Vivekanand Education Society's
Institute of Technology
Approved by AICTE & Affiliated to University of Mumbai

AI and Data Science Department

Lab Plan

Year: 2023-24

Lab Code: ADL402	**Year/ Semester:** S.E.(AI and DS)/ Sem IV
Name Of the Lab: Database Management System Lab	**Class:** D6AD/A/B
Lab Teacher: Mrs. Bhavana Chaudhari, Mrs. Himanshi Jiwatramani	**Subject Teacher:** Mrs. Bhavana Chaudhari, Mrs. Himanshi Jiwatramani
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Prerequisite: Discrete Structures

Objectives:

Lab Objectives:

	Description
1	To explore design and develop of relational model
2	To present SQL and procedural interfaces to SQL comprehensively
3	To introduce the concepts of transactions and transaction processing

Lab Outcome:

LO	Description
LO 1	Design ER /EER diagram and convert to relational model for the realworld application.
LO 2	Apply DDL, DML, DCL and TCL commands
LO 3	Write simple and complex queries
LO 4	UsePL / SQL Constructs.
LO 5	Demonstrate the concept of concurrent transactions execution and frontend-backend

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List of PO's are as follows:

PO	Description
PO1	**Basic Engineering knowledge**: An ability to apply the fundamental knowledge in mathematics, science and engineering to solve problems in Computer engineering.
PO2	**Problem analysis**: Identify, formulate, research literature and analyze computer engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and computer engineering and sciences.
PO3	**Design/ Development of Solutions:** Design solutions for complex computer engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
PO4	**Conduct investigations:** Conduct investigation of complex engineering problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
PO5	**Modern Tool Usage:** Create, select and apply appropriate techniques, resources and modern computer engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The Engineer and Society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to computer engineering practice.
PO7	**Environment and Sustainability:** Understand the impact of professional computer engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of computer engineering practice.
PO9	**Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
PO11	**Project Management and Finance:** Demonstrate knowledge and understanding of computer engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long Learning:** Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

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List of PSO's are as Follows:

PSO 1	**Professional Skills** - The ability to develop programs for computer based systems of varying complexity and domains using standard practices.
PSO 2	**Successful Career -** The ability to adopt skills, languages, environment and platforms for creating innovative career paths, being successful entrepreneurs or for pursuing higher studies.

LO/PO Mapping:

LO	PO1	PO2	PO3	PO4	PO5	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
LO1	1	3	2	1	1	1	2	1	1	2	2	1
LO2	-	3	3	2	2	1	2	1	2	3	2	2
LO3	-	3	3	2	2	1	2	1	2	3	1	3
LO4	-	2	2	1	2	-	1	1	-	1	-	2
LO5	1	3	2	2	2	1	2	1	1	3	1	2

Term Work & Practical Examination:

Assign a case study for group of 2/3 students.

The distribution of marks for term work is as follows:

· Programming Exercises: ……..…….(15) Marks.

· Assignment: …….(05) Marks.

· Attendance ……(05) Marks

Term Work Marks: ……. (25) Marks.

Practical and Oral Examination ……. (25) Marks.

List of Experiments:

Week	Lab Experiments	CO's	DOP	DOS	Grade
1	Identify the case study and detail **statement of problem** and draw **Entity-Relationship (ER) / Extended Entity-Relationship (EER)** Model Using Draw.io.	CO1			
2	Mapping **ER/EER to the Relational schema model and creating a schema diagram for your system.**	CO1			
3	Create a database using **Data Definition Language (DDL)** and apply required **Integrity Constraints** for the specified system.	CO1,CO2			
4	Populate database using **DML Commands** for your specified System.	CO2,CO3			
5	Perform **Simple queries, string manipulation operations.**	CO2,CO3			
6	Write **Nested queries using (in, not in some any exist not exist, with clause)**	CO2,CO3,O4			
7	Implement various types of **Joins and Views.**	CO2,CO5			
8	Demonstrate **DCL** and **TCL** commands.	CO1,CO3,05			
9	Implementation of **Functions and Stored Procedure** in PL-SQL.	CO3,CO5			
10	Implement different types **of triggers.**	CO5			
	Assignments				
1.	Assignment 1				

2.	Assignment 2				
3.	Presentation On Mini Project				
4.	Overall Grade				

Bloom's Taxonomy:-

Level	Descriptor	Level of Attainment
1	Remembering	Recalling from memory of previously learned material
2	Understanding	Explaining ideas or concepts
3	Applying	Using information in another familiar situation
4	Analyzing	Breaking information into part to explore understandings and relationships
5	Evaluating	Justifying decision or course of actions
6	Creating	Generating new ideas, products or new ways of viewing things

Software Tools used:

Oracle,PHP/JAVA

Textbooks:

1	Korth, Slberchatz, Sudarshan, Database System Concepts, 6thEdition, McGraw Hill
2	Elmasri and Navathe, Fundamentals of Database Systems, 5thEdition, Pearson Education
3	Raghu Ramkrishnan and Johannes Gehrke, Database Management Systems, TMH

Reference Books:

1	Peter Rob and Carlos Coronel, Database Systems Design, Implementation andManage-ment‖, Thomson Learning, 5thEdition.
2	Dr. P.S. Deshpande, SQL and PL/SQL for Oracle 10g, Black Book, Dreamtech Press.
3	G. K. Gupta, Database Management Systems, McGraw Hill, 2012

Web Resources:

1	https://nptel.ac.in/courses/106/105/106105175/
2	https://swayam.gov.in/nd1_noc19_cs46/preview
3	https://www.classcentral.com/course/swayam-database-management-system-9914
4	https://www.mooc-list.com/tags/dbms

Evaluation:

- Experiments are evaluated based on viva taken on experiments.
- Evaluation is based on following table:-

Range	Grade
80 and above	Outstanding (O)
75.00 – 79.99	Excellent (A)
70.00 – 74.99	Very Good (B)
60.00 – 69.99	Good (C)
50.00 – 59.99	Fair (D)
45.00 – 49.99	Average (E)
40.00 – 44.99	Pass (P)
Less than 40.00	Fail (F)

Program Execution	3
Documentation	3
Timely Checked	2
Viva	2
Total	10
Mini project Execution	3
Documentation	3
Timely Checked	2
Viva	2
Total	10

Name Of Lab Teacher: **Name of Subject Teacher: :**

Signature : **Signature :**