Lab#5 – LINQ & Entity Framework Core

Due Date: Friday Midnight of Week#12

Purpose: The purpose of this assignment is to help you:

- Become familiar with LINQ and Entity Framework
- To implement .NET app to manipulate data within the database
- Build up understanding of MVVM pattern

Instructions: Be sure to read the following general instructions carefully:

This assignment should be completed individually by all the students. You are encouraged to demonstrate your solution during lab session, and submit your solution through the dropbox. You must name your submission according to the following rule:
studentID(yourlastname)_Labnumber.zip. e.g., 300123456(smith)_Lab#5.zip

Rubric

	Functionalities	Marks
Q1	Functionalities	4
Q2	Model 1. Provide proper data model class(es) to facilitate interaction with database	3
	UI (i.e. View) 1. Main window 1.1 Use implicit DataTemplate (1 mark) 1.2 Others (0.5 mark) 2. Include a WPF UserControl for listing all books with authors 2.1 Use Converter property to present all authors in one column (0.5 mark) 2.2 Others (0.5 mark) 3. Include a WPF UserControl to facilitate new book insertion (0.5 mark)	3
	Functionalities 1. list of all the titles and the authors who wrote them. Sort the results by title 1.1 Query data from database (2 marks) 1.2 Present query result in DataGrid (2 marks) 2. Add a new book to the database 2.1 Obtain user's input (1 mark) 2.2 Add the new book to the database (3 mark) 3. After the new book has already been inserted, when the user clicks button "List BookTitle with Authors", then the newly added book should be listed (1 mark)	9
	Overall (code readability, app usability, etc.)	1

Question1 [4 marks]

Finish the console application Q1 by accomplishing following requirements (using the information in the provided file **Country.cs**):

1.1 List the names of the countries in alphabetical order [0.5 mark]
1.2 List the names of the countries in descending order of number of resources [1 mark]
1.3 List the names of the countries that shares a border with Argentina [0.5 mark]
1.4 List the names of the countries that has more than 10,000,000 population [1 mark]
1.5 List the country with highest population [1 mark]

Question2 [16 marks]

Implement a **WPF app** to allow end users to retrieve or/and manipulate the data within the database (**Books.mdf**). You should use **MVVM** pattern.

1. Get a list of all the titles and the authors who wrote them. Sort the results by title. Display the results in the UI (Similar to Figure 1)
2. Facilitate adding new book(s) to the database (Similar to Figure 2).
3. Again, display the sorted list in the UI (Similar to Figure 3).

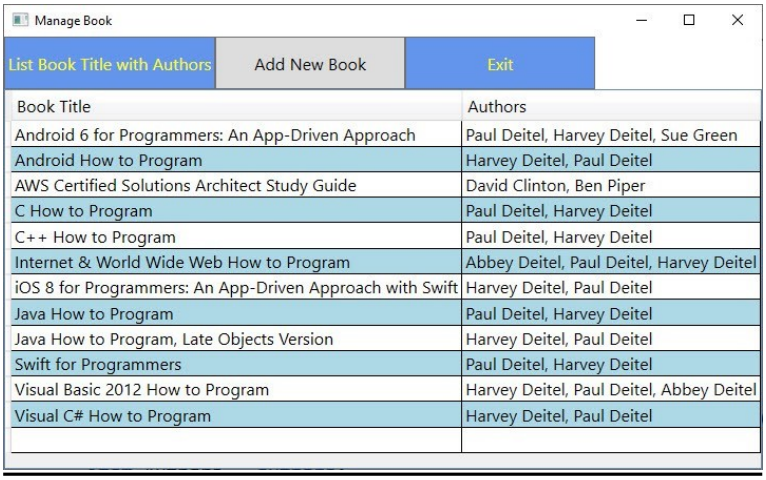

Figure 1

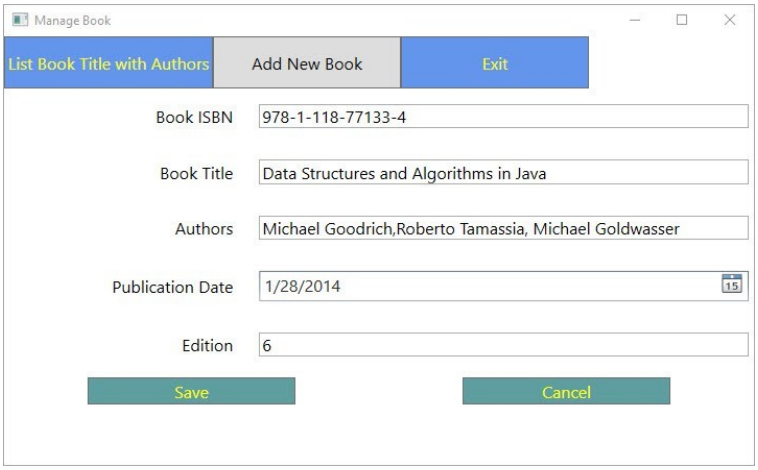

Figure 2

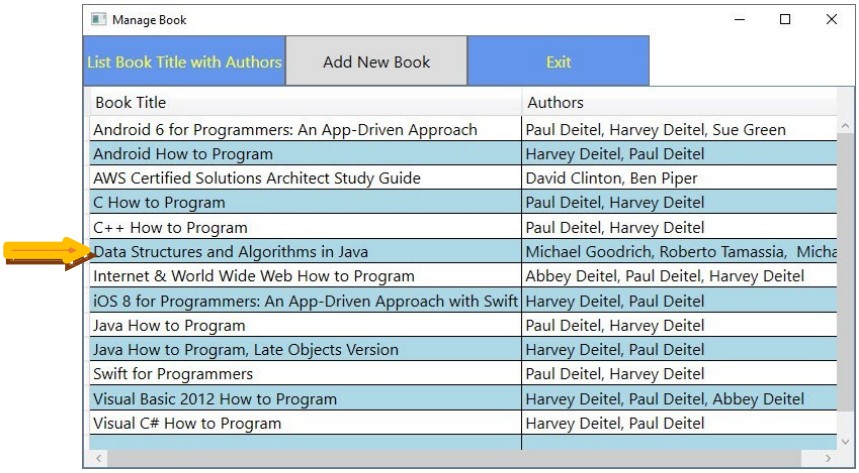

Figure 3