**Practical Plan**

**Branch: Computer Engineering**

**Semester: V Year: 2023-24**

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| Course Title:Data Warehouse and Mining (CSL503) | SEE: 2 Hours – Practical |
| Total Contact Hours: 20 Hours |  |
| Practical Plan Author: Prof. KRANTI WAGLE | Date:  |
| Checked By: | Date: |

**Prerequisites:** Computer Networks

**Course Outcomes (CO):**

On successful completion of course learner will be able to:

**CSL503.1. Design data warehouse and perform various OLAP operations.**

**CSL503.2. Implement data mining algorithms like classification.**

**CSL503.3. Implement clustering algorithms on a given set of data sample.**

**CSL503.4. Implement Association rule mining & web mining algorithm.**

**CO-PO Mapping:** (BL – Blooms Taxonomy, C – Competency, PI – Performance Indicator)

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| --- | --- | --- | --- | --- | --- |
| CO | BL | C | PI | PO | Mapping |
| **CSL503.1.**  | 3,4,5 | 1.4 | 1.4.1 | PO1 | 3 |
|  |  |  |  |
| 2.1 | 2.1.2 | PO2 | 3 |
| 2.2 | 2.2.4 | PO2 |  |
| 3.2 | 3.2.2 | PO3 | 3 |
|  |  | 3.3 | 3.3.1 |  |  |
|  |  | 5.2 | 5.2.2 | PO5 | 3 |
|  |  | 9.2 | 9.2.3 | PO9 | 3 |
|  |  | 10.1 | 10.1.1 | PO10 | 3 |
|  |  | 11.3 | 11.3.1 | PO11 | 3 |
|  |  | 12.2 | 12.2.1 | PO12 | 3 |
| **CSL503.2** | 3,4,5 | 1.4 | 1.4.1 | PO1 | 3 |
| 2.1 | 2.1.2 | PO2 | 3 |
| 2.2 | 2.2.4 |  |  |
| 2.4 | 2.4.2 |  |  |
| 3.2 | 3.2.2 | PO3 | 3 |
|  |  | 3.3 | 3.3.1 |  |  |
|   |  | 4.1 | 4.1.1 | PO4 | 3 |
|  |  |  | 4.1.2 |  |  |
|  |  | 4.3 | 4.3.2 |  |  |
|  |  |  | 4.3.3 |  |  |
|  |  |  | 4.3.4 |  |  |
|  |  | 5.2 | 5.2.2 | PO5 | 3 |
|  |  | 9.2 | 9.2.3 | PO9 | 3 |
|  |  | 10.1 | 10.1.1 | PO10 | 3 |
|  |  | 11.3 | 11.3.1 | PO11 | 3 |
|  |  | 12.2 | 12.2.1 | PO12 | 3 |
| **CSL503.3** | 3,4,5 | 1.4 | 1.4.1 | PO1 | 3 |
| 2.1 | 2.1.2 | PO2 | 2 |
| 2.2 | 2.2.4 | PO2 |  |
| 2.4 | 2.4.2 |  | 3 |
| 3.2 | 3.2.2 | PO3 | 3 |
| 3.3 | 3.3.1 |  |  |
| 4.1 | 4.1.1 | PO4 | 3 |
|  | 4.1.2 |  |  |
| 4.3 | 4.3.2 |  |  |
|  | 4.3.3 |  |  |
|  | 4.3.4 |  |  |
| 5.2 | 5.2.2 | PO5 | 3 |
|  |  | 9.2 | 9.2.3 | PO9 | 3 |
|  |  | 10.1 | 10.1.1 | PO10 | 2 |
|  |  | 11.3 | 11.3.1 | PO11 | 2 |
|  |  | 12.2 | 12.2.1 | P012 | 3 |
| **CSL503.4** | 3,4,5 | 1.4 | 1.4.1 | PO1 | 3 |
|  |  | 2.1 | 2.1.2 | PO2 | 2 |
|  |  | 2.2 | 2.2.4 | PO2 |  |
|  |  | 2.4 | 2.4.2 |  | 3 |
|  |  | 3.2 | 3.2.2 | PO3 | 3 |
|  |  | 3.3 | 3.3.1 |  |  |
|  |  | 4.1 | 4.1.1 | PO4 | 3 |
|  |  |  | 4.1.2 |  |  |
|  |  | 4.3 | 4.3.2 |  |  |
|  |  |  | 4.3.3 |  |  |
|  |  |  | 4.3.4 |  |  |
|  |  | 5.2 | 5.2.2 | PO5 | 3 |
|  |  | 9.2 | 9.2.3 | PO9 | 2 |
|  |  | 10.1 | 10.1.1 | PO10 | 2 |
|  |  | 11.3 | 11.3.1 | PO11 | 2 |
|  |  | 12.2 | 12.2.1 | P012 | 3 |
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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CSL503.1** | 2 | 3 | 3 |  | 1 |  |  |  | 2 | 2 | 2 | 3 |
| **CSL503.2** | 2 | 3 | 3 | 3 | 3 |  |  |  | 2 | 2 | 2 | 3 |
| **CSL503.3** | 2 | 3 | 3 | 3 | 3 |  |  |  | 2 | 2 | 2 | 3 |
| **CSL503.4** | 2 | 3 | 3 | 3 | 3 |  |  |  | 2 | 2 | 2 | 3 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

**CO-PSO Mapping:**

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| **CO** | **BL** | **C** | **PI** | **PSO** | **Mapping** |
| **CSL503.2** | 3,4,5 | 1.1 | 1.1.3 | PSO1 | 3 |
|  |  | 1.2 | 1.2.3 | PSO1 |  |
|  |  | 1.4 | 1.4.1 | PSO1 |  |
|  |  |  | 1.4.2 | PSO1 |  |
| **CSL503.3** | 3,4,5 | 1.1 | 1.1.3 | PSO1 | 3 |
|  |  | 1.2 | 1.2.3 | PSO1 |  |
|  |  | 1.4 | 1.4.1 | PSO1 |  |
|  |  |  | 1.4.2 | PSO1 |  |
| **CSL503.4** | 3,4,5 | 1.1 | 1.1.3 | PSO1 | 3 |
|  |  | 1.2 | 1.2.3 | PSO1 |  |
|  |  | 1.4 | 1.4.1 | PSO1 |  |
|  |  |  | 1.4.2 | PSO1 |  |
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| --- | --- | --- |
|  | PSO1 | PSO2 |
| **CSL503.1** | 2 |  |
| **CSL503.2** | 3 | 3 |
| **CSL503.3** | 3 | 2 |
| **CSL503.4** | 3 | 3 |

**CO Measurement Weightages for Tools:**

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| ***Course Outcomes*** | ***Indirect Method (20%)*** |
| Lab Performance | Assignments/Post Lab Questions | End Sem Practical /Viva Exam | Course exit survey |
| **CSL503.1** | 40% | 10% | 50% | 100% |
| **CSL503.2** | 40% | 10% | 50% | 100% |
| **CSL503.3** | 40% | 10% | 50% | 100% |
| **CSL503.4** | 40% | 10% | 50% | 100% |

**Attainment:**

**CO CSL503.1:**

Direct Method

$$A\_{CSL503.1D}=0.4\*Lab Performance+0.1\*Assignment/Post Lab+0.5\*SEE\\_TW$$

Final Attainment:

$$A\_{CSL503.1}=0.8\*A\_{CSL503.1D}+0.2\*A\_{CSL503.1I}$$

**CO CSL503.2:**

Direct Method

$$A\_{CSL503.2D}=0.4\*Lab Performance+0.1\*Assignment/Post Lab+0.5\*SEE\\_TW$$

Final Attainment:

$$A\_{CSL503.2}=0.8\*A\_{CSL503.2D}+0.2\*A\_{CSL503.2I}$$

**CO CSL503.3:**

Direct Method

$$A\_{CSL503.3D}=0.4\*Lab Performance+0.1\*Assignment/Post Lab+0.5\*SEE\\_TW$$

Final Attainment:

$$A\_{CSL503.3}=0.8\*A\_{CSL503.3D}+0.2\*A\_{CSL503.3I}$$

**CO CSL503.4**

Direct Method

$$A\_{CSL503.4D}=0.4\*Lab Performance+0.1\*Assignment/Post Lab+0.5\*SEE\\_TW$$

Final Attainment:

$$A\_{CSL503.4}=0.8\*A\_{CSL503.4D}+0.2\*A\_{CSL503.4I}$$

***Practical Session Plan***

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| --- | --- | --- |
| ***Batch*** | ***Dates*** | ***Remarks*** |
| ***Planned*** | ***Actual*** |
| ***Experiment No. 1*** Build Data Warehouse/Data Mart for a given problem statement |
| A | 3/8/22 | 3/8/22 |  |
| B | 5/8/22 | 5/8/22 |  |
| C | 4/8/22 | 4/8/22 |  |
| D | 2/8/22 | 2/8/22 |  |
| ***Experiment No. 2*** To perform various OLAP operations such as slice, dice, drilldown, rollup, pivot |
| A | 17/8/22 | 17/8/22 |  |
| B | 12/8/22 | 12/8/22 |  |
| C | 18/8/22 | 18/8/22 |  |
| D | 23/8/22 | 23/8/22 |  |
| ***Experiment No. 3***To perform data exploration and data cleaning in python /R |
| A | 24/8/22 | 24/8/22 |  |
| B | 26/8/22 | 26/8/22 |  |
| C | 25/8/22 | 25/8/22 |  |
| D | 30/8/22 | 30/8/22 |  |
| ***Experiment No. 4*** Implementation of Association Rule Mining algorithm (Apriori) |
| A | 14/9/22 | 14/9/22 |  |
| B | 16/9/22 | 16/9/22 |  |
| C | 8/9/22 | 8/9/22 |  |
| D | 30/8/22 | 30/8/22 |  |
| ***Experiment No.5*** Implementation of Clustering algorithm (K-means/K-medoids) |
| A | 21/9/22 | 21/9/22 |  |
| B | 23/9/22 | 23/9/22 |  |
| C | 15/9/22 | 15/9/22 | Students were absent |
| D | 13/9/22 | 13/9/22 |  |
| ***Experiment No. 6***Linear Regression |
| A | 28/9/22 | 28/9/22 |  |
| B | 30/9/22 | 30/9/22 |  |
| C | 22/9/22 | 22/9/22 |  |
| D | 20/9/22 | 20/9/22 |  |
| ***Experiment No. 7******Hierarchial clustering***Implementation of Salt and Pepper password protection technique. |
| A | 28/9/22 | 28/9/22 |  |
| B | 30/9/22 | 30/9/22 |  |
| C | 29/9/22 | 29/9/22 |  |
| D | 27/9/22 | 27/9/22 |  |
| ***Experiment No. 8*** Implementation of Bayesian algorithm |
| A | 12/10/22 | 12/10/22 |  |
| B | 7/10/22 | 7/10/22 |  |
| C | 6/10/22 | 6/10/22 |  |
| D | 4/10/22 | 4/10/22 |  |
| ***Experiment No. 9***Perform data Pre-processing task and Demonstrate performing Classification, Clustering, Association algorithm on data sets using data mining tool (WEKA/R tool) |
| A | 12/10/22 | 12/10/22 |  |
| B | 7/10/22 | 7/10/22 |  |
| C | 13/10/22 | 13/10/22 |  |
| D | 13/10/22 | 13/10/22 |  |
| ***Experiment No. 10***Implementation of Page rank/HITS algorithm |
| A | 20/10/22 | 20/10/22 |  |
| B | 14/10/22 | 14/10/22 |  |
| C | 20/10/22 | 20/10/22 |  |
| D | 11/10/22 | 11/10/22 |  |
| ***Experiment No. 11*** |
| Text Summarisation |
| A | 21/10/22 | 21/10/22 |  |
| B | 21/10/22 | 21/10/22 |  |
| C |  |  |  |
| D | 18/10/22 | 18/10/22 |  |
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| Verified by:  |  |
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| Programme Coordinator | Subject Expert |