LaSalle College
Vancouver

VGP 232 Game Tools and Pipeline

Assignment 2c

WPF Application

Objective:

Using your existing Assignment 2B **C# Console Application, convert it to a class library and name it WeaponLib**. We will then reference this library in a WPF application, and will provide a UI to it. You will be able to Open and Save the weapon data to and from CSV, XML or JSON. Once the data is loaded, you will see a list of all the Weapon entries in the list box, and when you select an entry from the list box and click the Edit button, you will be able to modify it. You can also add and remove weapons from the list. The WeaponCollection.SortBy functionality from 2B should also work using the radio buttons, as well as the show only type from your WeaponCollection.GetAllWeaponOfType.

Getting Started:

Once your Assignment 2B has been marked and fixed, make Assignment2B as a template,

- Create a new project in your VGP232.sln using the template above and call it WeaponLib
- Remove the Program.cs
- Go into the Project Properties
- Under Application, change the Output type from Console Application to Class Library
- Create a new WPF App (.NET Core) project called Assignment2C
- Right click on the new WPF project in the Solution Explorer
- Add project reference and select WeaponLib

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VGP 232 Game Tools and Pipeline

MainWindow / WeaponCollectionEditor

Figure 1

Code behind:
MainWindow.cs
Event handlers:

- LoadClicked
- SaveClicked
- AddClicked
- EditClicked
- RemoveClicked
- SortRadioSelected
- FilterTypeOnlySelectionChanged
- (bonus) FilterNameTextChanged

Member:

- WeaponCollection mWeaponCollection
    - should be initialized in constructor and set pokedex into ListBox.ItemSource

Named Controls:

- WeaponListBox on the ListBox
    - When this box is updated i.e. add new weapon, remove weapon, edit weapon, you may need to call ListBox.Items.Refresh
- (bonus) FilterNameTextBox
    - the Text value in this will be used to filter the WeaponCollection

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VGP 232 Game Tools and Pipeline

For **SaveClicked**, it should trigger the SaveFileDialog, and when save is pressed, it should trigger the WeaponCollection.Save(filename) using the FileName property in the SaveFileDialog instance. https://www.wpf-tutorial.com/dialogs/the-savefiledialog/
https://docs.microsoft.com/en-us/dotnet/api/microsoft.win32.savefiledialog?view=netframework-4.6

For **LoadClicked**, it should trigger the OpenFileDialog, and when open is pressed, it should trigger the WeaponCollection.Load(filename) using the FileName property in the OpenFileDialog instance.
https://www.wpf-tutorial.com/dialogs/the-openfiledialog/
https://docs.microsoft.com/en-us/dotnet/api/microsoft.win32.openfiledialog?view=netframework-4.6

Use the ListBox control for showing the WeaponCollection, you will need to data bind/assign the ItemSource to the member pokeDex so it can populate it
https://www.wpf-tutorial.com/list-controls/listbox-control/
https://docs.microsoft.com/en-us/dotnet/api/system.windows.controls.listbox?view=netframework-4.6

Use the radio button control for the Sort, and can used the Checked event
https://stackoverflow.com/questions/16036469/how-to-get-the-value-of-the-checked-radiobutton-in-wpf
https://www.wpf-tutorial.com/basic-controls/the-radiobutton-control/
https://docs.microsoft.com/en-us/dotnet/api/system.windows.controls.radiobutton?view=netframework-4.6

BONUS: The filter by name uses a TextBox i.e. FilterNameTextBox, and will need to add functionality to filter the WeaponCollection by using the TextChanged Event with String.StartWith
https://www.wpf-tutorial.com/basic-controls/the-textbox-control/
https://docs.microsoft.com/en-us/dotnet/api/system.windows.controls.textbox?view=netframework-4.6
https://docs.microsoft.com/en-us/dotnet/api/system.string.startswith?view=netframework-4.6

The Show only type will have the WeaponType enum as the drop down list and you will need to populated that using the Enum.GetNames(typeof(...))
https://docs.microsoft.com/en-us/dotnet/api/system.enum.getnames?view=netframework-4.6
https://www.wpf-tutorial.com/list-controls/combobox-control/

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And use the event for selection and trigger the FilterTypeOnlySelectionChanged to call the WeaponCollection.GetAllWeaponOfType(WeaponType) function and reassign the ListBox.ItemSource.

The Add button has a Click event handler called **AddClicked** that shows the EditWeaponWindow in Add mode. When the Save button is pressed, it will trigger the Submit event handler and from the MainWindow Add event handler, it will check that the DialogResult return value is true. Then from the EditWeaponWindow instance, retrieve the TempWeapon property and add it to the MainWindow member of WeaponCollection and you will need to call Refresh on the ListBox so it updates the UI.

The Edit button will show the EditWeaponWindow in Edit mode with the selected Weapon from the ListBox
https://www.wpf-tutorial.com/list-controls/listbox-control/

EditWeaponWindow (Add mode)

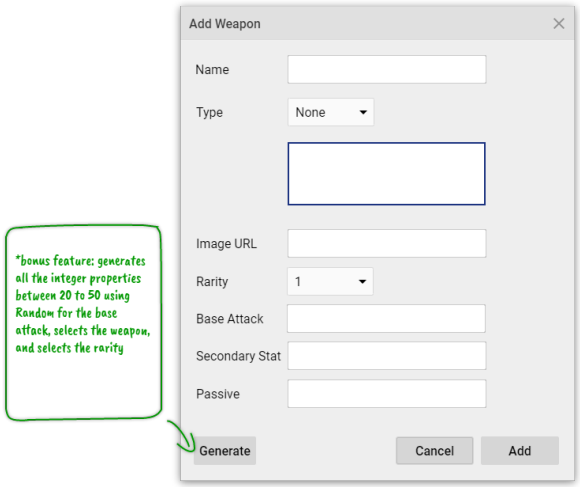

Figure 2.1

EditWeaponWindow (Edit mode)

VGP 232 Game Tools and Pipeline

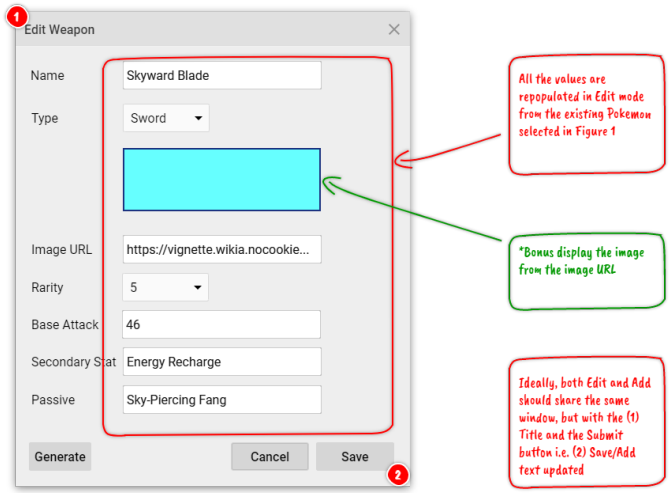

Figure 2.2

Code behind:
EditWeaponWindow.cs
Event handler:

- Setup
- SubmitClicked
- CancelClicked
- (bonus) Generate

Properties:

- Weapon TempWeapon

The **Setup** function should be invoked before we call **ShowDialog** from MainWindow to populate the text fields of each property in the weapon if the TempWeapon property is set, so all the controls i.e. TextBox, ComboBoxes are filled and update the Title to Edit Weapon and Submit button text to Save in Edit mode.
https://docs.microsoft.com/en-us/dotnet/api/system.windows.window.showdialog?view=netframework-4.6

The **Submit** event handler will set the DialogResult to true and close the window
https://docs.microsoft.com/en-us/dotnet/api/system.windows.window.dialogresult?view=netframework-4.6
https://docs.microsoft.com/en-us/dotnet/api/system.windows.window.close?view=netframework-4.6#System_Windows_Window_Close

VGP 232 Game Tools and Pipeline

The **Cancel** event handler will close the window
https://docs.microsoft.com/en-us/dotnet/api/system.windows.window.close?view=netframework-4.6#System_Windows_Window_Close

BONUS: The Generate button is a bonus that generates random numbers between 20 to 50 to the base attack, and picks randomly the rarity and weapon type.

Error Handling:
- invalid path (path does not exist)
- invalid arguments
- invalid data from the csv, json, xml

C# Helpful links

https://www.wpf-tutorial.com/listview-control/listview-data-binding-item-template/

Due date

Next class, week 5 (at the start of class 6:30pm)

Submission

Implement the answers in a 2 new projects with the name “Assignment2c” and “WeaponLib”. This project should be submitted through committing and pushing through GIT to your VGP232 repository which you shared with the instructor.

Grading

Marks: Out of 100 (10% of final grade)

(60) Functional: Does it compile? Does it meet the requirements and work? Does it give the correct results?

(25) Error Handling: Does your application handle bad input? If so, does it handle failures and exceptions gracefully or does it crash?

(15) Naming convention & Comments: Does it follow the coding standards? Are your variables and method names descriptive? Did you leave descriptive comments on methods that does not have obvious functionality?

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VGP 232 Game Tools and Pipeline

Coding Standard

C#
https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/inside-a-program/coding-conventions

Late Assignments

After the due date, the student will no longer be able to submit their assignment and will receive a 0 as I will go over the solution in the next class.

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