Experiential Learning: Level 2 (Orange problem) - 10 Marks

In this task which is a team assignment, students have to build a complete database application with **a team of two members.** The objective of this task is to design and build a deployable application that works seamlessly with the **relational database.**

The primary tasks involve creation and modification of database tables using CRUD SQL commands that are embedded in the application. CRUD is an acronym for create, read, update, delete and refers to the four operations developers perform on database tables to manipulate the data. As a database application developer, the student will:

1. Design ER diagram, relational database schema and create dashboards accordingly.
2. Create complex functions and stored procedures based on the functionality of the application.
3. Analyze queries, and enable data access from the front end as per the application constraints.
4. Write complex queries for applications and extract valuable insights from the data.
5. All applications must be demonstrated as standalone or web-based applications.

Students are strongly encouraged to choose a topic which is really needed for PESU and its society or some good applications which are customized according to the current trend of business. Students should seek approval from the respective professor before finalizing the problem statement.

Key Highlights:

Team Size: 2 students per team

- Host Google form for team and title registration – 19th Aug 2024
- Finalise the title and team by 22nd Aug 2024

Review-1:

- Finalize the User Requirement Specification.
- Evaluation of Design document (ER and Relational Schema)
- Complete review - 1 by 2nd week of September.

Review – 2:

- Final evaluation of the project as per the rubrics – Nov 11th to 15th

User Requirement Specification should include:

- Purpose of the project - in a paragraph or two
- Scope of the project – in a paragraph or two
- Detailed description: In detail describe the project – similar to the case study given to draw the ER diagram in lab session

List down the Function Requirements:

● System Functionality 1 with its description in a line or two

● System Functionality 2 with its description in a line or two

and so on….. (list down all)

Deliverables: Report comprising of:

1. Title of the problem statement with Team details (Cover page)
2. Description about the statement (Short abstract)
3. User requirement specification in detail (prepared for review-1)
4. List of Softwares/Tools/Programming languages used
5. ER Diagram
6. Relational Schema
7. DDL Commands
8. CRUD operation Screenshots
9. List of functionalities/features of the application and its associated screenshots using front end
10. Triggers, Procedures/Functions, Nested query, Join, Aggregate queries
11. Code snippets for invoking the Procedures/Functions/Trigger
12. SQL queries(Create, Insert, Triggers, Procedures/Functions, Nested query, Join, Aggregate queries) used in the project in the form of .sql file

13: Github repo link

Evaluation Rubrics:

Topic	2 Marks	1Mark	0 Mark
ER Diagram	--	4 to 5 Entities	1 to 3 Entities
Relational Schema	--	Correct Mapping	Incorrect Mapping
Normal Form	--	3NF	2NF or 1NF
Users Creation/Varied Privileges	With GUI	Without GUI	NO Users
Triggers	With GUI	Without GUI	NO Triggers
Procedures /Functions	With GUI	Without GUI	NO Procedures /Functions
Create operations	All tables created	Half number of tables created	NO tables Create
Read operations	--	With GUI	Without GUI
Update operations	--	With GUI	Without GUI
Delete operations	--	With GUI	Without GUI
Queries based on Application functionality	1 Nested Query with GUI	1 Nested Query with out GUI	NO Queries
	1 Join Query with GUI	1 Join Query without GUI	NO Queries
	1 Aggregate Query with GUI	1 Aggregate Query without GUI	NO Queries