	CO-4
Q3Describe the FP-Growth algorithm and discuss how it overcomes some limitations of the Apriori algorithm.	BLT-2	CO-4
Q4 What is the vertical data format, and how does it facilitate efficient mining of frequent itemsets?	BLT-1	CO-4
Q5 Differentiate between closed and maximal patterns in frequent itemset mining.	BLT-2	CO-4

ASSIGNMENT-V

Q1 What are the methodologies and key challenges involved in Web mining? Provide an example of how Web mining is applied in practice.	BLT-1	CO-5
Q2 Explain the concept of temporal mining and provide a real-world scenario where temporal mining techniques are beneficial.	BLT-1	CO-5
Q3 Describe the objectives and techniques used in spatial mining. How does spatial mining 12differ from traditional data mining approaches?	BLT-2	CO-5
Q4 What role does statistical data mining play in extracting insights from data, and how is it applied in different domains?	BLT-2	CO-5
Q5 Discuss the significance of visual and audio data mining. Provide examples of applications where visual or audio data mining techniques are particularly effective.	BLT-4	CO-5

*BLT: BLT shows the **Bloom's taxonomy** levels.