

**Database Management Systems Lab****Objectives:**

- To teach the student database design and query and PL/SQL.

**System/Software Requirements:**

- Intel based desktop PC
- Mysql /Oracle latest version Recommended

**PROGRAMS LIST:**

- 1) Creation, altering and dropping of tables and inserting rows into a table (use constraints while creating tables) examples using SELECT command.
- 2) Queries (along with sub Queries) using ANY, ALL, IN, EXISTS, NOTEXISTS, UNION, INTERSET, Constraints.  
Example:- Select the roll number and name of the student who secured fourth rank in the class.
- 3) Queries using Aggregate functions (COUNT, SUM, AVG, MAX and MIN), GROUP BY, HAVING and Creation and dropping of Views.
- 4) Queries using Conversion functions (to\_char, to\_number and to\_date), string functions (Concatenation, lpad, rpad, ltrim, rtrim, lower, upper, initcap, length, substr and instr), date functions (Sysdate, next\_day, add\_months, last\_day, months\_between, least, greatest, trunc, round, to\_char, to\_date)
- 5)
  - i) Creation of simple PL/SQL program which includes declaration section, executable section and exception –Handling section (Ex. Student marks can be selected from the table and printed for those who secured first class and an exception can be raised if no records were found)
  - ii) Insert data into student table and use COMMIT, ROLLBACK and SAVEPOINT in PL/SQL block.
- 6) Develop a program that includes the features NESTED IF, CASE and CASE expression. The program can be extended using the NULLIF and COALESCE functions.
- 7) Program development using WHILE LOOPS, numeric FOR LOOPS, nested loops using ERROR Handling, BUILT –IN Exceptions, USE defined Exceptions, RAISE- APPLICATION ERROR.
- 8) Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.
- 9) Program development using creation of stored functions, invoke functions in SQL Statements and write complex functions.
- 10) Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
- 11) Develop programs using features parameters in a CURSOR, FOR UPDATE CURSOR, WHERE CURRENT of clause and CURSOR variables.
- 12) Develop Programs using BEFORE and AFTER Triggers, Row and Statement Triggers and INSTEAD OF Triggers

**TEXT BOOKS :**

- 1) ORACLE PL/SQL by example. Benjamin Rosenzweig, Elena Silvestrova, Pearson Education 3rd Edition
- 2) ORACLE DATA BASE LOG PL/SQL Programming SCOTT URMAN, Tata Mc-Graw Hill.

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- 3) SQL & PL/SQL for Oracle 10g, Black Book, Dr.P.S. Deshpande.
- 4) Data Base Management System, Oracle SQL and PL/SQL, Pranab kumar Das Gupta, P Radha Krishna, PHI