**DATABASE SYSTEMS DESIGN PROJECT**

**Project Milestone 4**

You should develop a graphical user interface (GUI) client for your MySQL database application in this milestone. The GUI should allow users to interact with the database by inserting, displaying, searching, modifying, and deleting data. You will create stored procedures or functions to handle these database operations.

**Steps to Complete:**

1. **Language/Framework:**

To develop the GUI client, you can use any language or framework you are comfortable with, such as Java (Swing/JavaFX), Python (Tkinter/PyQt/Flask with HTML/CSS/JS), C# (Windows Forms/WPF), PHP, or any web development framework (React, Angular, Vue.js, etc.).

1. **GUI Creation:**

* Forms for Data Entry: Create forms that allow users to input data into the database. These forms should cover all necessary fields for the entities/attributes in your database. Ensure the data validation checks to input the correct type of data and error handling. Provide clear instructions and labels for all input fields and buttons.
* Display Existing Data**:** Implement a way to display existing data in the database. This could be a table or a list view.
* Search Functionality: Include a search feature that allows users to search for specific records in the database based on various criteria.
* Modify Data: Provide functionality to modify existing records. Users should be able to select a record, edit its details, and save the changes.
* Delete Data: Implement a feature that allows users to delete records from the database. Users should be able to select a record and remove it from the database.

1. **Database Connectivity:**

Ensure that the GUI client connects to your MySQL database securely and efficiently. Handle potential errors gracefully, such as connection failures or invalid queries. Create stored procedures or functions in your MySQL database to handle the following operations:

* Insert Data: Insert new records into the database.
* Modify Data: Update existing records in the database.
* Delete Data: Remove records from the database.
* Search Data: Retrieve records based on specific search criteria.

Call these stored procedures/functions from your GUI client to perform the respective database operations.

**Submission Guidelines:**

1. Combine all your documents, code, SQL scripts, and readme files into a single zip file. Name the zip file appropriately, e.g., GroupNumber\_DatabaseProject.zip.
2. The *README* file should start with the project title and a brief description explaining its purpose and functionality. Next, list the system requirements, including necessary software, hardware, and any libraries. Provide step-by-step installation instructions, followed by usage instructions on how to run the project and utilize its features. Include an overview of the code structure, highlighting key files and directories. Acknowledge the contributions of team members and any third-party resources or libraries used in a credits section.
3. Submit the zip file via QOBE by **30th June 2024, Sunday.**
4. Late Submission will lead to marks deduction.