

Database Management Systems Lab

Course Objectives:

- This lab enables the students to practice the concepts learnt in the subject DBMS by developing a database.
- The student is expected to practice the designing, developing and querying a database.
- Students are expected to use “Mysql/Oracle” database.

Case Studies:

1. university database
2. online ticket booking system
3. library management systems

Week 1: E-R Model

Analyze the problem carefully and Identify the entities, attributes etc. Identify the primary keys for all the entities. Identify the other keys like candidate keys, partial keys

Concept design with E-R Model

Relate the entities appropriately. Apply cardinalities for each relationship. Identify strong entities and weak entities (if any). Indicate the type of relationships (total / partial). Try to incorporate generalization, aggregation, specialization etc wherever required.

Week 2: DDL and DML commands

In this week you are going to practice DDL commands, DML commands, Constraints and Data Query Language

Week 3: SQL Special operators

In this week you are going to practice Convert ER Diagrams into tables and SQL Special operators like, (in between, is null, not, exist, not Exists ANY, ALL, IN, set operators, Constraints etc.

Week 4: Aggregate functions

You are going to practice queries using Aggregate functions (COUNT, SUM, AVG, and MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.

Week 5: Functions In this week you are going to practice queries on String/Character, Date/Time Functions, Numeric Functions, Math Functions.

Week 6: SQL Joins

In this week you are going to practice queries on different Joins in SQL

Week 7: Sub Queries

In this week you are going to practice queries on Nested Queries, Correlated Sub Queries.

Week 8: DCL and TCL commands

In this week you are going to practice queries on DCL Commands, TCL Commands

Week 9: Sequences and views

In this week you are going to practice queries on Create sequences and views, Top N Analysis.

Week 10: Triggers

In this week you are going to work on Triggers. Creation of insert trigger, delete trigger, update trigger. Practice triggers using the above database.

Week 11: Procedures

In this session you are going to learn Creation of stored procedure, Execution of procedure and modification of procedure.

Week 12: Cursors

In this week you need to do the following: Declare a cursor that defines a result set. Open the cursor to establish the result set. Fetch the data into local variables as needed from the cursor, one row at a time. Close the cursor when done

Course Outcomes:

- Ability to design and implement a database schema for given problem.
- Apply the normalization techniques for development of application software to realistic problems.
- Ability to formulate queries using SQL DML/DDDL/DCL commands.

Suggested References:

1. “Fundamentals of Database Systems”, 5th Edition by R. Elmasri and S. Navathe, Pearson Education
2. Database System Concepts”, 6th Edition by Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw-Hill.