ADBMS & OPERATING SYSTEMS LAB

Course code: 13CS2109 **L P C**
0 3 2

Pre requisites : DBMS , Windows and Unix O.S.

Course Educational Objectives:
To provide necessary operating system concepts like Disk scheduling paging, deadlock avoidance and concurrency techniques and various database management system mechanisms.

Course outcomes:
- Student will get understanding of the design aspects of operating system.
- Student will get exposure on usage of various operating systems.
- Student will get exposure on query processing mechanism in various database systems.
- Design modern operating system components, under realistic constraints and conditions, in such a way as to meet real life requirements.
- To present the concepts and techniques relating to query processing by SQL engines

Recommended Systems/Software Requirements:
Intel based desktop PC with minimum of 166 MHZ or faster processor with atleast 64 MB RAM and 100 MB free disk space JDK kit

Part – A
1.Simulate the following unix commands:
a)mv
b)cp
c)ls
(Use system calls)
2. Simulate the following CPU scheduling algorithms
a) Round Robin b) SJF c) FCFS d) Priority
3. Simulate all file allocation strategies
a) Sequential b) Indexed c) Linked

4. Simulate Bankers Algorithm for Dead Lock Avoidance
5. Simulate Bankers Algorithm for Dead Lock Prevention
6. Simulate all page replacement algorithms
   a) FIFO b) LRU c) LFU

Part-B

Aim: To teach the student logical database design and querying the database using SQL & PL/SQL.

Objective: Student will get knowledge of creating and maintaining tables of a database using SQL, handling all types of Queries, and writing all kinds of programming scripts in PL/SQL, transaction managements, creation of stored procedures, functions, cursors & triggers.

Recommended Systems/Software Requirements:

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

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.

13) Implementation of granting priviliges through DCL

14) SQL :1999 DDL and DML query operations on exemplary database.