Remote Learning 2020-2021 - Module II

Session 02x02 – Linq - Reflection

# Topics to study

## Extension Methods

* Extension methods are almost normal static methods. They differ by the way they are called. They can be called as if they were instance methods belonging to the type they extend.
* This type of methods helped in the creation of the Linq framework. All the Linq methods are Extension Methods.
* <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/classes-and-structs/extension-methods>

## Lambda expressions

* The lambda expressions can be seen as being anonymous methods that are using a shorter syntax.
* They are also very important when using Linq. They provide a way to adjust the behavior of almost any Linq method.
* <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/statements-expressions-operators/lambda-expressions>

## Linq

* Linq is a set of extension methods that act on an IEnumerable instance in order to interrogate the collection.
* <https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/concepts/linq/>

## The IQueriable interface

* This interface offer support for Linq queries to be translated, under the hood, into another query language, like SQL, that can be executed in another process and even on another machine.
  + ex: Entity Framework creates, behind the scenes, from the Linq queries you provide, SQL queries that are executed on the database server.
  + Note: We will learn about Entity Framework in a later session.
* <https://docs.microsoft.com/en-us/dotnet/api/system.linq.iqueryable?view=netframework-4.8>
* <https://docs.microsoft.com/en-us/dotnet/api/system.linq.iqueryable-1?view=netframework-4.8>

## Reflection

* Reflection is a way of interrogating, at runtime, the contents of an assembly (types, methods, properties, fields, etc...)
* Important Types:
  + Assembly, Module, Type, ConstructorInfo, MethodInfo, FieldInfo, EventInfo, PropertyInfo, ParameterInfo, etc…
* The documentation from Microsoft is pretty good. Start from here:
  + <https://docs.microsoft.com/en-us/dotnet/framework/reflection-and-codedom/reflection>

# Homework

## Hotel Queries (Linq)

The exercise and the requirements can be found inside the “Hotel Queries - Linq.zip” file.

See the “requirements” directory inside the zip.

## Eyeglass (Reflection)

The exercise and the requirements can be found inside the “Eyeglass - Reflection.zip” file.

See the “requirements” directory inside the zip.