

# Database Project

## Objective:

The goal of this project is to design and implement a relational database incorporating essential business requirements. Additionally, a simple front-end interface to interact with the database, demonstrating the integration between the database and user interface

## Tasks:

- **Identify Business Requirements:** Conduct a thorough analysis of the business processes and requirements. Document the key functionalities and data needs of the organization.
- **Entity-Relationship Diagram (ERD):** Create a detailed ERD to represent the relationships between entities within the chosen domain. Include entities such as students, courses, faculty, departments (for a university), or patients, medications, doctors, etc. (adjust based on the chosen context).
- **Database Design:** Based on the ERD, design a normalized relational database schema. Apply normalization techniques to minimize redundancy and improve data integrity. Define tables, primary and foreign keys, constraints, and relationships.
- **SQL Implementation:** Translate the designed database schema into SQL statements. Include the creation of tables, constraints, and any other necessary SQL statements to implement the database.
- **Data Population:** Populate the database with sample data to demonstrate its functionality. Ensure that the data reflects realistic scenarios and aligns with the business requirements.

### **Database options:**

- Hospital database
- Pharmacy database
- Library database
- Social media database
- University database
- E-commerce database

### **Deliverables:**

- Business Requirements Document.
- ERD.
- Database Design Document: Detailed documentation of the database schema, including tables, keys, and constraints.
- SQL Script: A complete SQL script for creating the database and its tables and constraints.
- Sample Data: A set of sample data that demonstrates the functionality of the database.

### **Submission Guidelines:**

- Submit your project in a well-organized manner, including all documents, scripts, and front-end files.
- Include any assumptions made during the design process and reasons behind design choices.

### **Evaluation Criteria:**

- Adherence to business requirements.
- Clarity and completeness of the ERD and database design.
- SQL implementation.

### **Bonus:**

Front-End Development: Create a simple front-end interface Implement basic functionalities for interacting with the database, such as viewing records, adding new entries, and updating existing data.

### **Important Notes:**

- Teams must consist of a minimum of 5 members and a maximum of 8 members.
- Teams should be all with the same Teaching assistant.