Context

This assignment will continue to build on what we started in assignment P3 and P4. You already have an application that uses Dictionary based fake repositories to store AppUser information and the ability to force a user to login before arriving at a main form that has a number of menu options.

This assignment will extend that application to require that users define one or more projects and select a project before using any of the other features (requirements, issues, etc.). The basic idea is that in order to do anything other than login, all work must be in the context of a specific project.

In anticipation of other user specific preferences, the project options will be located under a main menu heading of Preferences as shown in Figure 1.
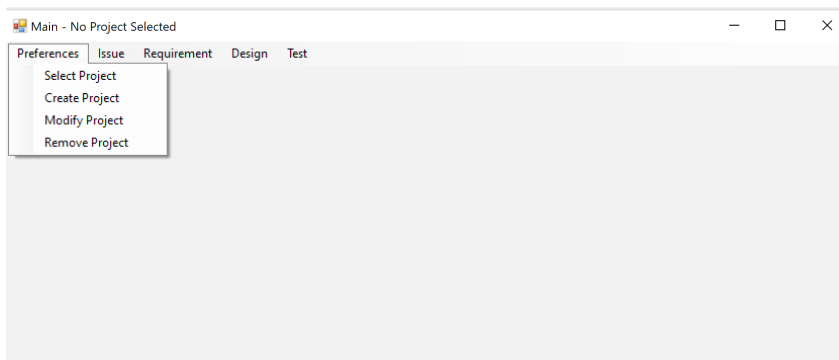

Figure 1 - Preferences menu sub-items

Select, Create, Modify and Remove Project are the features to be developed for this assignment. The Select Project feature preserves the selected project id and project name in a FakePreferenceRepository.

When the application is executed the login process must be completed. Next, the application presents the Select Project feature. A project must be selected in order to proceed with the application, otherwise the application exits.
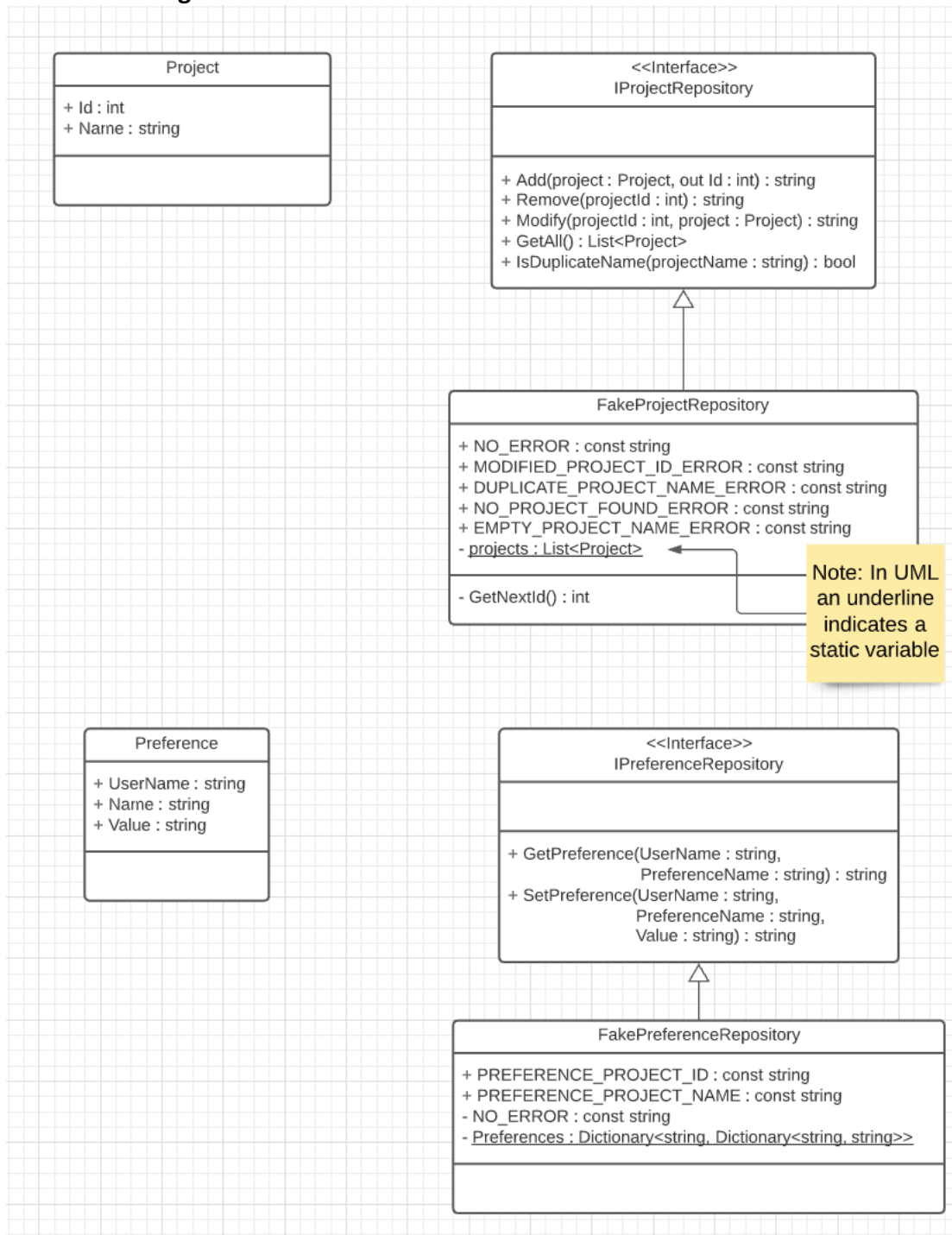
For now, the user can add new projects, modify existing projects and remove projects. They can also select a project as their preferred project. Selecting a project as the preferred project will cause the project name to be displayed in the main form's title. It will also be used in the future for managing issues, requirements, etc. All other system activities are done in the context of the selected preferred project.

Requirements
1. The system shall require a successful login to access the main form, otherwise it will exit the application
2. The system shall require a successful selection of a project, otherwise it will exit the program

3. The system shall store the selected project as a preference for continued reference for the application
4. The system shall display the selected preferred project name in the title of the window
5. All windows shall be centered on the screen
6. Create new projects
   a. The systems shall provide one or more seed (starter) projects available from its first execution
   b. The system shall provide a means to create new projects
   c. The system shall remove any leading and trailing blanks on a project name
   d. The system shall require that a project name that is not blank
   e. The system shall display a message if a blank project name is attempted saying, "Project name is empty or blank."
   f. The system shall not allow duplicate project names
   g. The system shall display a message if a duplicate name is attempted saying, "Project name already exists."
   h. The system shall generate a project id
   i. The system generated project id must be greater than any other existing project id
7. Remove a project
   a. The system shall facilitate the selection of a project to be removed
   b. The system shall not allow the current selected project stored as a preference to be removed
   c. The system shall display a message if the current preference project is attempted to be removed saying, "Cannot remove your current session project."
   d. The system shall display the following message if a project that does not exist is attempted to be removed, "No project found."
   e. They system shall require confirmation before removing a project
8. Modify a project
   a. The system shall facilitate the selection of a project to be modified
   b. The system shall not allow the current selected project stored as a preference to be modified
   c. The system shall display a message if the current preference project is attempted to be modified saying, "Cannot modify your current session project."
   d. The system shall prevent modification of the project id
   e. If an attempt to modify the value of the project id the following message shall be displayed, "Can not modify the project id."
   f. The system shall remove any trailing blanks on a project name
   g. The system shall require that a project name that is not blank
   h. The system shall display a message if a blank project name is attempted saying, "Project name is empty or blank."
   i. The system shall not allow duplicate project names
   j. The system shall display a message if a duplicate name is attempted saying, "Project name already exists."

UML Class Design

Project

+ Id : int
+ Name : string

**<<Interface>>
IProjectRepository**

+ Add(project : Project, out Id : int) : string
+ Remove(projectId : int) : string
+ Modify(projectId : int, project : Project) : string
+ GetAll() : List<Project>
+ IsDuplicateName(projectName : string) : bool

FakeProjectRepository

+ NO_ERROR : const string
+ MODIFIED_PROJECT_ID_ERROR : const string
+ DUPLICATE_PROJECT_NAME_ERROR : const string
+ NO_PROJECT_FOUND_ERROR : const string
+ EMPTY_PROJECT_NAME_ERROR : const string
- projects : List<Project>

- GetNextId() : int

Note: In UML an underline indicates a static variable

Preference

+ UserName : string
+ Name : string
+ Value : string

**<<Interface>>
IPreferenceRepository**

+ GetPreference(UserName : string,
                PreferenceName : string) : string
+ SetPreference(UserName : string,
                PreferenceName : string,
                Value : string) : string

FakePreferenceRepository

+ PREFERENCE_PROJECT_ID : const string
+ PREFERENCE_PROJECT_NAME : const string
- NO_ERROR : const string
- Preferences : Dictionary<string, Dictionary<string, string>>
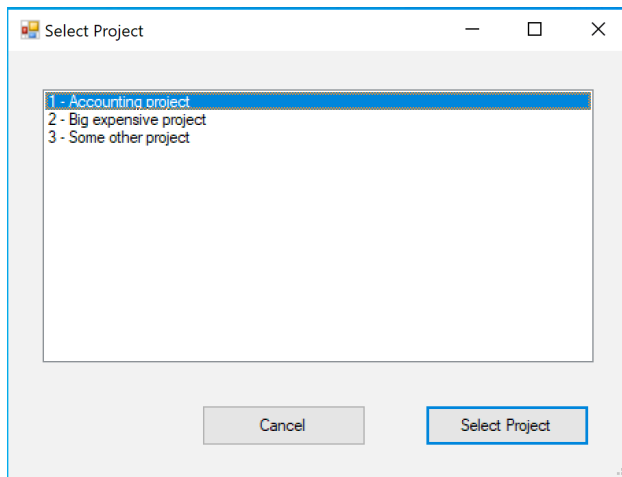
UI Design
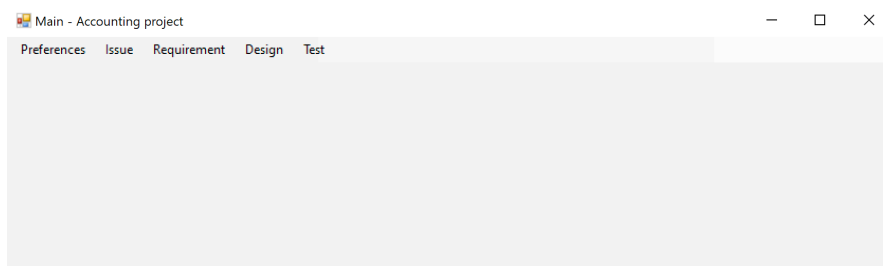

Figure 2 - Select project window

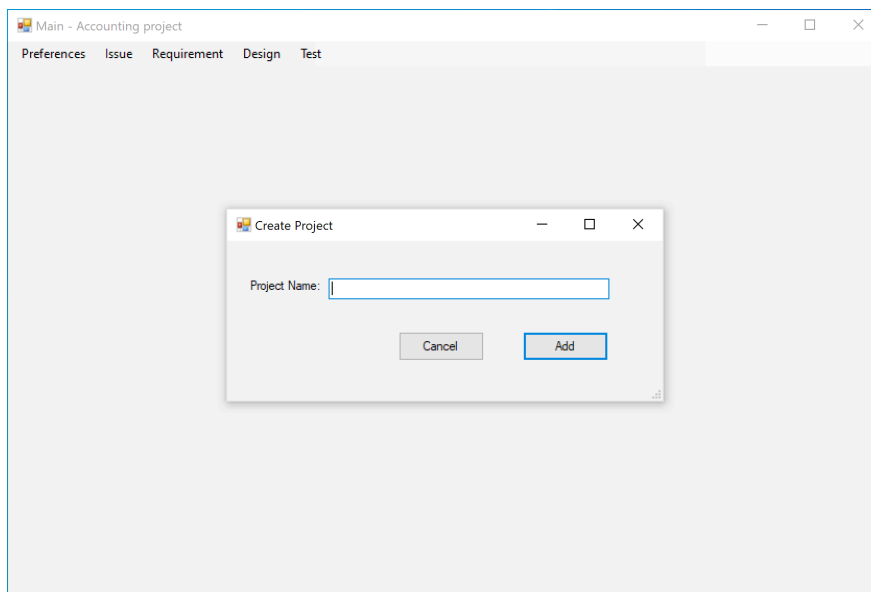*Figure 3 - Main form after selecting a preferred project*
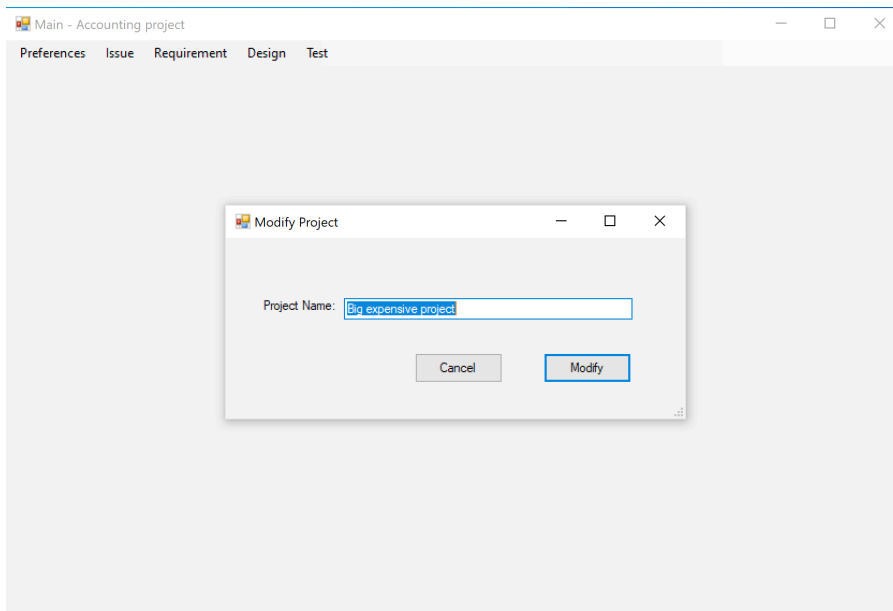

Figure 4 - Create project window

Figure 5 - Modify project window after selecting the project to be modified
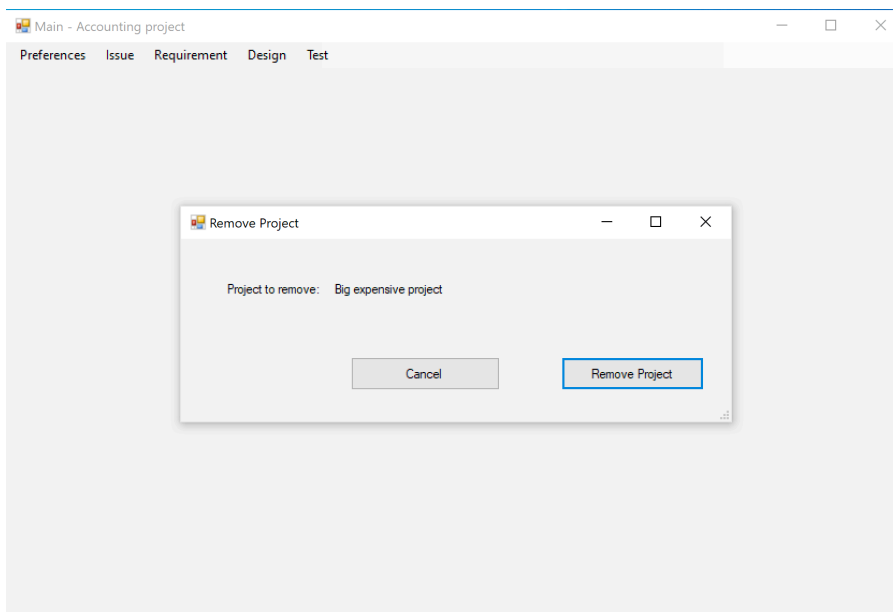
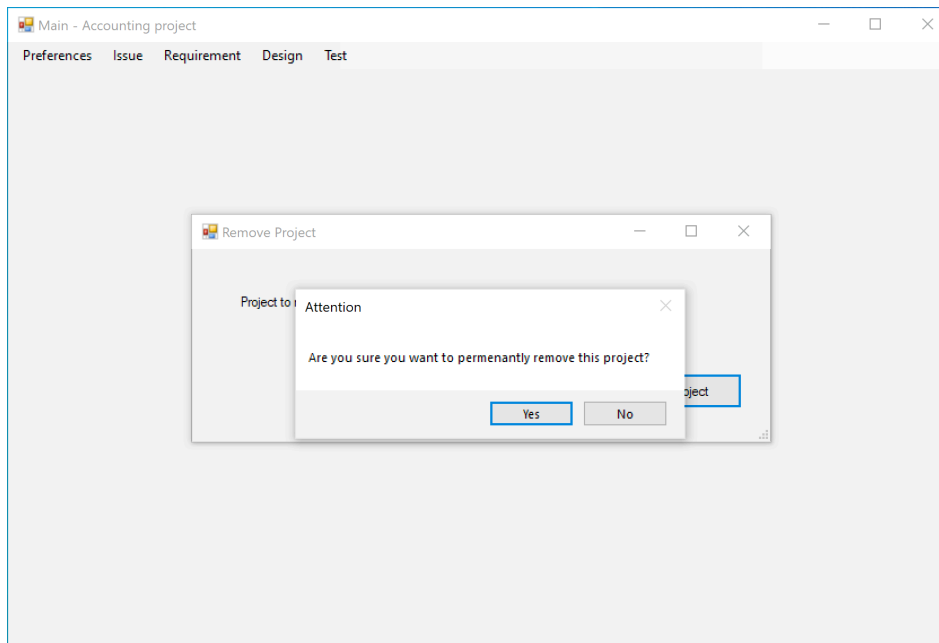

Figure 6 - Remove project window after selecting the project to be removed

Figure 7 - Confirmation of remove project