PE\_PRN212\_FA25TrialTest - Note  
FALL 2025  
Subject: PRN212

**INSTRUCTIONS**

**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 Presentation Foundation (WPF)**, apply 3-Layer architecture. *Note that* *you are not allowed to connect direct to database from WPF Windows/Pages, every database connection must be used with Repository and Data Access Objects. The database connection string must get from appsettings.json file.* ***In the case your program connects directly to database from WPF Windows/Pages or you hardcode connection string, you will get 0 point.***
2. ***If there are syntax errors or compilation errors in your PE program, you will not pass the PE requirements, the point will be 0.***
3. Create Solution in Visual Studio 2019/2022 named **PE.PRN212.FA25.StudentName**. Inside the Solution, Project WPF named: **AirConditionerShop.StudentName.**
4. Create your MS SQL database named **AirConditionerShopDB** by running code in script **AirConditionerShopDB.sql.**
5. Set the default user interface for your project as **Login** window/page.
6. ***Your work will be considered invalid (0 point) if your code inserts stuff that is unrelated to the test.***

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**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=***AirConditionerShopDB***;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

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

|  |  |  |
| --- | --- | --- |
|  | *Microsoft.EntityFrameworkCore.x* | *Microsoft.Extensions.Configuration, Microsoft.Extensions.Configuration.Json version* |
| *.NET 8* | *8.0.2* | *8.0.0* |
| *.NET 9* | *9.x* | *9.x* |

* 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 AirConditionerShopDBContext: DbContext*

*{*

*public AirConditionerShopDBContext (string connectionString)*

*{*

*this.Database.SetConnectionString(connectionString);*

*}*

*}*

Entity Framework Core

*- Install dotnet-ef for CLI*

dotnet tool install --global dotnet-ef --version 9.\*

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

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

dotnet ef dbcontext scaffold "Server=(local);uid=**sa**;pwd=**TMNNT012928637160822863716**;database=***AirConditionerShopDB***;TrustServerCertificate=True" Microsoft.EntityFrameworkCore.SqlServer --output-dir Entities --context-dir .\

*- 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=***AirConditionerShopDB***;TrustServerCertificate=True;" Microsoft.EntityFrameworkCore.SqlServer -OutputDir Models

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

Add-Migration "InitialDB"

Update-Database -verbose