

Mini Project: Database Management Systems

Subject Code	:CS353	CAT. Marks	: 50
Hours/Week	: 2.5	Exam Hours	: 03
Credits	: 04	End Sem Marks	: 50

Objectives:

A. Students must understand the details of SQL, PL-SQL, Stored Procedures, Cursors and Triggers used in building the complete System (application program).

B. Student should understand at introductory level, the basic principles of :

- i. Domain Analysis, Elaboration through Modeling and Implementation through state of the art technology available.
- ii. SE Principles: Modeling, Estimation, scheduling, Design standards and architectural issues, Coding Standards etc.
- iii. Writing generic and modular programs
- iv. Handling exceptional cases in providing reliable solutions.
- v. Testing and verification of programs for different scenarios
- vi. Proficiency in Design solution, Programming, project report writing and presentation

Contribution to Outcomes:

- i. Hands on experience on any industry popular RDBMS and Front End products. (PO→ D)
- ii. Solving real-time problems based on Design principles. (PO→ A, B & C)
- iii. Preparedness to study independently any other Domain, Technology and programming languages and apply to variety of real time

problem scenarios. (PO→
A,B,C,D,E & G,H)

Prerequisites:

Students must have the prerequisite knowledge on the following topics:

- i. Relational algebra
- ii. Set theory
- iii. Computer Programming Language
- iv. Data structure

Reference Books:

1.
Elmasri and Navathe:
Fundamentals of Database
Systems, 5th Edition,
Addison- Wesley, 2007
2.
Raghu Ramakrishnan and
Johannes Gehrke: Database
Management Systems, 3rd
Edition, McGraw-Hill, 2003.
3.
Silberschatz, Korth and
Sudharshan: Data base System
Concepts, 5th Edition,
Mc-GrawHill, 2006.
4.
C.J. Date, A. Kannan, S.
Swamynatham: An
Introduction to Database
Systems, 8th Edition, Pearson
education, 2006.

Contents:

PART-A

Executing the queries (Single Problem/Example
Based multiple queries/SQL statements) covering all
the SQL statements / concepts
mentioned below:

1. **Creating Tables** with: copying tables using as, Altering the tables, commenting the tables and columns, Synonym, renaming, Pseudonym, primary key, Referential Integrity, Row Integrity(foreign Key), Constraint name, Composite Key, Default value, creating views with check option,
2. **Inserting Data:** in to tables and observing violation of constraints.
3. **Various clauses:** select, from, where, group by, having, order by,
4. **SQL operators:** and, or not, any, all, union, minus, intersection, >, <, <>, =, in, between, not in, exist, not exist, like, null,
5. **Built-in Functions:** ABS, CEIL,FLOOR, MOD, POWER, ROUND, SIGN, SQRT, TRUNC, CHAR,INITCAP,LOWER,SOUNDEX, COUNT(*), DATES related functions etc.
6. **Queries:** correlated sub query, joining the tables: Inner and outer join, writing queries for user search requirements.
7. **Others:** PL-SQL, Triggers, cursors, Stored procedures

PART-B

Building a complete application system (by a group of maximum four students) using any of the front end and industry popular RDBMS with the focus on the following issues of project management:

- i. Domain Analysis, Elaboration through Modeling and Implementation through state of the art technology available.
- ii. SE Principles: Modeling, Estimation, scheduling, Design standards and architectural issues, Coding Standards etc.

- iii. Writing generic and modular programs
- iv. Handling exceptional cases in providing reliable solutions.
- v. Testing and verification of programs for different scenarios
- vi. Proficiency in Design solution, Programming, project report writing and presentation

Evaluation Procedure:

- i. CIE based on each query execution and its understanding (concepts) in regular laboratory slots.
- ii. End semester examination based on demonstration of projects by individual student based on software engineering perspective. The source code and soft copy of the project report are to be used for assessment. Final conclusion of assessment of project is to be done by giving the separate query for implementation during the examination based on the part-A but not same as the exercise solved during the semester course.

Additional contents beyond the syllabi:

- i. Case studies on real-time problem issues. (PO → A,B,C)
- ii. Exposure to Tools for Design & Implementation. (PO → D)
- iii. Use of documentation standard like IEEE format for report writing and seminar/sharing of knowledge through power point presentation. (PO → G)
- iv. Revising the fundamentals of Data structure, algorithm and software engineering concepts.

Course Teacher's Exercise for: Feb-2010
/May-2010 BATCH:

Note: This section is to be decided by course teacher and is to be different every year.

PART-A: Marks: 25 marks.

It is required to develop an application to manage information about all employees working on the various projects in the organization. Design the database in 3rd normal form and write the SQL / PL-SQL statements to study the various concepts mentioned in part -A through the following queries:

1. Obtain the '#Employee No' of employees working on project '1'. – **1 Marks**
2. Get the details of employees working on project '1'? – **2 Marks**
3. Get the details of employees working on 'KMF' project? – **2 Marks**
4. Get the details of employees working on both projects '1' and '2'? – **2 Marks**
5. Find '#employee number' of employees who work on at-least all of the projects that employee '107' works on. – **3 Marks**
6. Find the '#employee number' of employees who do not work on project '1' – **2 Marks**
7. Get the '#employee number' of employee who work on all the projects. – **4 Marks**
8. List the 'employee number' of employee other than '107' who work on at least one project that employee '107' works on. – **3 Marks**
9. List the details of top three salary takers. – **3 Marks**
10. Generate the list indicating for every employee, the cash awards given during the annual performance appraisal day. Note: if an employee, say Mr. Anand, not received the cash prize, then null to be indicated

against his name in the list generated. – 3
Marks

PART-B: Marks: 25

Marks distribution:

1. Synopsis: Problem Statement
and Requirement
specification-IEEE

format

: **05 Marks**

2. Design for the problem
statement selected :
05 marks

3. Implementation Quality:

Knowledge gained about the Front end ,
Validation, GUI color

Combination, Use of Variables, Output/report
format etc : **05 Marks.**

4. Soft copy of report
: **05**

Marks.

5. PPTs
: **05**

Marks

Note: Marks are to be awarded based on the
quality of implementation, students
understanding of
the work and its originality.