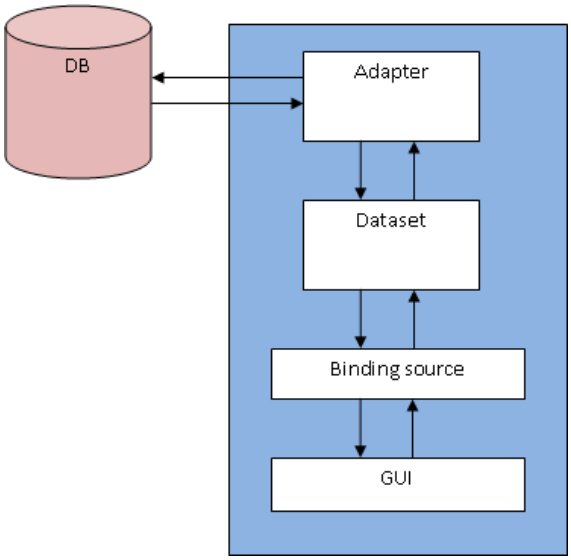
Database Tutorials

Hello everyone… welcome to database tutorials. These are going to be very basic tutorials about using the database to create simple applications, hope you enjoy it. If you have any notes about it, please send them to **notes@mka-soft.com.** Finally if you find these tutorials are useful, it would be nice from you to send a small donation via PayPal to **donation@mka-soft.com**.

The work with this tutorial started on 2010-JUNE-18.

Introduction

In order to access a database, the .NET framework provides a set of libraries that simplify database access. This library is called ADO.NET. The figure below shows the architecture of such library, however keep in mind this figure is not exactly accurate since it is just used to help understanding the basic idea.



The DB here obviously refers to the database, while the blue part refers to yours application. The components can be explained as follows:

DB: the database, or sometimes the datasource. This could be an access database file, an Oracle database, My Sql database, or any other source of data.

Adapter: the job of the adapter is to access the physical database, and read/update the content in it.

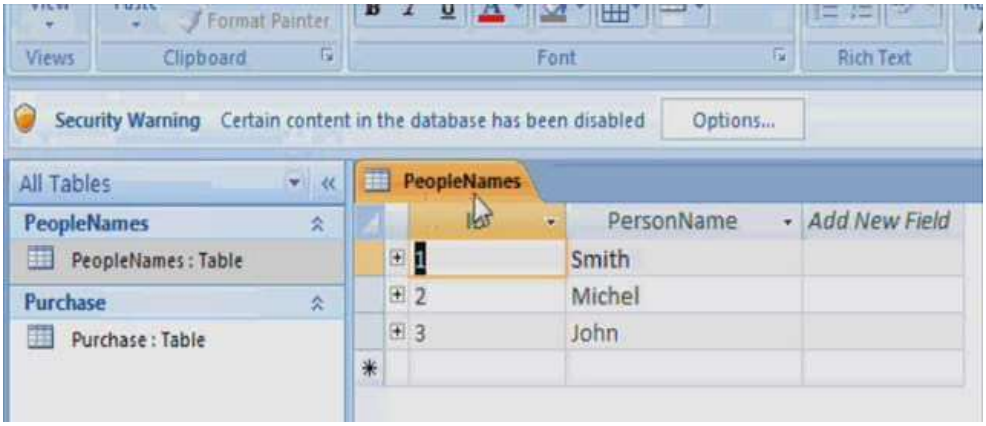
Dataset: the dataset is a portion of the database data that sits in memory, your application access that data in memory, and reads/modifies it.

Binding source: the binding source is a piece of software that simplifies the process of displaying the information in a dataset into a GUI control.

GUI: the graphical user interface component that is used to display the data. For example the DataGridView control can display a table.

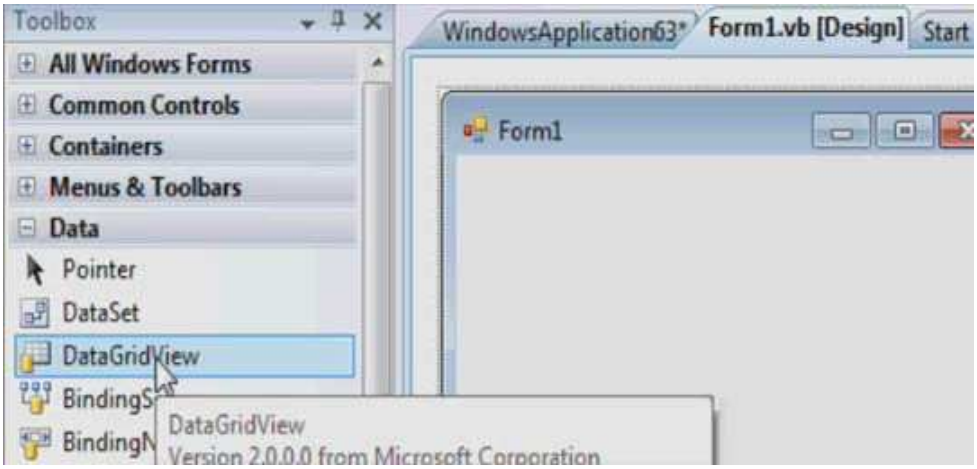
To see how these components work in action we start developing a simple application to display the a table on a form.

First of all you need to have an access database file containing a number of tables make sure it has a primary key for each of the tables you want to view.

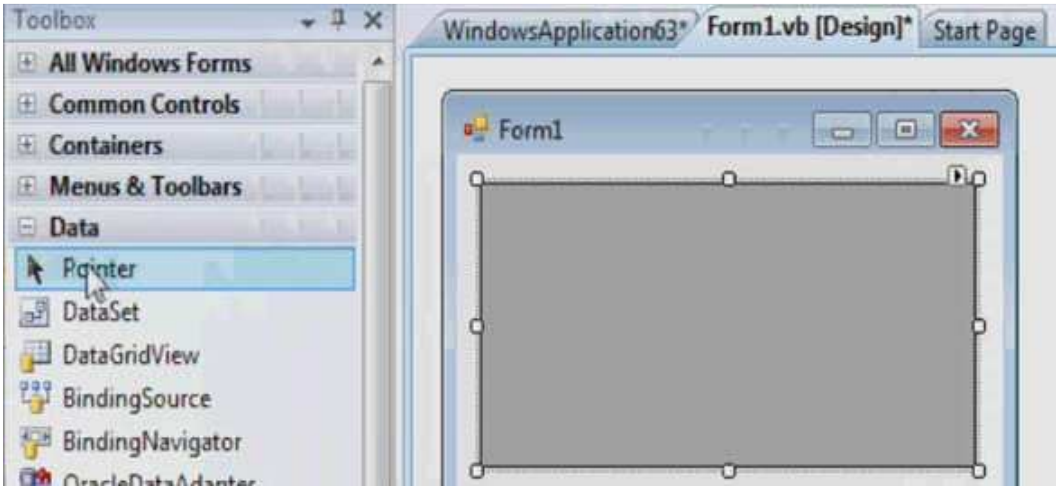


In the example we have two tables, **PeopleNames** which has an ID and PersonName, the other one **Purchase** will be ignored for now. You can create any other table for the test.

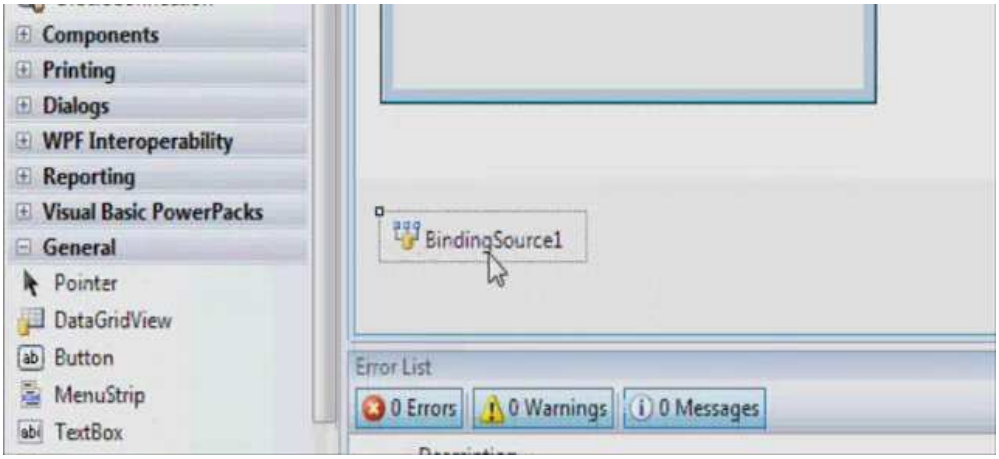
Now start a new visual basic project



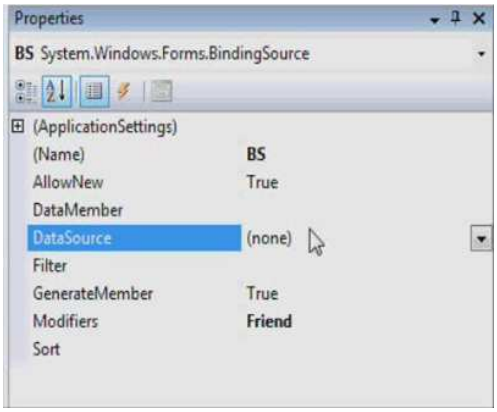
If you go to the Data Controls, you find a number of controls that simplify working with Databases. First draw a DataGridControl on the form



This represents the GUI in the previous chart. Next draw a Binding Source control on the form

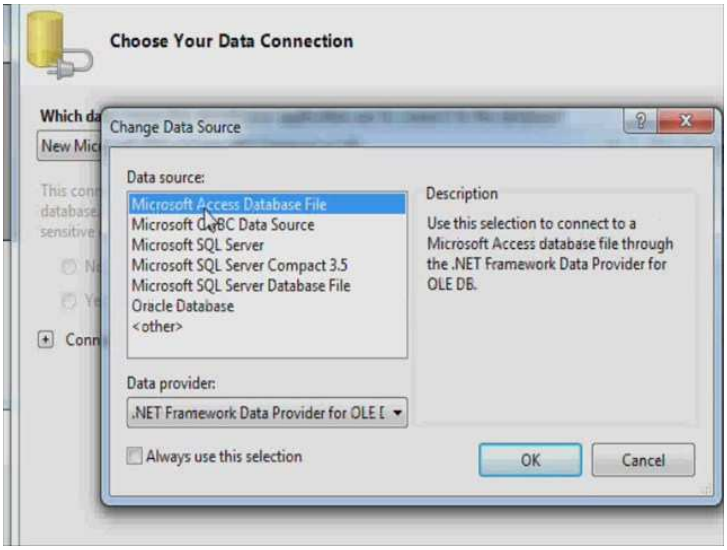


We have to link this binding source to some data, so go to properties,

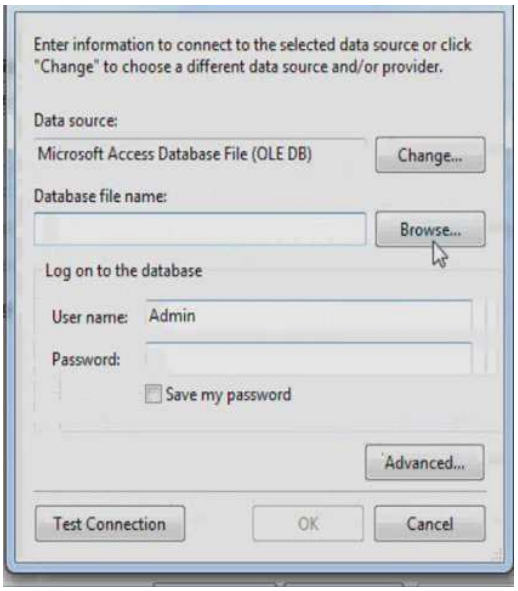


In the DataSource you will find (none). Click the arrow, then add a datasource to the project

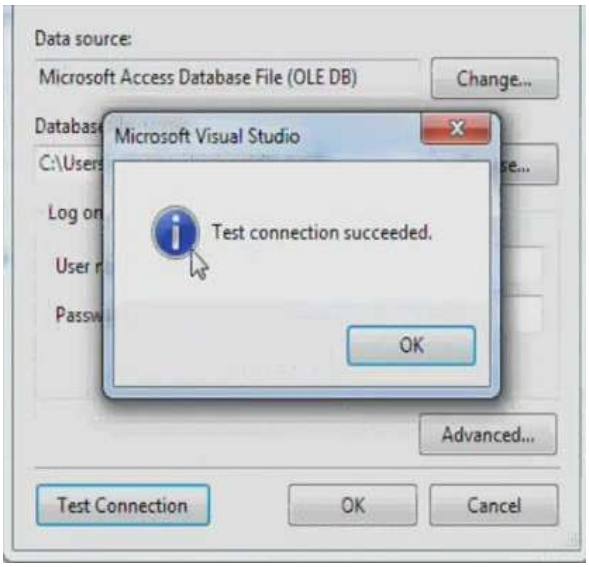
Select a database, then next



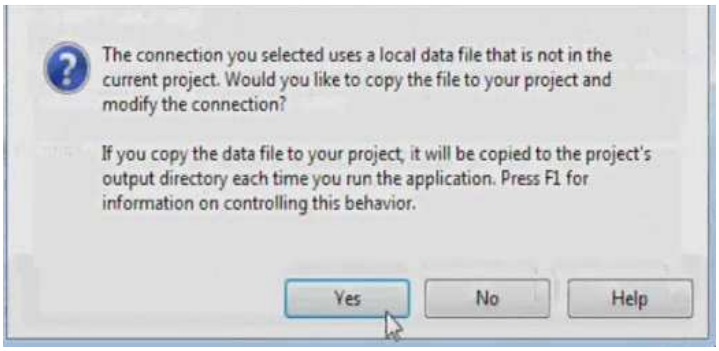
Select Microsoft Access Database Fie, then OK



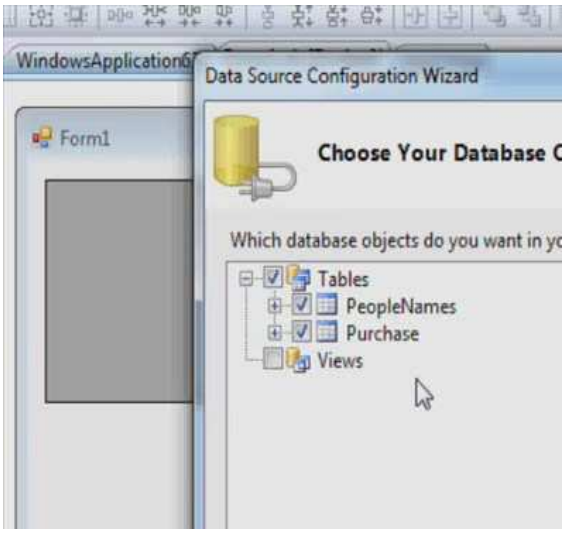
Browse and select the database file, then test the connection



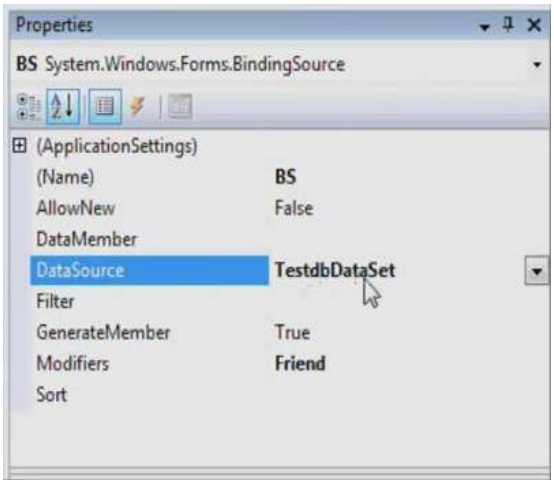
Press OK then press Next



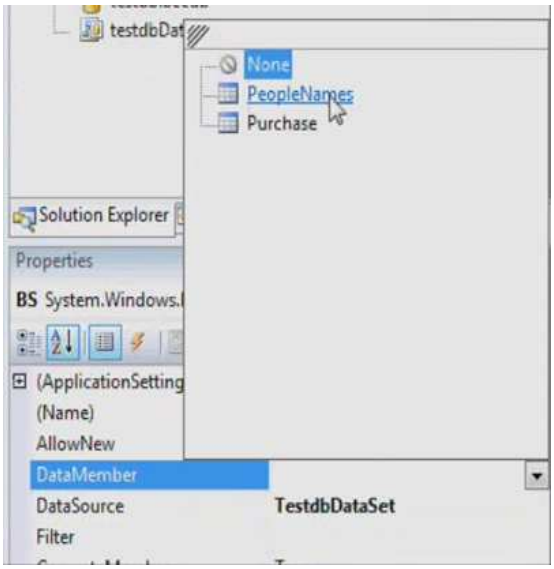
A window appears asking if you want to include the database in your project. Click yes, then press next



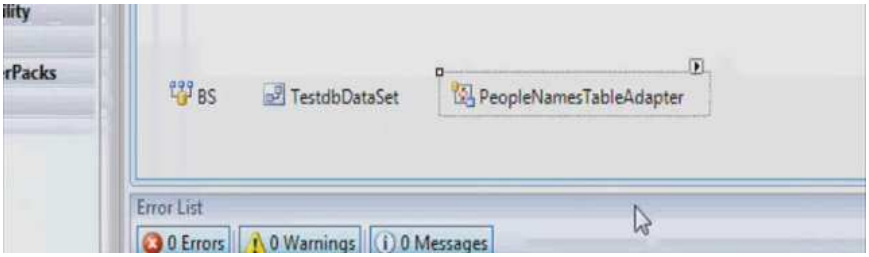
In this window select the tables you want to access in your application. Then select finish.



We have just created the DataSet, Next step is to specify DataMember, or the table that the binding control is going to link with the DataGridView object. Click the DataMember property



Select PeopleNames.



As you can see there is now:

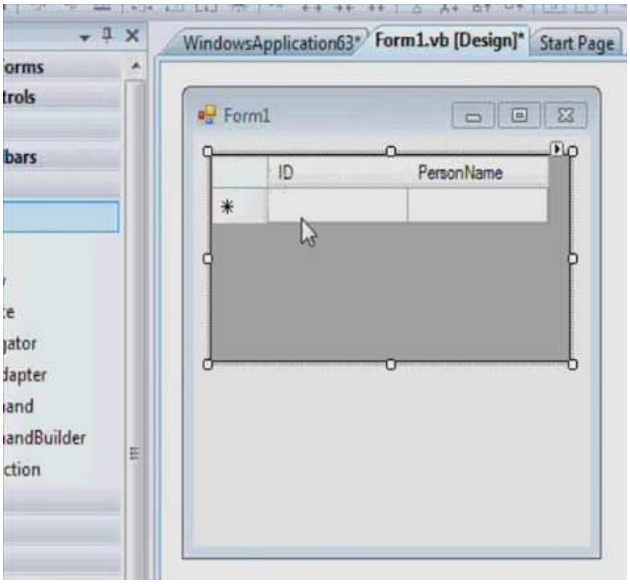
DataGridView which is the GUI

BS which is the binding source

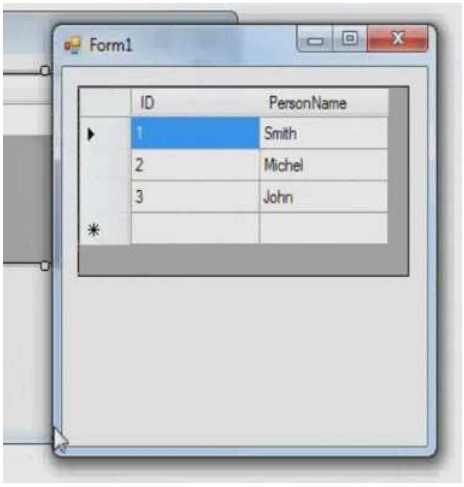
TestdbDataSet which is the memory buffer (or the dataset) used to access the tables

PeopleNamesTableAdapter which is the Data Adapter used to fill the dataset

One last thing is to select the DataGridView, and set its BindingSource property to BS

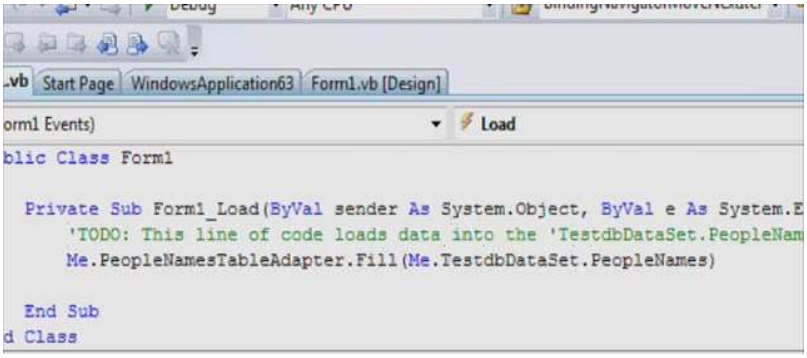


Now run the application



As you can see the table contents are displayed successfully in the form.

Now, double click the form



As you can see during form loading stage, the DataAdapter is being called to fill the DataSet, Try commenting the line and execute the application and see what happens.

Also, try to go to the place where the executable file is, run the executable and modify the data, close the application and then reopen the application again, you will see that the information is affected. This is simply because you have been updating the information in memory not in the database. If you want to modify the information in the database, you should do that through DataAdapter.

To test this just add a button, and add the following code to it.

```
    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As Sy
        PeopleNamesTableAdapter.Update(TestdbDataSet.PeopleNames)
    End Sub
End Class
```

Run the code and modify the data, after that click the button, you will see that the changes are stored in the database. If you check the line of code carefully, you will see that you told the data adapter to update the database to be identical to what is in memory (the dataset).

So this will be all for today. If you have questions or notes, send them to notes@mka-soft.com.

Thank you.

mkaatr