**Phase-End Project 3: EMS Full Stack App Requirements**

System Overview

**A. Data Access Layer (DAL)**

The Data Access Layer serves as a Class Library within the application. Its primary purpose is to create and manage a database using the Entity Framework Code First Approach. This layer implements essential database functionalities related to employee management. These functionalities include:

1. Saving Employee Details

2. Retrieving All Employee Details

3. Getting Employee by Code

4. Updating Employee Details

5. Deleting Employee Details

**Entity Model Classes**

The following Entity Model classes are considered while creating the database:

1. DeptMaster Entity Class

- DeptCode: Integer

- DeptName: String

- EmpProfiles: ICollection of EmpProfile (Virtual)

2. EmpProfile Entity Class

- EmpCode: Integer

- DateOfBirth: DateTime

- EmpName: String

- Email: String

- DeptCode: Integer

- DeptMaster: DeptMaster (Virtual)

## Context Class

After creating the entity classes, a Context class is created by inheriting from the DbContext class. This Context class will manage database operations.

## Default Data Population

An additional class is added to populate default data into the DeptMaster table using the DropCreateDatabaseIfModelChanges strategy. This is achieved by overriding the Seed method.

## Data Repository Pattern

Database functionalities for the EmpProfile entity are implemented using the Data Repository Pattern. These functionalities include Saving Employee Details, Getting All Employee Details, Getting Employee by Code, Updating Employee Details, and Deleting Employee Details.

## B. Business Logic Layer (BLL)

The Business Logic Layer is another Class Library within the application. Its role is to invoke functionalities from the DAL class.

### Class Implementation

- A class is added to the BLL layer to invoke functionalities from the DAL class.

### C. App Service Layer

The App Service Layer is an ASP.Net Web Application (Web API) that contains RESTful services. These services consume functionalities from the BLL class.

### RESTful Services

- Web API controllers are added to the App Service Layer to issue HTTP GET, POST, PUT, and DELETE requests for performing operations such as Saving Employee Details, Getting All Employee Details, Getting Employee by Code, Updating Employee Details, and Deleting Employee Details.

### Attribute-Based Routing

- Attribute-based routing is utilized while implementing the above-mentioned functionalities to define routes for the API endpoints.

### D. App UI Layer

The App UI Layer, ideally implemented using Angular or ReactJS, serves as the front-end of the application. It communicates with the App Service Layer through RESTful services to perform operations related to employee management.

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**Conclusion**

The provided requirements outline the structure and functionality of the EMS (Employee Management System) Full Stack App. It encompasses the Data Access Layer, Business Logic Layer, App Service Layer, and the forthcoming App UI Layer. Each layer plays a crucial role in managing employee data and interactions. The implementation of these requirements will result in a robust and efficient EMS application.

**GitHub Repository Link:**

**https://github.com/rastogi102/P3SQL_PhaseEndProjects.git**