D Y PATIL UNIVERSITY — RAMRAO ADIK INSTITUTE OF TECHNOLOGY NAVI MUMBAI

26 NOV 2024

RAMRAO ADIK INSTITUTE OF TECHNOLOGY, NERUL

(D Y Patil Deemed to be University)

Program: B.Tech Computer Engineering
End Semester Examination: B.Tech. Semester VI
Course Code: CECDLO6032 Course Name:Data Warehousing and Mining
Time: 2 hour
Max. Marks: 60

Instructions: 1. Allthree questions are compulsory

Que. No.	Question	Max. Marks	CO	BT
Q1	Solve any **Four**			
i)	Describe the characteristics that define a data warehouse?	5	CO1	BT2
ii)	What are the common data loading techniques used in data warehousing?	5	CO2	BT1
iii)	Discuss key issues of Data Mining.	5	CO3	BT3
iv)	Explain Market Basket Analysis with an example.	5	CO4	BT2
v)	How do classification and clustering tasks differ from each other?	5	CO5	BT3
vi)	Write short notes on web usage mining.	5	CO6	BT3

Que. No.	Question	Max. Marks	CO	BT
Q2 A	Solve any **Two**			
i)	Illustrate the process of multilevel association rule mining using a relevant example?	5	CO4	BT2
ii)	Use K-means algorithm to create 3 clusters for given data set of values :{2,3,6,8,9,12,15,18,22}	5	CO5	BT5
iii)	Design snowflake schema for company sales with three dimensions such as Location, Item and Time.	5	CO2	BT6
iv)	Write short notes on Factless Fact table.	5	CO1	BT2
Q 2 B	Solve any **One**			
i)	The college wants to record the marks for the courses completed by the students using the dimensions: (i) Course (ii) Student (iii) Time and a measure of Aggregate marks. Create a Cube and describe following OLAP operations Slice,Dice,Roll-up,Drill-down and Pivot .	10	CO2	BT5
ii)	Use Complete linkage algorithm to find the clusters from the following dataset. X: 4, 8, 15, 24, 24 Y: 4, 4, 8, 4, 12	10	CO5	BT6

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<table>
<tr><th>Que. No.</th><th>Question</th><th>Max. Marks</th><th>CO</th><th>BT</th></tr>
<tr><td>Q3</td><td>Solve any Two</td><td></td><td></td><td></td></tr>
<tr><td>i)</td><td>Transactions consist of a set of items I= {a,b,c….} with min support = 3
<table>
<tr><td>TID</td><td>Items Bought</td></tr>
<tr><td>1</td><td>f,a,c,d,g,i,m,p</td></tr>
<tr><td>2</td><td>a,b,c,f,l,m,o</td></tr>
<tr><td>3</td><td>b,f,h,j,o</td></tr>
<tr><td>4</td><td>b,c,k,s,p</td></tr>
<tr><td>5</td><td>a,f,c,e,l,p,m,n</td></tr>
</table>
Generate FP-Tree for the above transactions.</td><td>10</td><td>CO4</td><td>BT6</td></tr>
<tr><td>ii)</td><td>What is Web Structure mining? Explain its techniques.</td><td>10</td><td>CO6</td><td>BT2</td></tr>
<tr><td>iii)</td><td>Find the root of classification model using decision tree and using the following training data set based on “Own House”.
<table>
<tr><td>Tid</td><td>Income</td><td>Age</td><td>Own House</td></tr>
<tr><td>1</td><td>Very High</td><td>Young</td><td>Yes</td></tr>
<tr><td>2</td><td>High</td><td>Medium</td><td>Yes</td></tr>
<tr><td>3</td><td>Low</td><td>Young</td><td>Rented</td></tr>
<tr><td>4</td><td>High</td><td>Medium</td><td>Yes</td></tr>
<tr><td>5</td><td>Very High</td><td>Medium</td><td>Yes</td></tr>
<tr><td>6</td><td>Medium</td><td>Young</td><td>Yes</td></tr>
<tr><td>7</td><td>High</td><td>Old</td><td>Yes</td></tr>
<tr><td>8</td><td>Medium</td><td>Medium</td><td>Rented</td></tr>
<tr><td>9</td><td>Low</td><td>Medium</td><td>Rented</td></tr>
<tr><td>10</td><td>Low</td><td>Old</td><td>Rented</td></tr>
<tr><td>11</td><td>High</td><td>Young</td><td>Yes</td></tr>
<tr><td>12</td><td>Medium</td><td>Old</td><td>Rented</td></tr>
</table></td><td>10</td><td>CO5</td><td>BT6</td></tr>
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Course Outcomes (CO) -Learner will be able to:

CO1: Understand Data Warehouse fundamentals withdimensional modelling
CO2: Understand OLAP operations in MultidimensionalData Model
CO3: Understand Data Mining and Data Pre-processingsteps.
CO4: Explore frequent patterns and Association miningalgorithms.
CO5: Apply various classification and clusteringtechniques on real world scenario.
CO6: Describes social network in Web Mining and applyweb mining algorithm.

BT1- Remembering, BT2- Understanding, BT3- Applying, BT4- Analyzing, BT5- Evaluating, BT6- Creating