Assignment 02_PRN231

Building ASP.NET Web API with Entity Framework Core and Web Application

Introduction

Imagine you're an employee of a company named **eBookStore**. Your manager has asked you to develop a Web application for user management, publisher management, book management, author management and the book-author management. The application has a default account whose email is "**admin@ebookstore.com**" and password is "**admin@@**" that stored in the **appsettings.json**.

The application has to support adding, viewing, modifying, and removing information - a standardized usage action verbs better known as Create, Read, Update, Delete (CRUD) and Search. This assignment explores creating an ASP.NET Core Web API , and ADO.NET or Entity Framework Core, the Web Application (ASP.NET Core Web MVC or Razor Pages). An MS SQL Server database will be created to persist the data and it will be used for reading and managing data.

Assignment Objectives

In this assignment, you will:

- Use the Visual Studio.NET to create a Web application and ASP.NET Core Web API project (with OData support).

- Perform CRUD actions using Entity Framework Core with *Code First approach.*

- Using OData (a data access protocol for the web) to query and manipulate data sets.

- Apply 3-layers architecture to develop the application.

- Apply Repository pattern and Singleton pattern in a project.

- Add CRUD and searching actions to the Web application with ASP.NET Core Web API.

- Apply to validate data type for all fields.

- Run the project and test the actions of the Web application.

Database Design
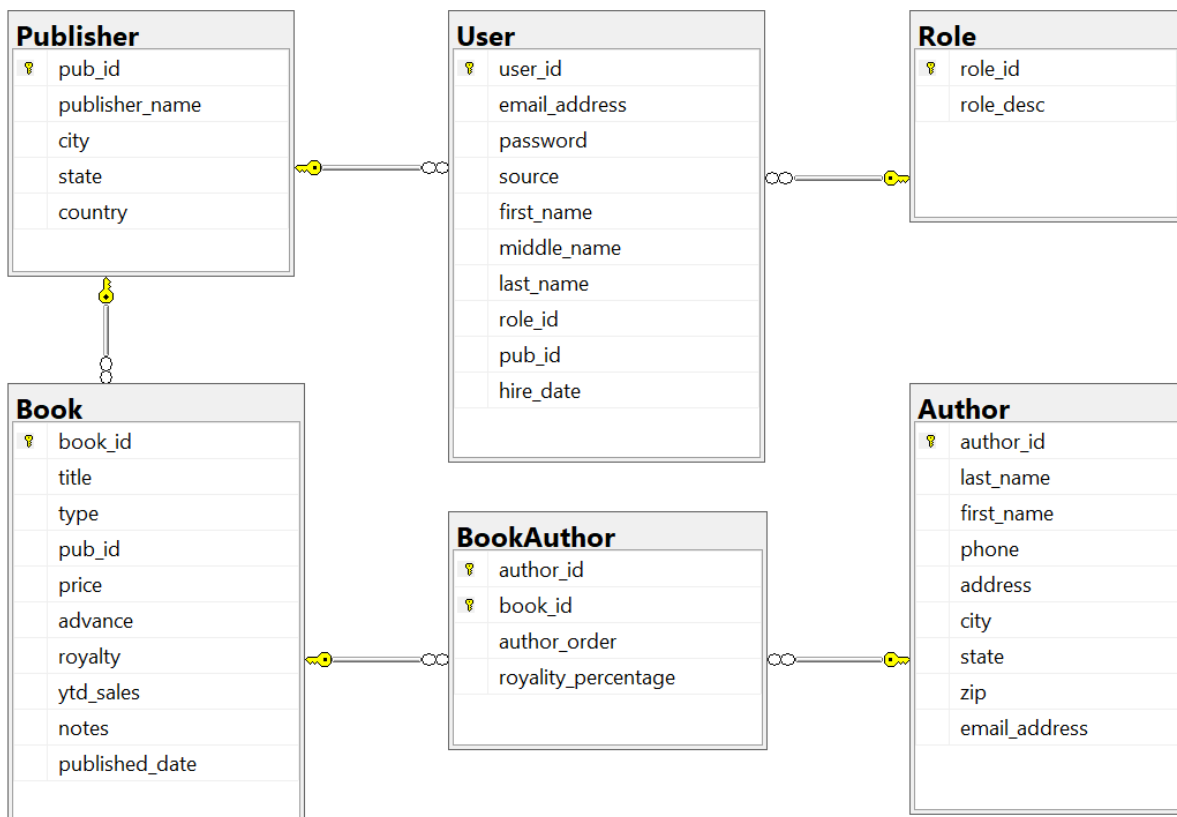
Main Functions

- Create database with Forward Engineering approach (create model classes and DB context class and migration).
- Create Web API with OData: Book management, Author management, and Publisher management: Read, Create, Update and Delete actions.
- Create Client application (with Desktop/Web application) interactive with WebAPI to perform these functions:
    - Search BookName and Price

o   Member authentication by Email and Password. If the user is "**Admin**" then allows to perform all actions, otherwise, the normal user is allowed to view/update the profile.

Guidelines

Activity 01: Build a solution

Step 01. Create a Blank Solution named **Assigment02Solution_StudentCode**

Step 02. The Solution includes ASP.NET Core Web API: **eBookStoreWebAPI** Project, Class Library Projects: **DataAccess, BusinessObject,** and an application for Client named **eBookStore** (ASP.NET Core MVC project/ASP.NET Razor Pages/Windows Forms/WPF)

Activity 02: Develop BusinessObject project

Step 01. Write codes to create classes and definition all data members

Step 02. Write codes to perform business rules for data members

Activity 03: Develop DataAccess project

Step 01. Add NuGet package related to Entity Framework Core.

Step 02. Using Entity Framework Core Forward Engineering approach, create business object classes and DB context class with BusinessObject project.

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Step 03. Migrate database with SQL Server.

Step 04. Write codes for **DAO.cs, IRepository.cs** and **Repository.cs** (Repeat this step for each business object class in the Project)

Activity 04: Develop eBookStoreWebAPI project

Step 01. Create ASP.NET Core Web API project.

Step 02. Add a reference to **BusinessObject** and **DataAccess** project.

Step 03. Write codes for controllers to perform functions apply OData concept.

Step 04. Test Project with Swagger or Postman.

Activity 04: Develop client eBookStore project

Step 01. Create Web Client project **eBookStore**.

Step 02. Add a reference to **BusinessObject** project.

Step 03. Write codes perform functions with Web API.

Activity 05: Run the Web project and test all actions

Example for Web Application Client:

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Microsoft®
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Book Stores Login

email address

password

[Login]   Sign up

Book Stores Register

email address

password

confirm password

[Sign up]   Already an user?

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Book Stores

- Home
- Users
- Publishers - Authors
- **Authors**
- Publishers

Enter Author Information

first name :	first name
last name :	last name
city :	select city..
email address :	email address

Save **Clear**

Authors

AuthorId	FirstName	LastName	City	Actions
search	search	search	search	
1	Abraham	Bennet	Berkeley	**Edit** | **Delete**
2	Dirk	Stringer	Oakland	**Edit** | **Delete**

Book Stores

Logout

- Home
- Users
- Publishers - Authors
- Authors
- **Publishers**

Enter Publisher Information

first name :	publisher's name
city :	select city..

Save **Clear**

Publishers

PublisherId	PublisherName	City	Actions
search	search	search	
1	New Moon Books	Boston	**Edit** | **Delete**
2	Binnet & Hardley	Washington	**Edit** | **Delete**
3	Algodata Infosystems	Berkeley	**Edit** | **Delete**
4	Five Lakes Publishing	Chicago	**Edit** | **Delete**
5	Ramona Publishers	Dallas	**Edit** | **Delete**