

COMP212 Programming 3

2020F - Lab5

Implement WPF app to manipulate data within Database

Goals: In this assignment, you will learn how to use the **WPF** controls DataGrid, ComboBox, Button. You will also learn how to make your **WPF** app create and interact with a database by exploiting two classes **DbContext** and **DbSet<TEntity>** of Entity Framework (specifically Entity Framework 6 (EF6)). You can think EF6 to be a restricted version of EF Core).

Rubric: (Total marks = 10, Weight = 10%)

Cases
Three DataGrid, two ComboBoxes, six Buttons are present in the GUI layout.
When you select an item in Fruit ComboBox, the selected item shows up in a row in DataGrid-1 (left DataGrid).
When you select an item in Planet ComboBox, the selected item shows up in a row in DataGrid-2 (middle DataGrid).
When you select an item in the DataGrid-1, the selection (if any) at DataGrid-2 should get unselected.
When you select an item in the DataGrid-2, the selection (if any) at DataGrid-1 should get unselected.
An element in DataGrid (i.e. a grid location) should not be editable.
On clicking button "LINQ Project QS" shows relevant rows in DataGrid-3 (right DataGrid).
On clicking button "LINQ Filter QS" shows relevant rows in DataGrid-3.
On clicking button "LINQ Order Ascending QS" shows relevant rows in DataGrid-3.
On clicking button "LINQ Inner Join QS" shows relevant rows in DataGrid-3.
Button "Clear" clears all three DataGrids, clears the selections in every ComboBox
Button "Delete selected row" deletes the selected row in DataGrid-1 (left DataGrid) or the selected row in DataGrid-2 (middle DataGrid).
Button "Delete selected row" should not delete any selected row in DataGrid-3 (right DataGrid).
When DataGrids are empty (i.e. they have no rows of items), ComboBoxes should be in reset condition (i.e. they should have no item selected)
When DataGrids are empty, clicking any button should have no effect on the GUI.

Evaluation Focus:

- Correct implementation of requirements
- Explanation of solution when asked
- Answer questions on the relevant/related topic when asked

Develop a WPF application that interacts with database through Entity Framework 6.

1. Below are several pictures of how your GUI should look. **The rubric in Page 1 of this document tells how your application should work. Read the figure captions carefully as well.** They also provide hint on how the GUI should work.

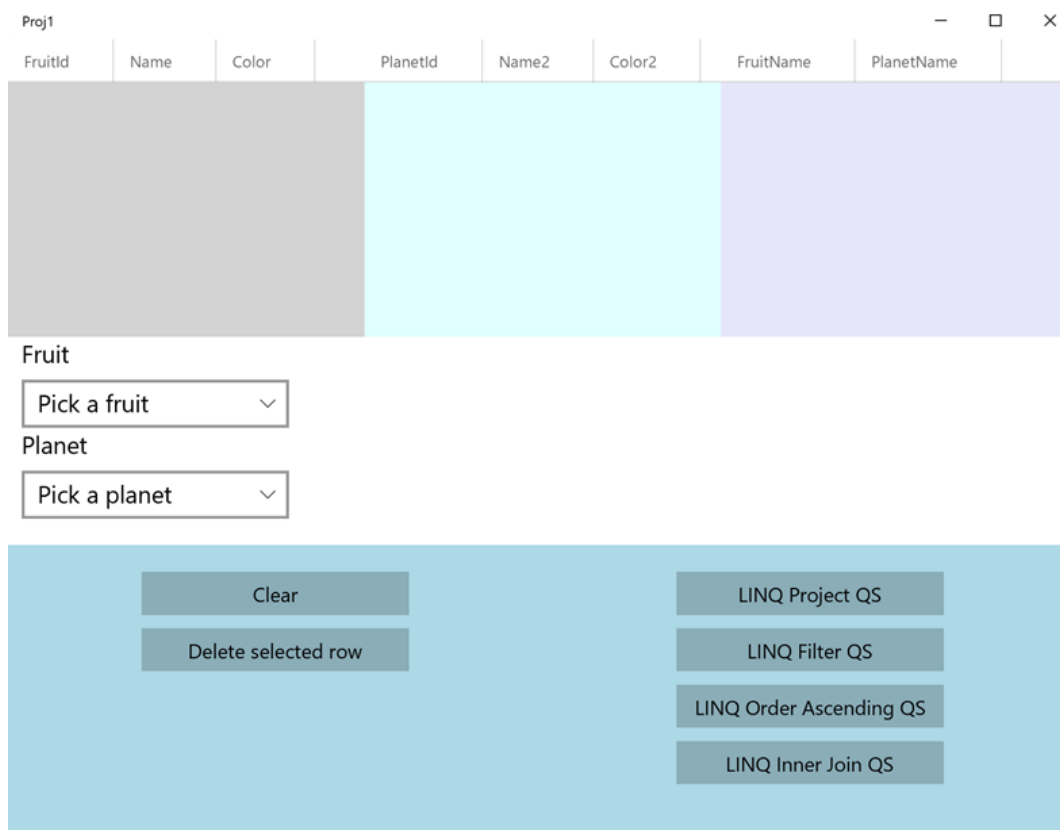


Figure 1. The GUI when launched.

2. There are Three DataGrids (in top row), two ComboBoxes (in middle row), six Buttons (in bottom row) present in the GUI layout. **Refer to the rubric for more information.**

Proj1

FruitId	Name	Color	PlanetId	Name2	Color2	FruitName	PlanetName
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kiwi red
grape blue
dates red
pear blue
Pick a planet

Clear
Delete selected row
LINQ Project QS
LINQ Filter QS
LINQ Order Ascending QS
LINQ Inner Join QS

Figure 2. Items in Fruit ComboBox.

Proj1

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FruitId	Name	Color	PlanetId	Name2	Color2	FruitName	PlanetName

Fruit

Pick a fruit ▾

Earth red

Jupiter blue

Clear

Delete selected row

LINQ Project QS

LINQ Filter QS

LINQ Order Ascending QS

LINQ Inner Join QS

Figure 3. Items in Planet ComboBox.

Proj1

FruitId	Name	Color		PlanetId	Name2	Color2	FruitName	PlanetName
8	kiwi	red		6	Earth	red		
9	grape	blue		7	Jupiter	blue		
10	dates	red						
11	pear	blue						
12	kiwi	red						

Fruit

kiwi red

Planet

Jupiter blue

Clear

Delete selected row

LINQ Project QS

LINQ Filter QS

LINQ Order Ascending QS

LINQ Inner Join QS

Figure 4. A sample set of items in DataGrid-1 (left datagrid) and DataGrid-2 (middle datagrid). **Note:** The **FruitId** **MUST NOT** be set by you. It should be automatically created for you when a Fruit object is saved in the database as a row. Same argument holds for the **PlanetId** of a Planet object.

Proj1

FruitId	Name	Color		PlanetId	Name2	Color2	FruitName	
8	kiwi	red		6	Earth	red	kiwi	
9	grape	blue		7	Jupiter	blue	grape	
10	dates	red					dates	
11	pear	blue					pear	
12	kiwi	red					kiwi	

Fruit

kiwi red

Planet

Jupiter blue

Clear

Delete selected row

LINQ Project QS

LINQ Filter QS

LINQ Order Ascending QS

LINQ Inner Join QS

Figure 5. The relevant items in DataGrid-3 (right datagrid) on clicking button “LINQ Project QS”.

Proj1

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FruitId	Name	Color	PlanetId	Name2	Color2	FruitName
8	kiwi	red	6	Earth	red	kiwi
9	grape	blue	7	Jupiter	blue	dates
10	dates	red				kiwi
11	pear	blue				
12	kiwi	red				

Fruit

kiwi red

Planet

Jupiter blue

Clear

Delete selected row

LINQ Project QS

LINQ Filter QS

LINQ Order Ascending QS

LINQ Inner Join QS

Figure 6. The relevant items in DataGrid-3 (right datagrid) on clicking button “LINQ Filter QS”. Here the “filter” is the color **red**.

Proj1

FruitId

Name

Color

PlanetId

Name2

Color2

AscendingName

8	kiwi	red	6	Earth	red	dates
9	grape	blue	7	Jupiter	blue	grape
10	dates	red				kiwi
11	pear	blue				kiwi
12	kiwi	red				pear

Fruit

kiwi red

Planet

Jupiter blue

Clear

Delete selected row

LINQ Project QS

LINQ Filter QS

LINQ Order Ascending QS

LINQ Inner Join QS

Figure 7. The relevant items in DataGrid-3 (right datagrid) on clicking button “LINQ Order Ascending QS”.

Proj1

FruitId

Name

Color

PlanetId

Name2

Color2

FruitName

PlanetName

8	kiwi	red	6	Earth	red	kiwi	Earth
9	grape	blue	7	Jupiter	blue	grape	Jupiter
10	dates	red				dates	Earth
11	pear	blue				pear	Jupiter
12	kiwi	red				kiwi	Earth

Fruit

kiwi red

Planet

Jupiter blue

Clear

Delete selected row

LINQ Project QS

LINQ Filter QS

LINQ Order Ascending QS

LINQ Inner Join QS

Figure 8. The relevant items in DataGrid-3 (right datagrid) on clicking button “LINQ Inner Join QS”.

Submission of Assignment:

- Slides/Code related to lectures on WPF, LINQ may be useful.
- Make sure that there is one project folder **Proj1** under the **Visual Studio 2019** solution folder **Lab5**.
- Make sure your code **compiles** (and runs) in **Visual Studio 2019** installed in a **Windows 10** computer before submission.
- In Visual Studio, in Solution Explorer, right-click on the solution **Lab5** and choose **Clean Solution**.
- Compress the Visual Studio solution folder **Lab5** and all its contents into a single zip file. This will be your submission file. You **MUST** name your submission file according to the following rule:
groupNumber_COMP212_labNumber.zip
 Example: group1_COMP212_lab5.zip
- Next, submit above zip file on eCentennial through the **assignment** link.