PE\_PRN211\_SP24\_TrialTest

**Please read the instructions carefully before doing the questions.**

* You are **NOT allowed** to use any other materials. You are **NOT allowed** to use any device to share data with others.
* You must use IDE as **Visual Studio 2019 or later, MSSQL Server 2016 or** **later database** for your development tools.

**IMPORTANT – Before you start doing your solution, MUST do the following steps:**

1. To do your program, you must use **Windows Forms**, apply 3-Layer architecture. *Note that* *you are not allowed to connect directly to database from WindowsForms, every database connection must be used with* ***Repositories*** *and* ***Data Access Objects/Services*** *. The database connection string must get from* ***appsettings.json*** *file.* ***In the case your program connects directly to database from WindowsForms or you hardcode connection string, you will get 0 mark.***
2. ***If there are syntax errors or compilation errors in your PE program, you will not pass the PE requirements, the mark will be 0.***
3. Create Solution in Visual Studio 2019/2022 named **PE\_PRN211\_SP24\_PracticalTest\_StudentName**. Inside the Solution, Project Windows Forms named: **BookManagement\_StudentName.**
4. Create your MS SQL database named **BookManagementDb** by running code in script **BookManagementDb.sql.**
5. Set the default user interface for your project as **Login** form.

**REFERENCES *(this session just for reference, student can use the other approach to do Practical Exam)***

***Working with DB connection string from JSON file****.*

* 1. In the Presentation layer (WindowsForms Project), you create *appsettings.json*and add ConnectionString same as the bellow to config the connection string to SQL Server Database.

*{*

*"ConnectionStrings": {*

*"****DefaultConnectionStringDB****": "server =(local); database=* **BookManagementDb***;uid=****sa****;pwd=****1234567890****; TrustServerCertificate=True"*

*}*

*}*

You can change **server**, **uid** and **pwd** to suitable with your local machine.

* 1. Set property "Copy to output Directory" of *appsettings.json* file to "Copy if newer"
  2. Using Manage Nuget packages to install packages the following in Windows Form Project

*Microsoft.Extensions.Configuration -Version 5.0.0*

*Microsoft.Extensions.Configuration.Json -Version 5.0.0*

* 1. Using *ConfigurationBuilder* to init Configuration object for reading *appsettings.json* file same as this code:

*private string GetConnectionString()*

*{*

*IConfiguration config = new ConfigurationBuilder()*

*.SetBasePath(Directory.GetCurrentDirectory())*

*.AddJsonFile("****appsettings.json****",true,true)*

*.Build();*

*var strConn = config["ConnectionStrings:* ***DefaultConnectionStringDB*** *"];*

*return strConn;*

*}*

* 1. After that, durring development, student can bypass the ConnectionString (which read from *appsettings.json*) to Data access layer by constructor or others

*public partial class* ***BookManagementDbContext****: DbContext*

*{*

*public* ***BookManagementDbContext*** *(string connectionString)*

*{*

*this.Database.SetConnectionString(connectionString);*

*}*

*}*

***Package using for .NET 5:***

*- Install package using Tools → NuGet Package Manager → Package Manager Console*

Install-Package Microsoft.EntityFrameworkCore.SqlServer -Version 5.0.17

Install-Package Microsoft.EntityFrameworkCore.Tools -Version 5.0.17

Install-Package Microsoft.EntityFrameworkCore.Design -Version 5.0.17

Install-Package Microsoft.Data.SqlClient -Version 3.0.1

- *Install package using CLI or Power Shell*

dotnet add package Microsoft.EntityFrameworkCore.SqlServer --version 5.0.17

dotnet add package Microsoft.EntityFrameworkCore.Design --version 5.0.17

dotnet add package Microsoft.EntityFrameworkCore.Tools --version 5.0.17

dotnet add package Microsoft.Data.SqlClient --version 3.0.1

Entity Framework Core

*- Install dotnet-ef for CLI*

dotnet tool install --global dotnet-ef --version 5.0.11

*- Use Entity Framework Core to generate Object Model from existing database – CLI*

dotnet ef dbcontext scaffold "Server=(local);uid=**sa**;pwd=**1234567890**;database= **BookManagementDb**;TrustServerCertificate=True" Microsoft.EntityFrameworkCore.SqlServer --output-dir Models

*- Generate database from domain classes – CLI.*

dotnet ef migrations add "InitialDB"

dotnet ef database update

Entity Framework Core

*- Use Entity Framework Core to generate Object Model from existing database – Package Manager Console*

Scaffold-DbContext "Server=(local);uid=**sa**;pwd=**1234567890**;database= **BookManagementDb**;TrustServerCertificate=True;" Microsoft.EntityFrameworkCore.SqlServer -OutputDir Models

*- Generate database from domain classes – Package Manager Console*

Add-Migration "InitialDB"

Update-Database -verbose