Lab, Lambda

Objective

The primary objective for this lab is to create and use Linq and lambda expressions in C#.

Overview

In this lab you will create and execute LINQ and lambda expression to extract and display information from a data store.   
  
There is no need to understand how the data is stored (as JSON) or how it is retrieved because you'll have access to two static properties in a class called Database. These properties are called Customers and Orders. The Customers property returns a List<Customer> and the Orders property returns a List<Order>. The code for the Customer and Order classes are already written.  
  
When you run the application for the first time, you'll see all the Customer and Order records displayed in two Grid controls.

Your task is to filter and display customers and orders using LINQ at first and then Lambda expressions in the second part of the lab.

Step by step.

1. Open a pre-supplied Visual Studio solution (.sln) called **‘LinqAndLamda.sln’**.  
   It can be found in **12 Lambda**
2. Run the application and observe how it works.
3. Click anywhere in the grid which displays the customers and you'll see the ID of the customer is displayed using a simple MessageBox.
4. Please read the code in Form1 and observe:
   1. how the records are loaded into the Grids using their DataSource property
   2. how the CustomerID is extracted and displayed using a MessageBox

There are a number of comments in Form1 in the form of // TODO for you to perform.  
  
Please write these using Lambda expressions.   
  
**Hint:** When you run a LINQ/Lambda query, it doesn’t actually run the query straight away. The query only gets run when it’s absolutely needed by the code. Typically this would be either a) when you use a “foreach” to enumerate the results, or b) when you use ToList() on the results.

Because of this, if you assign the result of a LINQ query to a DataGridView’s DataSource property directly, it won’t work. You will need to call ToList() on the LINQ query result first, to force the query to run.

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