Ministry of Education of Republic of Moldova

Technical University of Moldova

Deapartment of Applied Informatics

Laboratory Work Nr.3

at Web Technologies

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Topic:DO SOME CRUD

Goals:

1. Understand what is an ORM and how to use item
2. Get more familiar with MVC pattern
3. Understand Business Logic pattern

Main Requirements:

1. Define one model;
2. Implement basic Create, Read, Update, Delete operations for the defined model

Bonus Points:

1. 2 or more models are defined and there are some relationship between them(FK, MtM...) (2pt)
2. Define an image field or something related in a model. Display the uploaded image in detail view (1pt)
3. On the list view implement some basic filtering(searching field, etc...) (1pt)

Theory

Object Relational Mapping(ORM) ORM is a technique that lets you query and manipulate data from a database using an object-oriented paradigm. is a type of tool that simplifies mapping between objects in your software to the tables and columns of a relational database. An ORM takes care of creating database connections and executing commands, as well as taking query results and automatically materializing those results as your application objects. It also helps to keep track of changes to those objects, and when instructed, it will also persist those changes back to the database for you.
In our laboratory work, I used Entity framework that is an open source ORM framework for ADO.NET which is a part of .NET Framework.[1]

As per the above figure, Entity Framework fits between the business entities (domain classes) and the database. It saves data stored in the properties of business entities and also retrieves data from the database and converts it to business entities objects automatically.

Entity framework approaches:

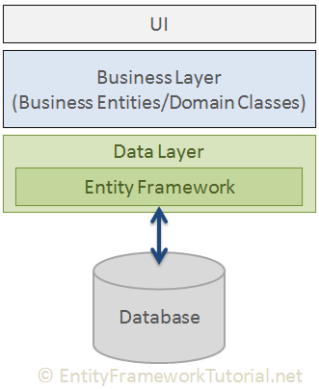

Figure 1: Entity framework

1. Code-First - you focus on the domain of your application and EF API will create the database based on your domain classes

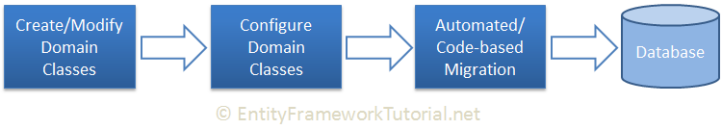

Figure 2: Entity framework

2. Database first - you already have a database and code is generated based on the database' fields.

Solution

In order to implement all the laboratory tasks , I used ASP.NET, MVC pattern, Entity Framework, also I worked with Sql Server Database.

In my project, I used to models that contain the user information: name, surname, email etc. and another one for design styles. Since design style is included in user info form shown in Figure 3, there should be a relationship between this two entities, here I used the **foreign key**.It is is a column or combination of columns that is used to establish and enforce a link between the data in two tables.

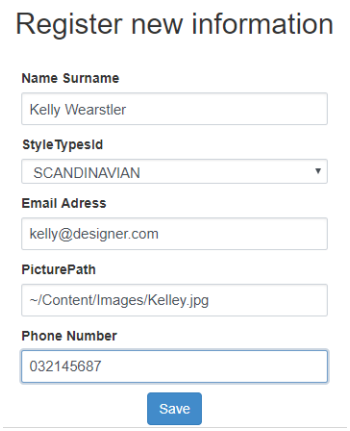

Figure 3: User form

In order to check if all the input fields are filled with information, I used the ASP.NET User Input Validation and Validation Summary. Data Annotations were used to define some required fields, keys, validators, display rules, minimum and maximum length attributes.

Next step was implementing the CRUD operations, so I created a controller were I implemented all functions responsible for this, named userInfoController. Also there are implemented the function for searching and filtering the info.So finally I obtained the result shown in figure 4 and 5

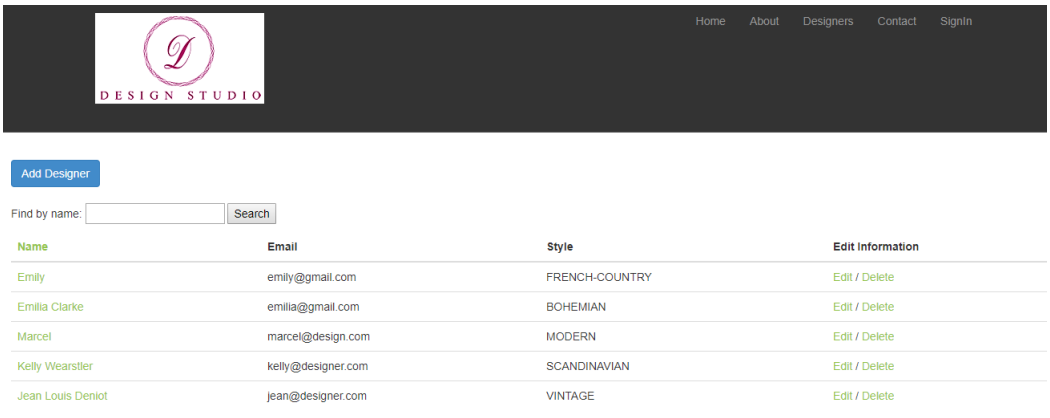

Figure 4: Designer list

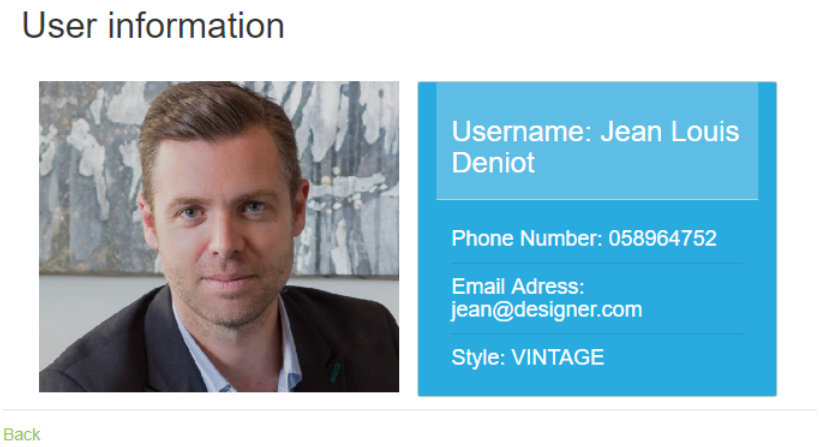

Figure 5: Detail page

Implementations

1. CRUD operations
2. 2 models were defined and the relationship between them were defined by using FK
3. An image field were defined and the image is displayed on the user detail page
4. Filtering users in the list according to their names
5. Searching

Conclusion

During this laboratory work, I applied in practice all my knowledge about how MVC pattern should work. I learned how to work with entity framework, using code first approach, so I have defined only the models and using migrations the tables I created the tables in the database. I have some problems with database, since at the beginning a column that I didn't define were created and defined by EF as foreign key and I can't access it, I tried to delete it, but it were created again and again,so I deleted all I have done, and began the laboratory work again. This laboratory helped me to better understand how we can use tools provided by ASP.NET in order to create a Web Page and finally due to it, I applied in practice all the knowledge gathered at the courses.

Bibliography

1. `https://www.tutorialspoint.com/entity_framework/entity_framework_overview.htm`
2. `https://docs.microsoft.com/en-us/ef/`