

Assignment 01

Building a Project Management Application with Windows Forms

Introduction

Imagine you're an employee of a company named **FProjectManagement**. Your manager has asked you to develop a Windows Forms application for project management. The information of project includes: **ProjectID**, **ProjectName**, **EstimatedStartDate**, **EstimatedEndDate**, **ProjectDescription**, **ProjectAddress**, **ProjectCity**.

The application has a default account whose email is “**admin@fprojectmanagement.com**” and password is “**admin@@**” that stored in the **appsettings.json**.

The application has to support adding, viewing, modifying, and removing project(s)—a standardized usage action verbs better known as Create, Read, Update, Delete (CRUD). This assignment explores creating an application using Windows Forms with .NET Core, and C#. An "in-memory database" will be created to persist the project's data, so a collection is called **List** will be used for reading and managing data.

Assignment Objectives

In this assignment, you will:

- Use the Visual Studio.NET to create Windows Forms and Class Library (.dll) project.
- Create a List of persisting projects
- Using LINQ to Object to query data
- Apply passing data in WinForms application
- Apply 3-layers architecture to develop an application

- Apply MPV (Model-Presenter-View) pattern in Winforms application
- Apply Repository pattern and Singleton pattern in a project
- Add CRUD and searching actions to WinForms application.
- Apply to validate data type for all fields
- Run the project and test the WinForms actions.

Main Functions

- Member authentication by Email and Password. If the user is “**Admin**” (*get from appsettings.json file*) then allows to perform all actions.
- Project management: Read (*the project list should sort by descending order by ProjectName*), Create (*with data validation*), Update(*with data validation*) and Delete (*with confirmation*) actions. Creating and Updating project must be performed by popup dialog.
- Search project by ProjectID or ProjectName.
- Filter projects by ProjectCity (*maybe use ComboBox to filter*).

Guidelines

Activity 01: Build a solution

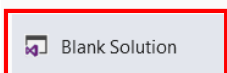
Create a Blank Solution named ***Ass01Solution_ClassCode_StudentName*** that includes Class Library Project: **DataAccessObjects**, **BusinessObjects**, **Repositories** and a Windows Forms project named **ProjectManagementWinApp_StudentName**

Step 01. Create a Blank solution.

- Open the Visual Studio .NET application and performs steps as follows:

Create a new project

Recent project templates



- ASP.NET Core Web API C#
- Windows Forms App C#
- Class library C#
- ASP.NET Core Web App (Model-View-Controller) C#
- Console Application C#
- Worker Service C#

Search for templates (Alt+S)

Clear all

C# All platforms Desktop

- NUnit 3 Test Project**
A project that contains NUnit tests that can run on .NET Core on Windows, Linux and macOS
C# Linux macOS Windows Desktop Test Web
- Windows Forms App**
A project template for creating a .NET Windows Forms (WinForms) App.
C# Windows Desktop
- Windows Forms Class Library**
A project template for creating a class library that targets .NET Windows Forms (WinForms).
C# Windows Desktop Library
- Windows Forms Control Library**
A project template for creating a control library that targets .NET Windows Forms (WinForms).



Next

Step 02. Create a Class Library project named **BusinessObjects**

Step 03. Repeat **Step 02** to create **DataAccessObjects** project.

Step 04. Repeat **Step 02** to create **Repositories** project.

Step 05. Create a Windows Forms project named **ProjectManagementWinApp_StudentName**

- From the File menu | Add | New Project, on the Add New Project dialog, select “Windows Forms App” and performs steps as follows:

Add a new project

Recent project templates

- Class library C#
- Windows Forms App (.NET Framework) C#
- ASP.NET Core Web App (Model-View-Controller) C#
- Windows Forms App C#
- ASP.NET Core Web API C#
- Console Application C#
- Worker Service C#

winfrom

C# All platforms All project types

1

Windows Forms App
A project template for creating a .NET Windows Forms (WinForms) App.
C# Windows Desktop

Windows Forms Class Library
A project template for creating a class library that targets .NET Windows Forms (WinForms).
C# Windows Desktop Library

Windows Forms Control Library
A project template for creating a control library that targets .NET Windows Forms (WinForms).
C# Windows Desktop Library

Windows Forms App (.NET Framework)
A project for creating an application with a Windows Forms (WinForms) user interface

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Next

Additional information

Windows Forms App C# Windows Desktop

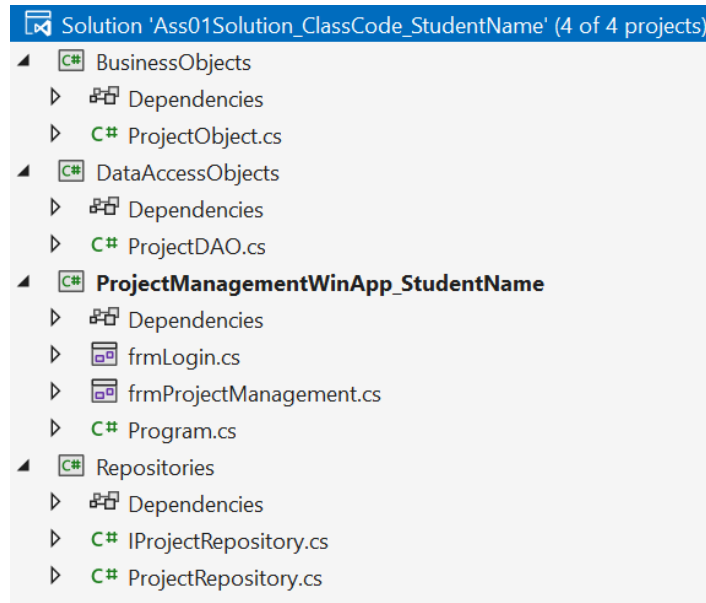
Target Framework

.NET 5.0 (Current)

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Back Create



Activity 02: Develop BusinessObjects project

Activity 03: Develop DataAccessObjects project

Activity 03: Develop Repositories project

Activity 04: Develop ProjectManagementWinApp_StudentName project

Step 01. Add a reference to **Repositories** project

Step 02. Design UI for **frmLogin.cs** form and write codes to perform authentication by **email** and **password**. If login is successful then show **frmProjectManagements.cs** form otherwise show an error message

Step 03. Design UI for **frmProjectManagements.cs** form and write codes to performs CRUD actions, Search action and Filter action, etc.



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Activity 05: Run the WinForms project and test all actions