DUE DATE: TUESDAY 23TH DECEMBER 2025 @ 11:59 PM

- **REDESIGNING YOUR WEB APPLICATION IN PHASE 2 USING MVC, WEB API AND ENTITY FRAMEWORKS**

QUESTION 1 [50 POINTS] MVC APPLICATION: Develop an MVC Web Application that corresponds to your web application in Phase 2, implementing with at least the following components:

a) **Model Component [15 Points]:** use appropriate model components and collections for the web application using the Entity framework.
   i. Create an entity framework to access to all tables in your database as specified in phase 2 of the project.
   ii. Enable users to browse and manipulate that the data from the database using the Entity framework with Ling/Lambda queries. (do not use the direct access to the database in all pages and applications in this phase)
   iii. Use appropriate collections and objects to share information between MVC components effectively.

b) **Controller Component [20 Points]:**
   i. Use at least two controller elements to handle various requests from at least two types of users (e.g., Customers, Administrators, Business owners, …, etc.).
   ii. Each controller needs to include at least four different actions (search, add, delete, and/or update) with appropriate code to communicate with other MVC component so that each user can manipulate data using the MVC application. Each type of the DB operations (search, update, delete, insert) should be used at least once.

c) **View Component [15 Points]:**
   i. Create a view page to handle each action in the controller component using dynamic HTML forms to enable users to search, add, delete, and update information (create pages that corresponds to your web application in phase 2 of the project).
   ii. Use a common layout page and appropriate HTML elements, such as tables, to ensure consistent and professional application design.
   iii. Use appropriate validation for each form in the view pages.

QUESTION 2 [30 POINTS]: WEB API APPLICATIONS

a) **Web API Application [20 Points]**
   - Add a Web API controller in your Web Application for normal users (e.g., customers) corresponding to the MVC controllers created in Question 1 to enable customers to remotely access to the Web Application.
   - Ensure the Web API mirrors the functionality provided by the MVC application for customers: use appropriate actions to enable users to remotely search, add, delete and update information from DB using the Entity Framework.

b) **Remote Web-based Application [10 Points]:** use a web-based application that remotely interacts with the Web API. This application enables users to send requests (search, add, delete, update) to the Web API application and render the retrieved results.

QUESTION 3 [20 POINTS]:TEAMWORK AND SUBMISSION

1) **Team Contribution [5 Points]:** The project tasks should be distributed evenly among team members. You need to specify the contribution for each team member in a tabular format.
2) **GitHub [5 Points]:** You need to upload your code (Web Applications + SQL statements for the Database) and Demo in both Moodle and **GitHub** accounts. In addition, you need to use GitHub tools such as version control to document and improve your team collaboration and each team member needs to commit his/her contribution and changes.
3) **Video Demo and Teamwork [10 Points]: Use video demo** to demonstrating the main functionalities in your application, and how you have address all project requirements as stated above. Specifying contribution for each member and each team member needs to participate evenly in the demo. In addition, you need to provide demo and discuss for each component in all Web applications.