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TECHNOLOGY

# FIT5192 Module 2

## Internet Applications Development

### Lecture 7A

# Lecture Overview

1. Introduction
2. Creating **datastores**
3. **Using** datastores – Access
4. **Using** datastores – SQL

# Introduction

# Data Stores

Many Applications need to access a Database

Some common data sources include:

- Enterprise strength RDBMS such as Oracle, Microsoft SQL Server and IBM DB2

- Desk-top RDBMS such as Microsoft Access

- Spreadsheet files such as Microsoft Excel

- XML based data

# A Simple Database

Microsoft Access can be used to create simple databases

E.g. Bill & Ben's Flower Pot Shop

A database will be set up with the following fields:

**product\_id**: the catalogue number of the product

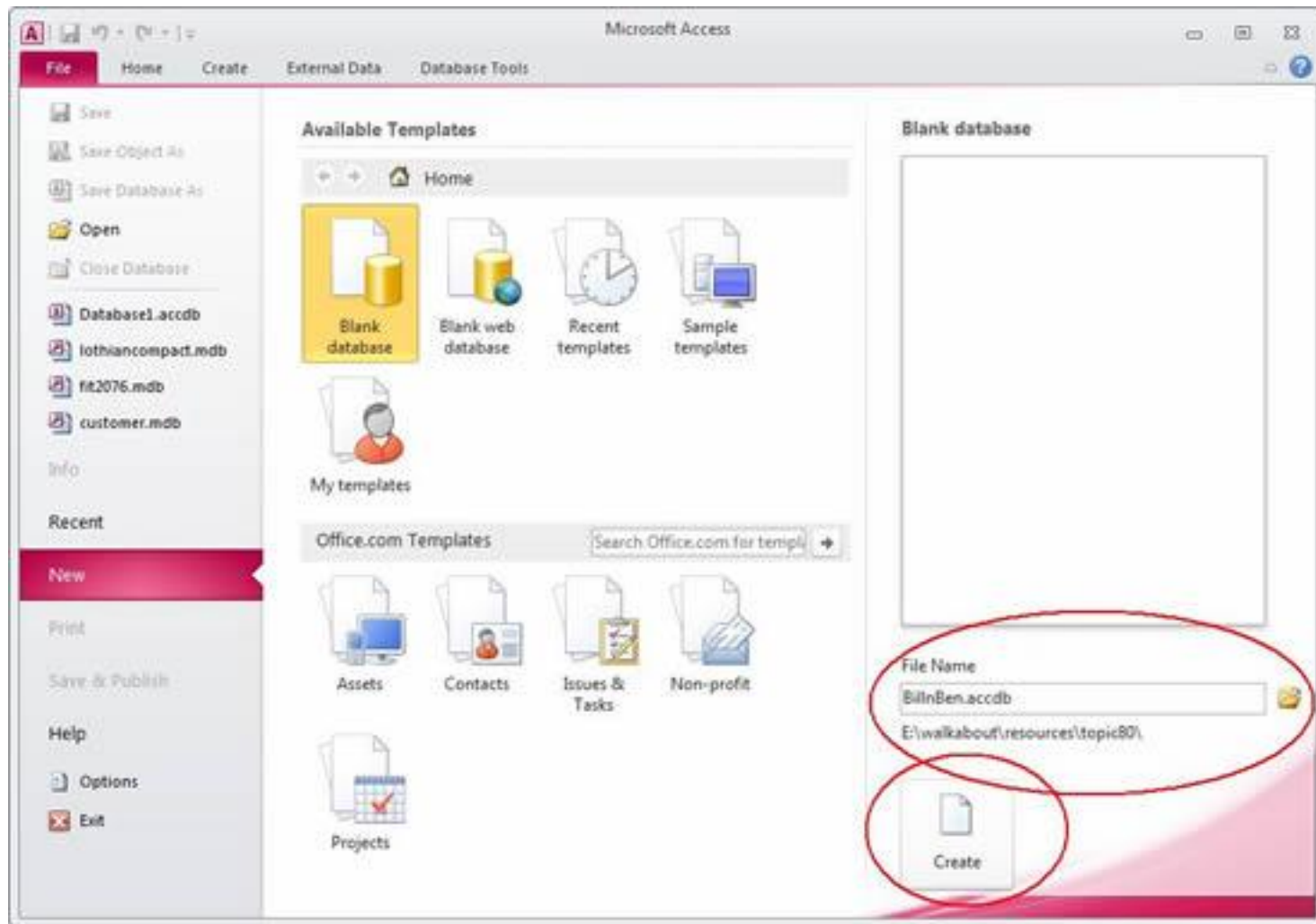
**product\_name**: the name of the plant

**product\_price**: the price of each plant

**product\_url**: the relative url of a jpg image of each plant, so that the catalogue will show pictures of the plants.

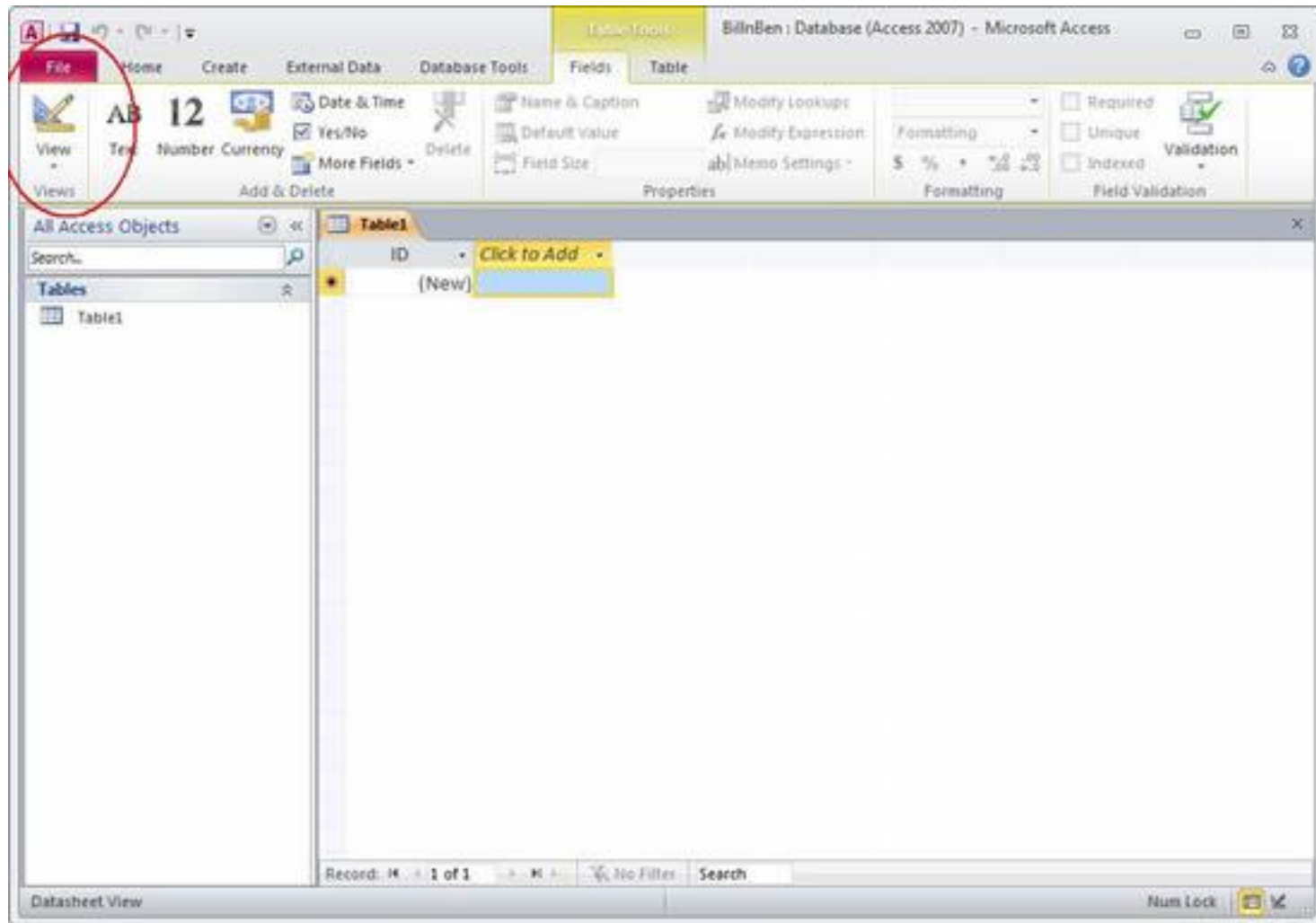
# Creating a Datastore

# Microsoft Access: *Creating* a DataStore



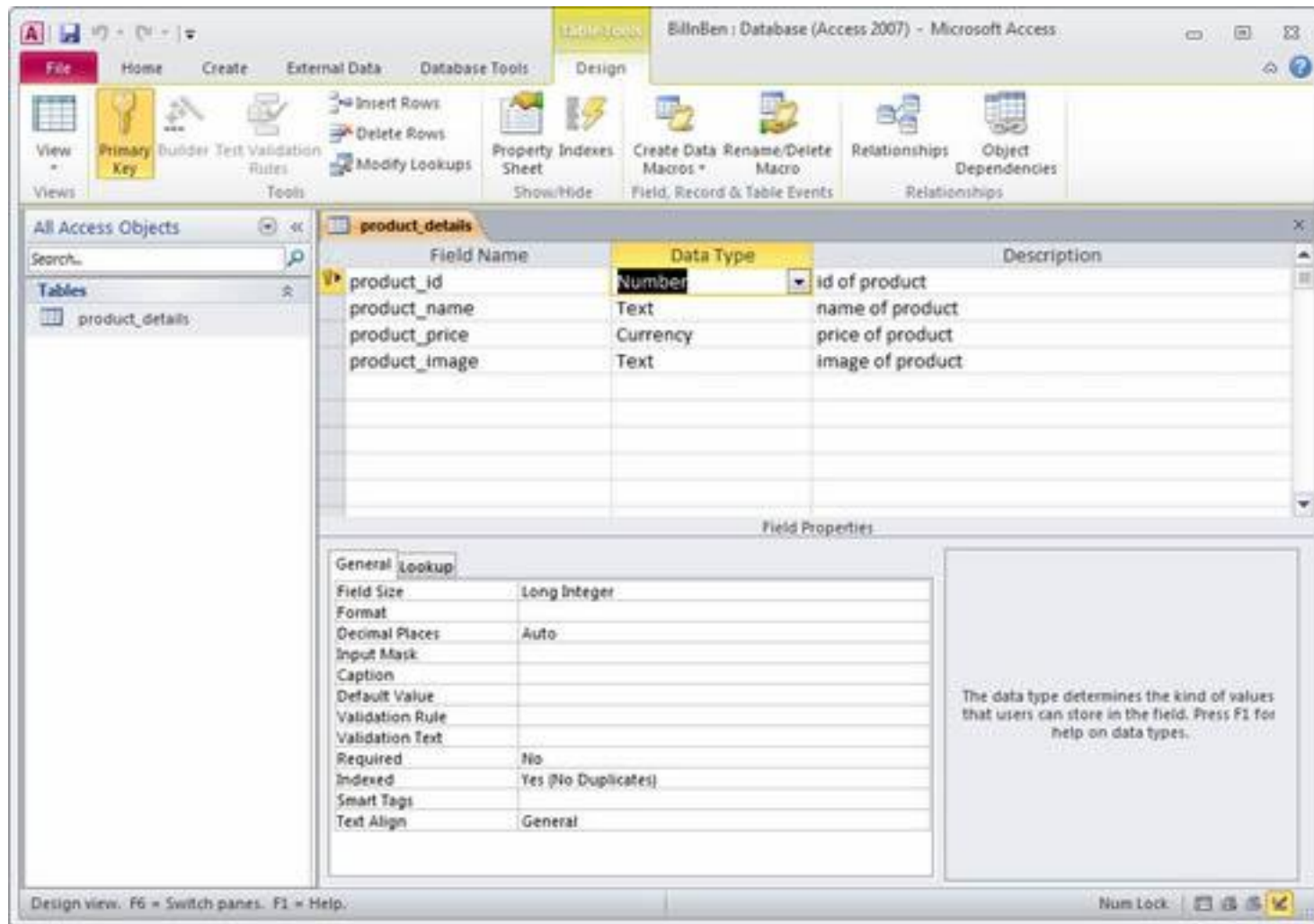


## Adding Attributes (fields)

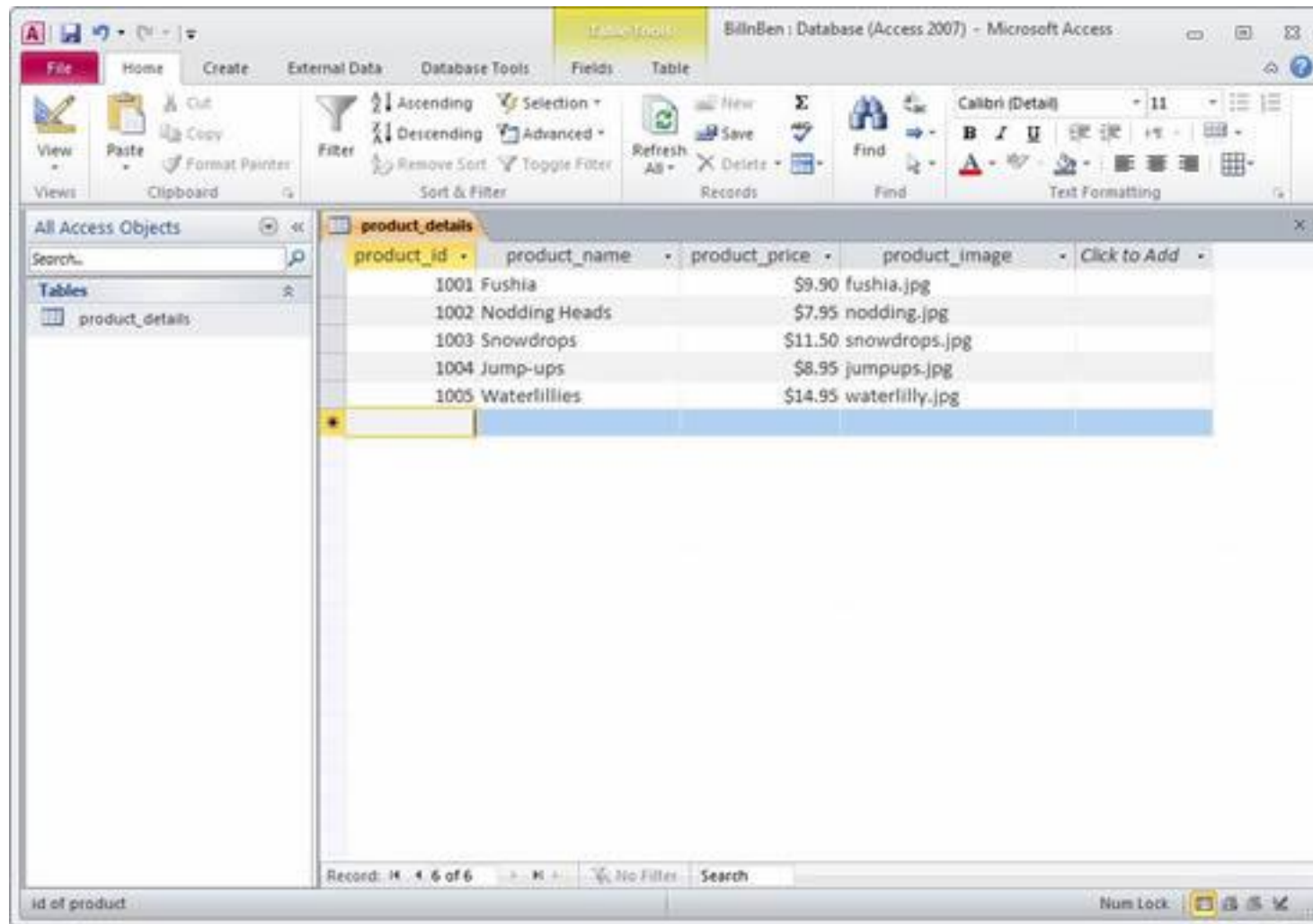




# All attributes required for Business



# Add **data** to Data Store



# Using DataStores- Access

# Data Source Controls

DataSource controls were introduced in ASP.NET 2.0.

Create a layer of abstraction between ASP.NET and the Data Providers instead of:

- code to connect to a datastore,
- issue an SQL command and
- then retrieve the results

Carried out using standard ASP.NET control syntax.

# Data Source Controls

- Once a data source control has been properly configured
- Can be bound to any data Web control
- The data Web control will automatically invoke
  - the associated data source control
  - retrieve its data
  - and display it as configured.
- Note that behind the scenes, the data source controls are performing a lot of steps. However, the complexity is hidden from the developer.

# AccessDataSource Control

```
<asp:accessdatasource runat="server" id="dsAccess" DataFile="BillnBen.accdb"  
SelectCommand="SELECT * FROM product_details" />
```

.....

```
<asp:GridView ID="gvProducts" runat="server" DataSourceID="dsAccess" />
```

## Product Details

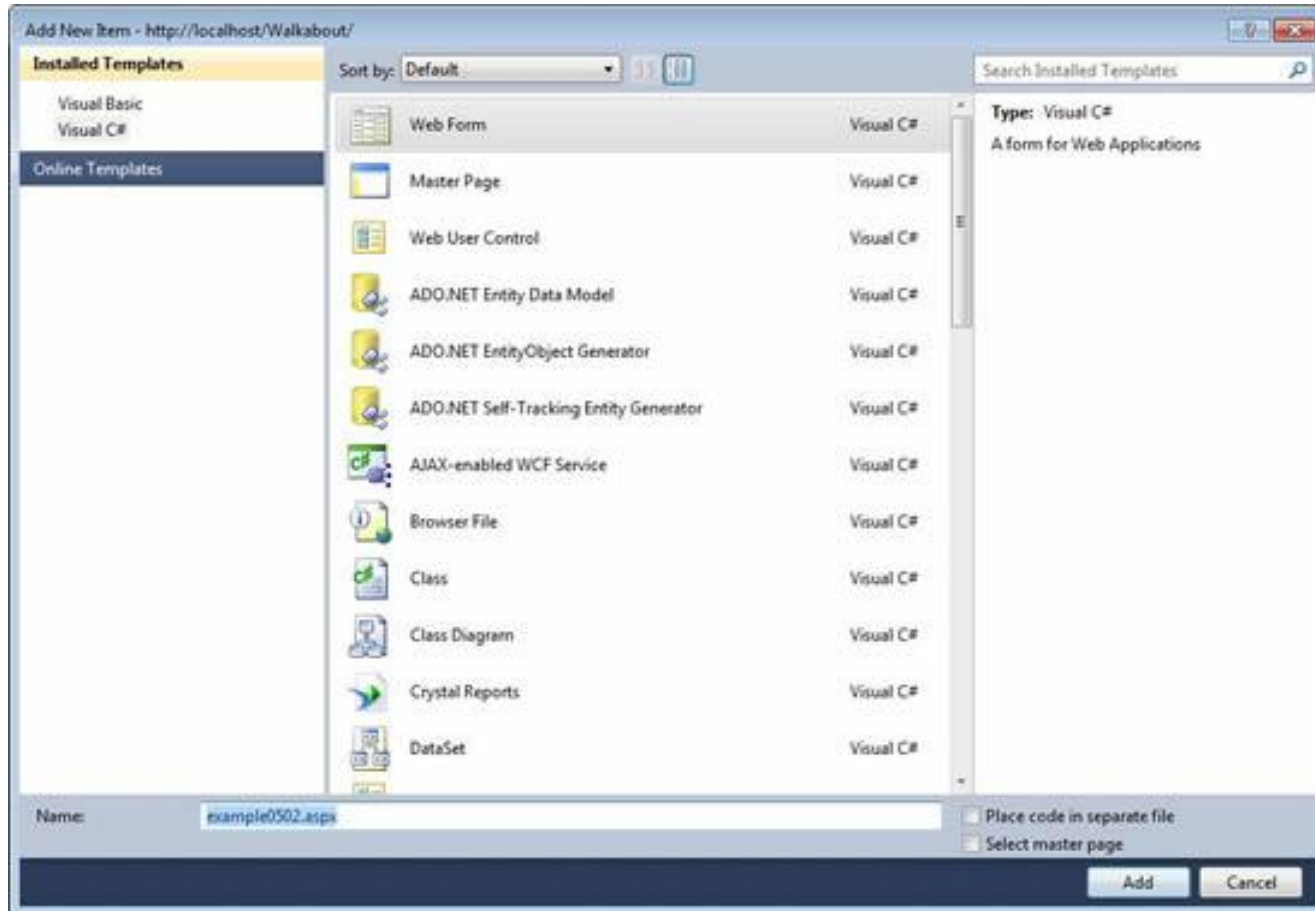
product_id	product_name	product_price	product_image
1001	Fushia	9.9	fushia.jpg
1002	Nodding Heads	7.95	nodding.jpg
1003	Snowdrops	11.5	snowdrops.jpg
1004	Jump-ups	8.95	jumpups.jpg
1005	Waterlillies	14.95	waterlilly.jpg
1006	Maybells	6.55	maybell.jpg
1007	Springups	9.95	springcup.jpg
1008	Hydrangea	11.55	hydrangea.jpg
1009	Tiger Lillies	14.95	tigerlily.jpg
1010	Tulips	17.45	tulip.jpg



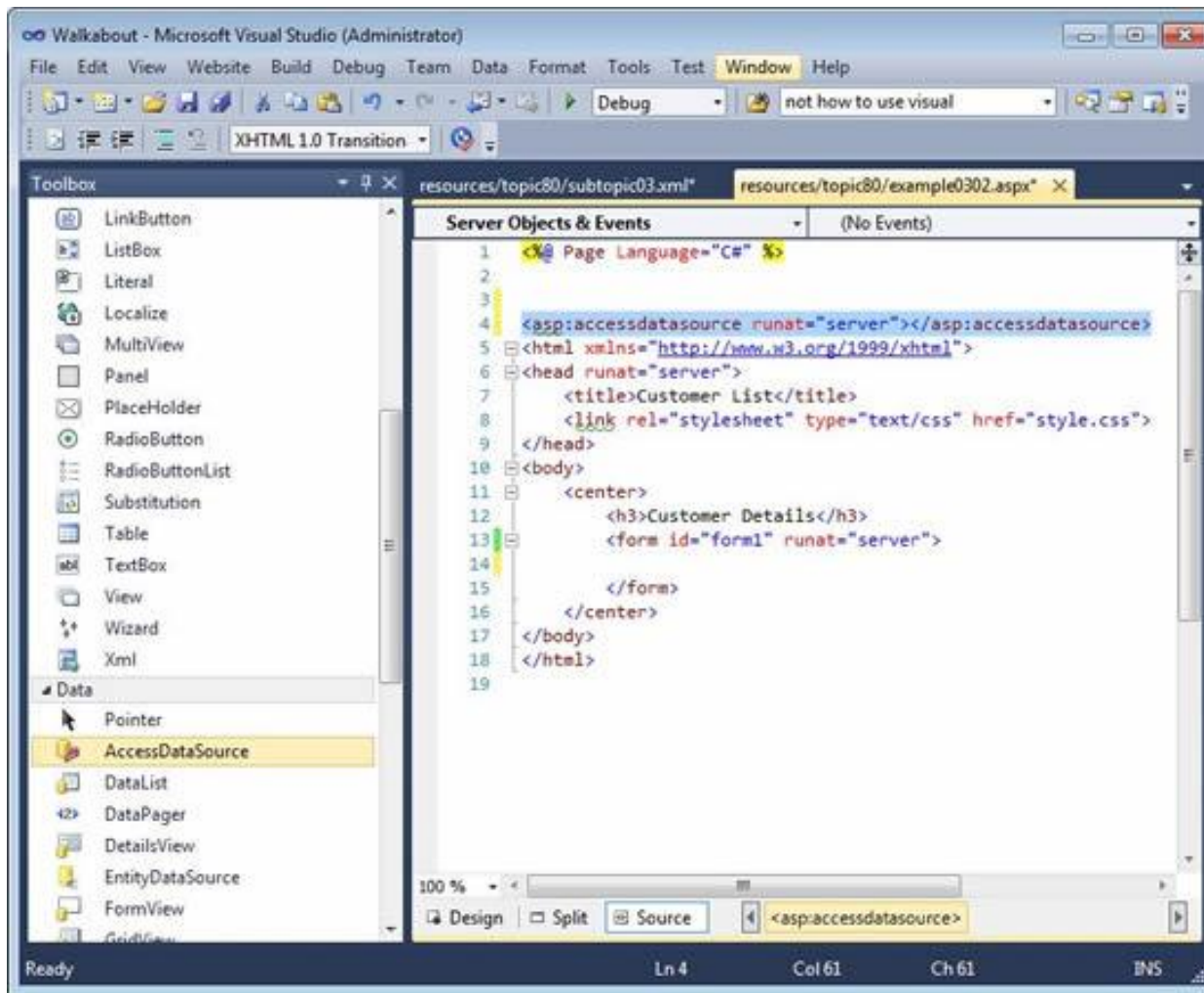
# Using Visual Studio Design Tools

# Using Visual Studio to Add DataSource Controls

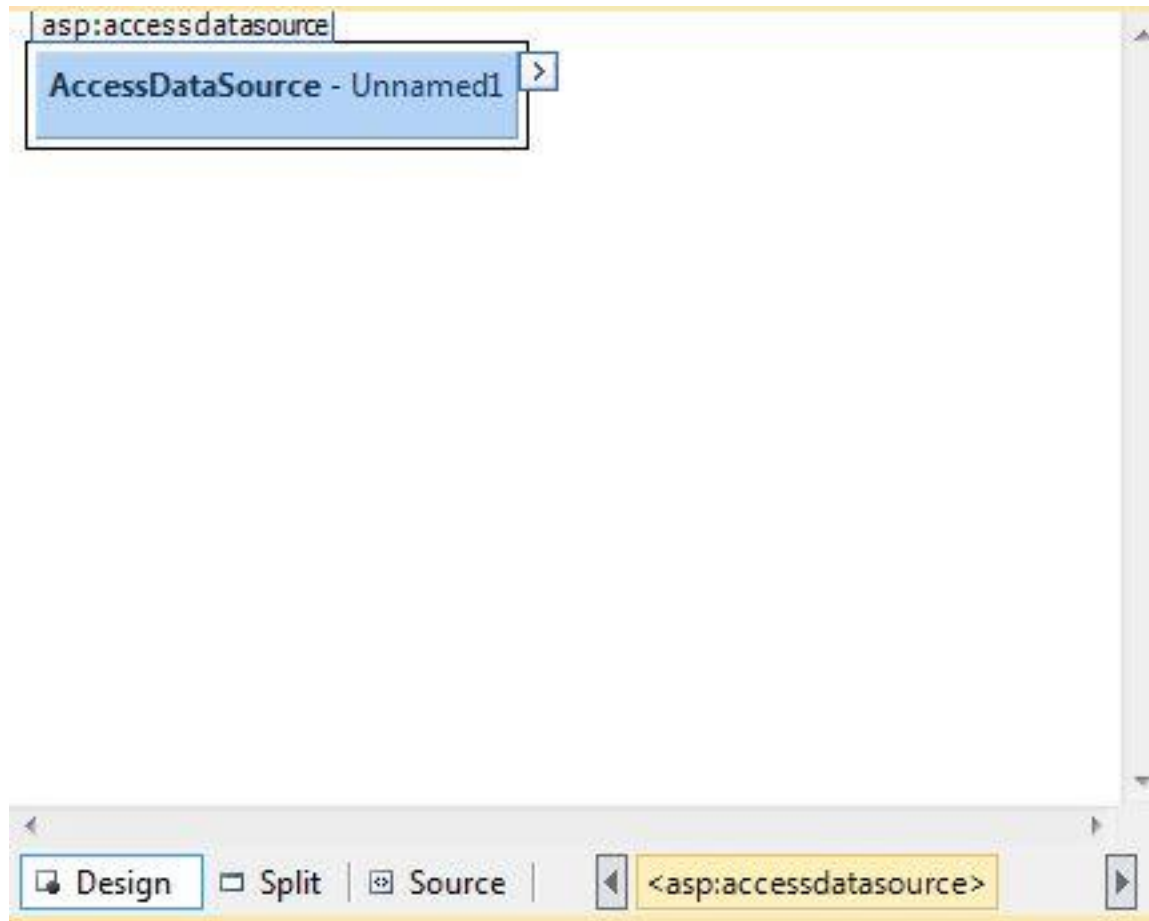
## Add a new WebForm



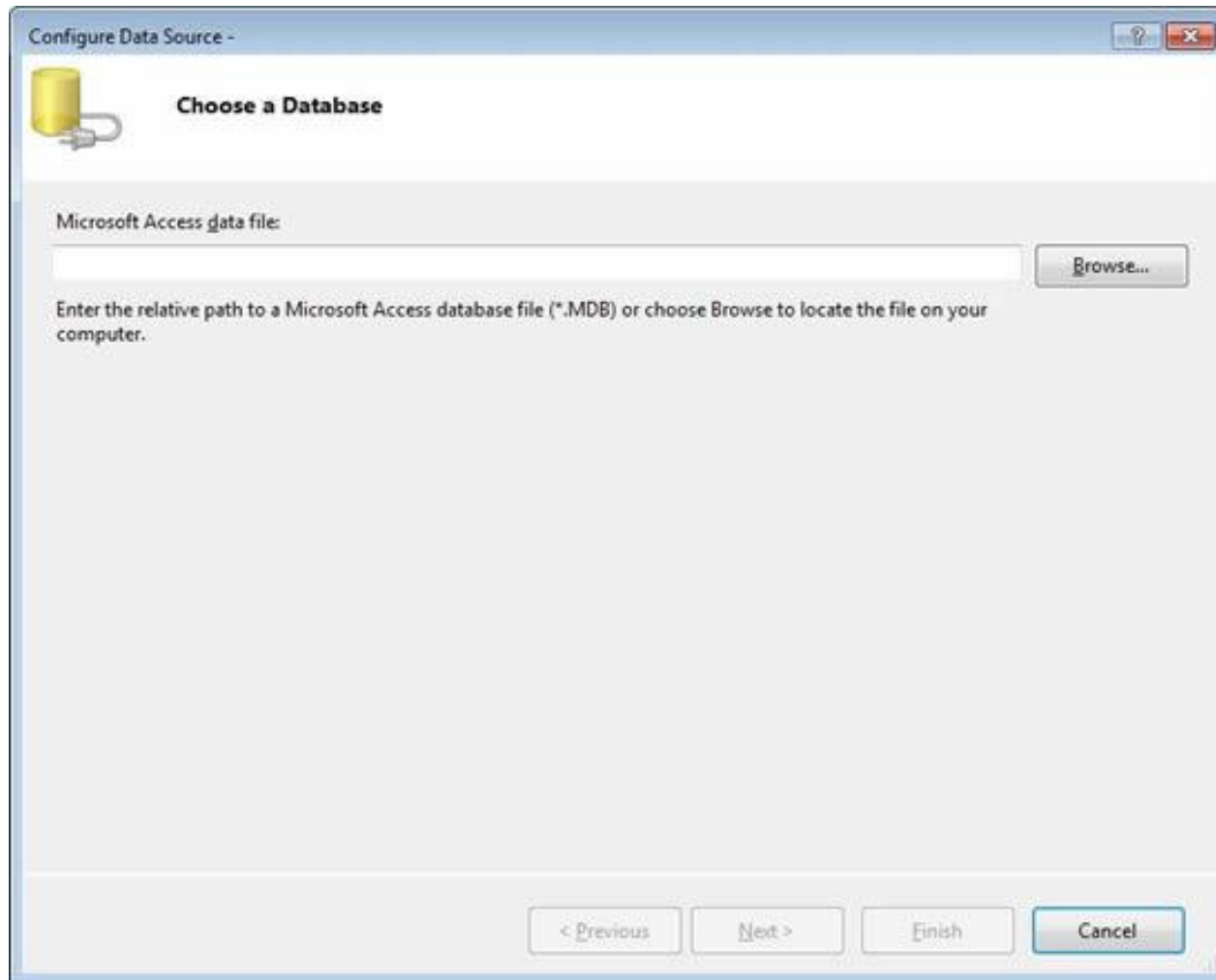
# Add an AccessDataSource- dragged from ToolBox



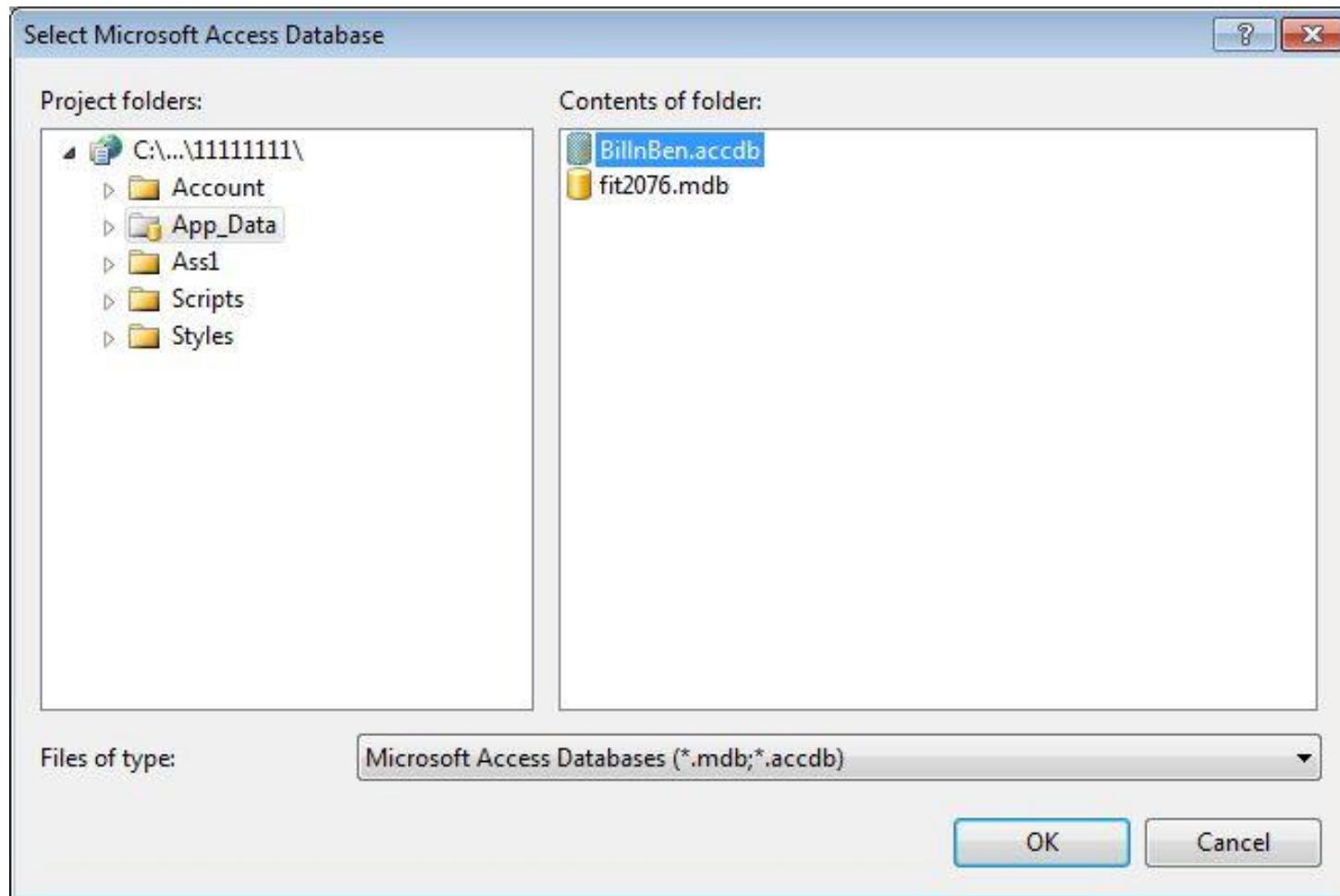
## Look at Design View



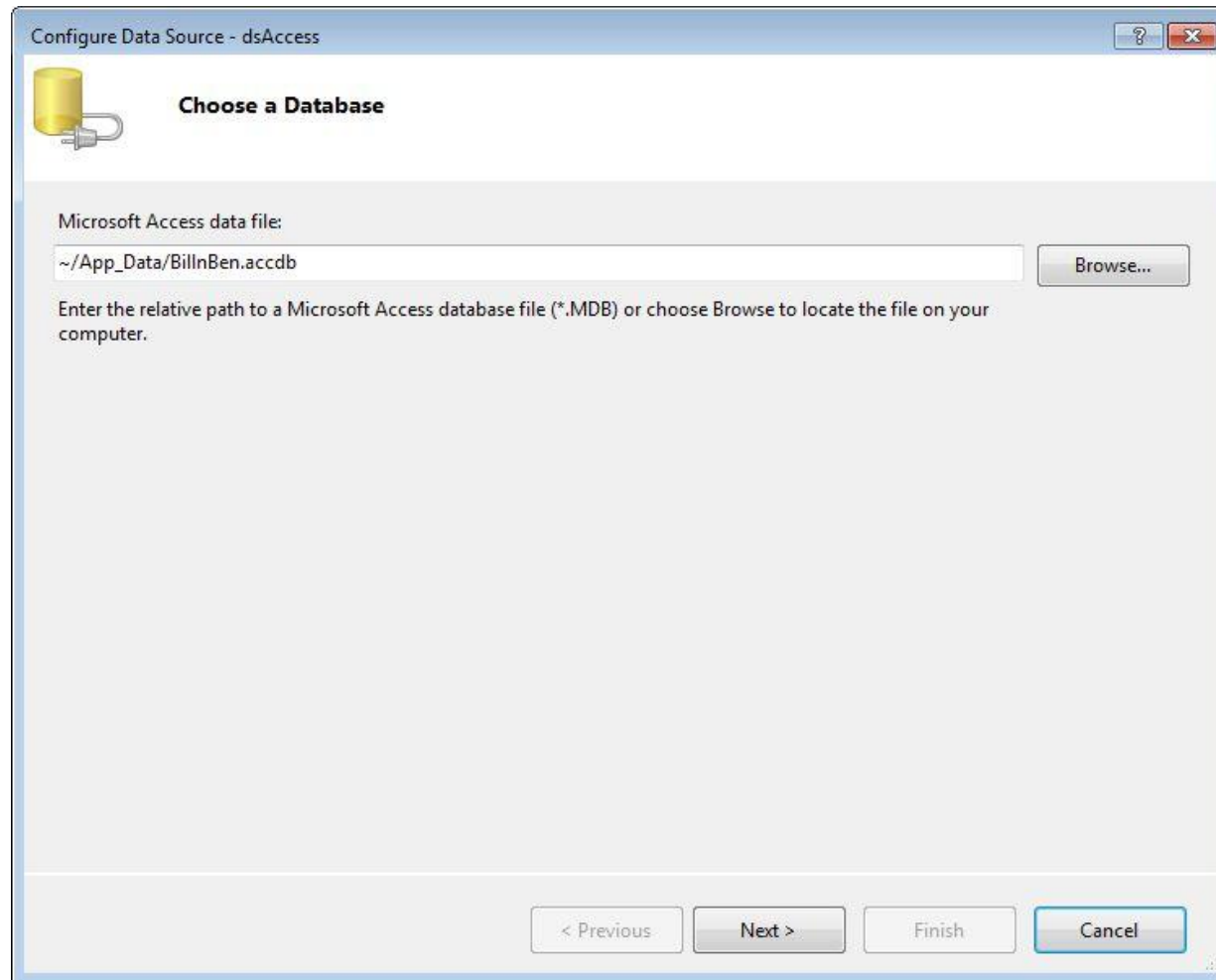
## Configure DataSource- right click control



# DataStore should be in App\_Data directory




# Choose Database file





# Configure Select Statement

Configure Data Source - dsAccess

 **Configure the Select Statement**

How would you like to retrieve data from your database?

☐ Specify a custom SQL statement or stored procedure

☒ Specify columns from a table or view

Name:  
product\_details

Columns:

<input checked="" type="checkbox"/> *
<input type="checkbox"/> product_id
<input type="checkbox"/> product_name
<input type="checkbox"/> product_price
<input type="checkbox"/> product_image

☐ Return only unique rows

WHERE...

ORDER BY...


Advanced...

SELECT statement:  
SELECT \* FROM [product\_details]

< Previous   Next >   Finish   Cancel

# Test Query

Configure Data Source - dsAccess

 **Test Query**

To preview the data returned by this data source, click Test Query. To complete this wizard, click Finish.

product_id	product_name	product_price	product_image
1001	Fushia	9.9	fushia.jpg
1002	Nodding Heads	7.95	nodding.jpg
1003	Snowdrops	11.5	snowdrops.jpg
1004	Jump-ups	8.95	jumpups.jpg
1005	Waterlillies	14.95	waterlilly.jpg
1006	Maybells	6.55	maybell.jpg
1007	Springups	9.95	springcup.jpg
1008	Hydrangea	11.55	hydrangea.jpg
1009	Tiger Lillies	14.95	tigerlily.jpg

Test Query

SELECT statement:

SELECT \* FROM [product\_details]

< Previous    Next >    Finish    Cancel

## Add GridView Control (from Toolbox)

**Customer Details**

asp:gridview#GridView1

product_id	product_name	product_price	product_image
0	abc	0	abc
1	abc	0.1	abc
2	abc	0.2	abc
3	abc	0.3	abc
4	abc	0.4	abc

**GridView Tasks**

- Auto Format...
- Choose Data Source: dsAccess
- Configure Data Source...
- Refresh Schema
- Edit Columns...
- Add New Column...
- Move Column Right
- Remove Column
- ☐ Enable Paging
- ☐ Enable Sorting
- ☐ Enable Selection
- Edit Templates

## GridView Tag created

```
<asp:GridView ID="GridView1" runat="server"
    AutoGenerateColumns="False" DataKeyNames="product_id"
DataSourceID="dsAccess">
<Columns>
<asp:BoundField DataField="product_id" ReadOnly="True"
HeaderText="product_id" SortExpression="product_id" />
<asp:BoundField DataField="product_name"
    HeaderText="product_name" SortExpression="product_name" />
<asp:BoundField DataField="product_price" HeaderText="product_price"
    SortExpression="product_price" />
<asp:BoundField DataField="product_image"
    HeaderText="product_image" SortExpression="product_image" />
</Columns>
</asp:GridView>
```

# SQLDataSource Controls

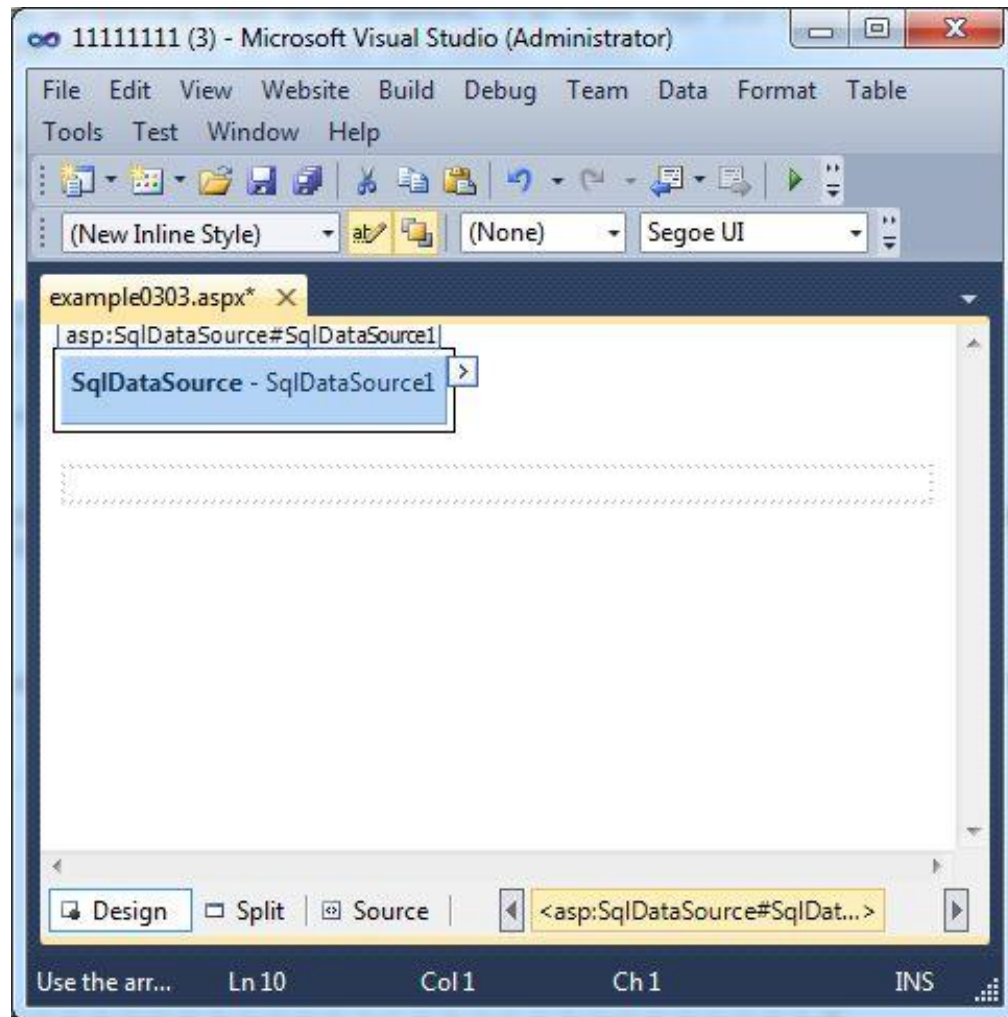
- **SQLDataSource** Controls add more flexibility to configuring Data Sources
- These can be configured in the **web.config** file
  - Allowing the Database to be **switched** with no change in the aspx code file

## Create New Web Form as before

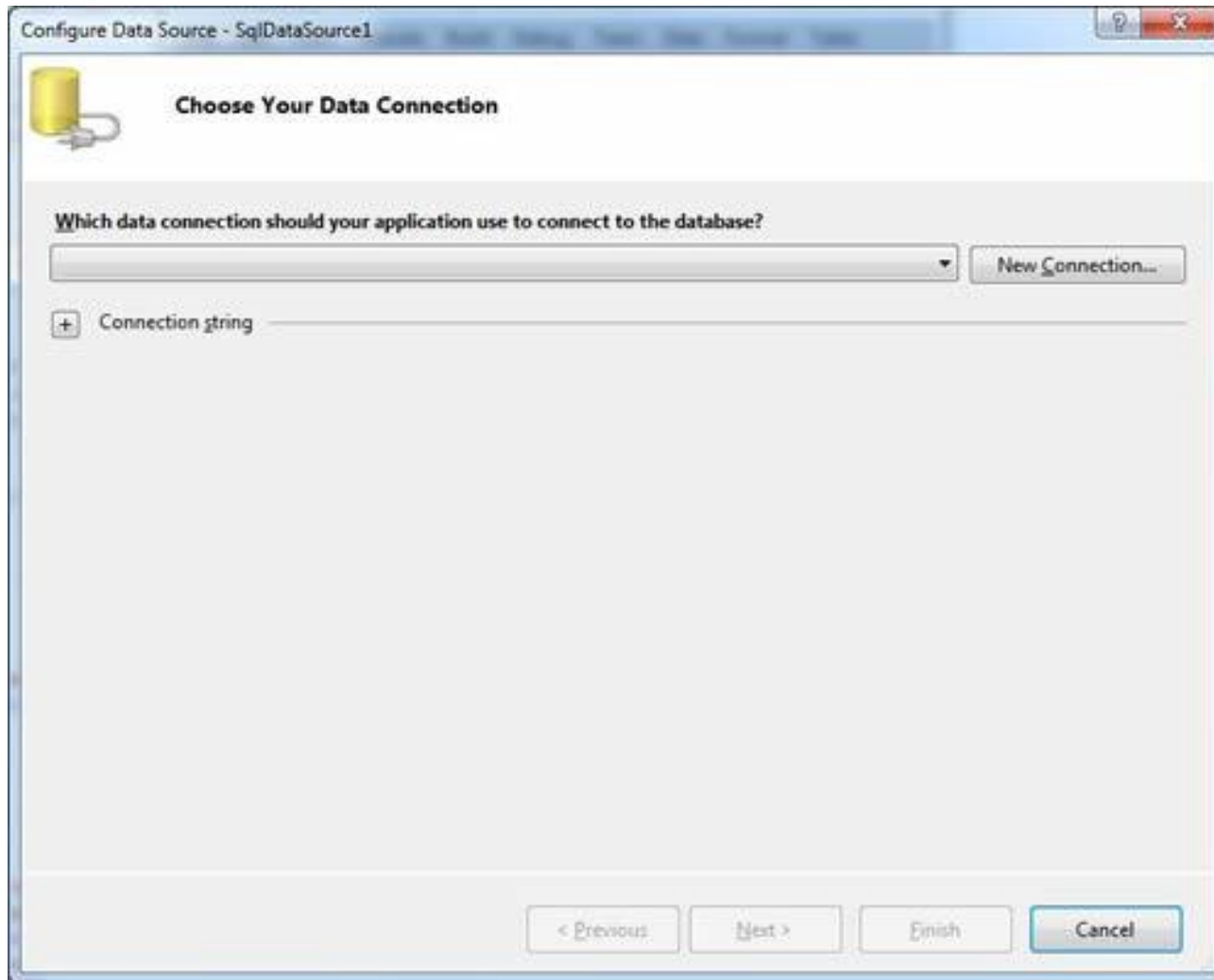




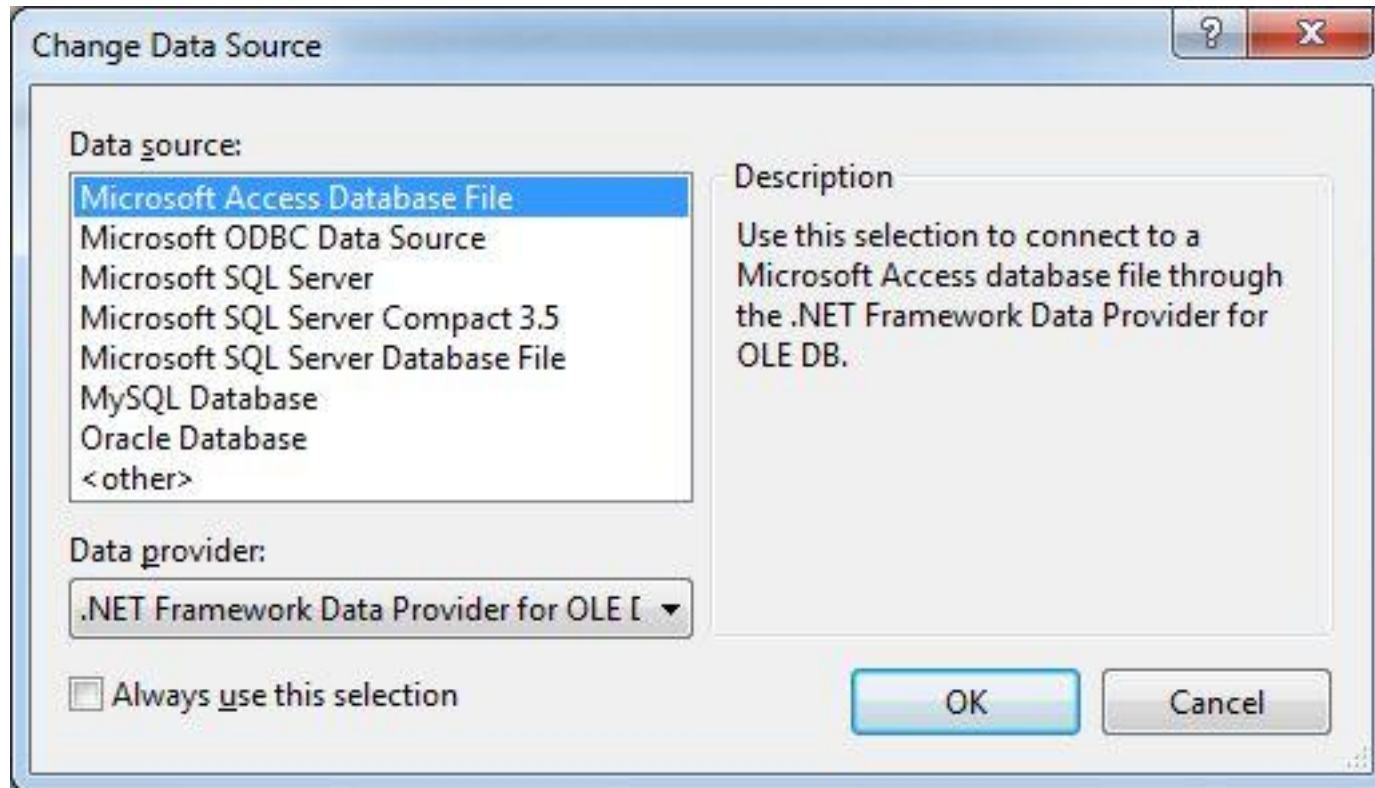
## Add SQLD ataSource- fromToolBox



## Configure DataSource- right click control



## Create a New Connection- Choose Access



# Enter Connection Information



The screenshot shows the 'Add Connection' dialog box. At the top, it says 'Enter information to connect to the selected data source or click "Change" to choose a different data source and/or provider.' Below this, there are three main sections. The first section is 'Data source:' with a text box containing 'Microsoft Access Database File (OLE DB)' and a 'Change...' button. The second section is 'Database file name:' with a text box containing 'E:\11111111\App\_Data\fit2076.mdb' and a 'Browse...' button. The third section is 'Log on to the database' with 'User name:' and 'Password:' text boxes, a 'Save my password' checkbox, and an 'Advanced...' button. At the bottom, there are three buttons: 'Test Connection', 'OK', and 'Cancel'.

Add Connection

Enter information to connect to the selected data source or click "Change" to choose a different data source and/or provider.

Data source:  
Microsoft Access Database File (OLE DB) Change...

Database file name:  
E:\11111111\App\_Data\fit2076.mdb Browse...

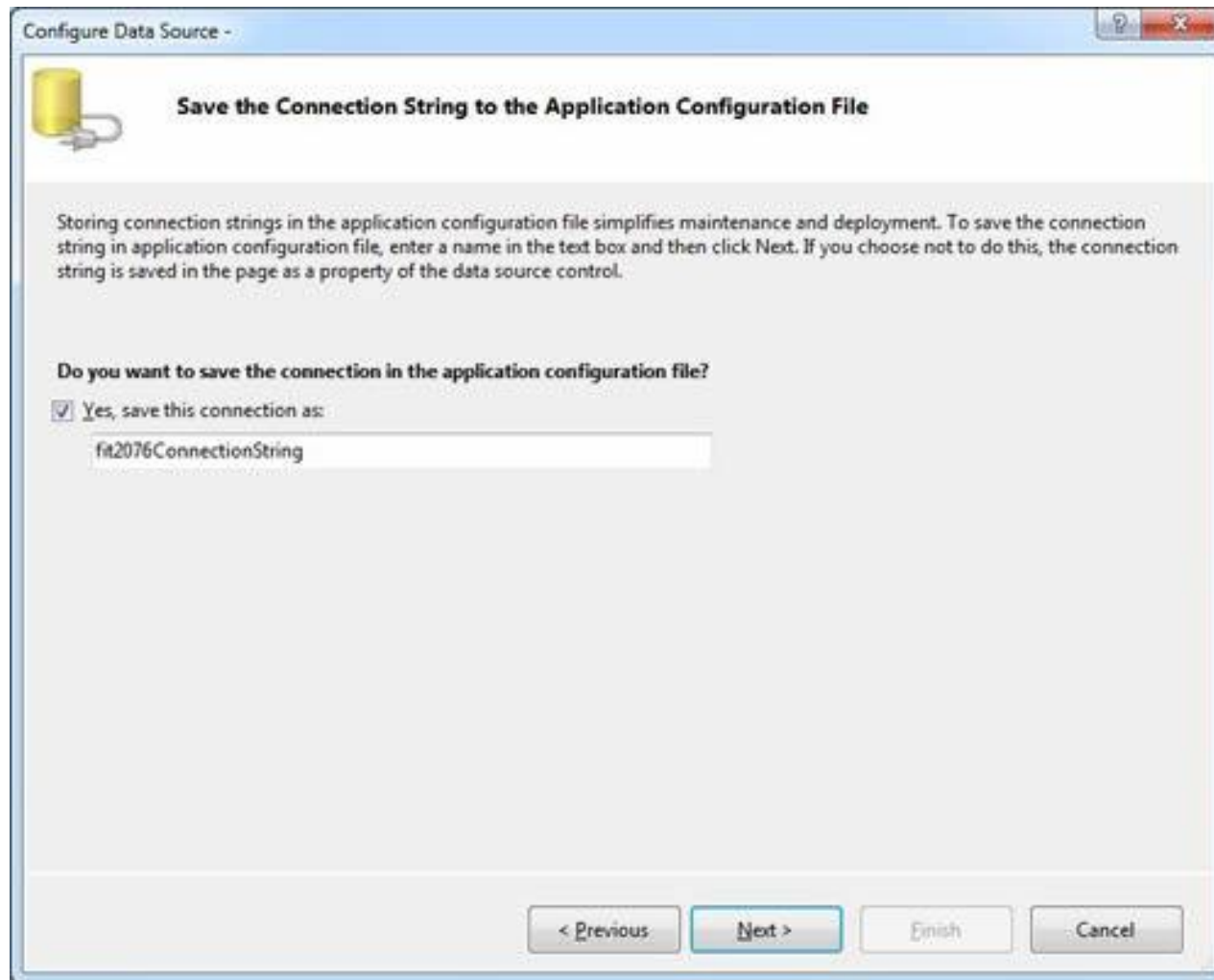
Log on to the database

User name: Password:  
☐ Save my password

Advanced...

Test Connection OK Cancel

## Save the Connection info to web.config



**Configure Data Source -**

**Save the Connection String to the Application Configuration File**

Storing connection strings in the application configuration file simplifies maintenance and deployment. To save the connection string in application configuration file, enter a name in the text box and then click Next. If you choose not to do this, the connection string is saved in the page as a property of the data source control.

**Do you want to save the connection in the application configuration file?**

☒ **Yes, save this connection as:**

fit2076ConnectionString

< Previous   Next >   Finish   Cancel

## Configure the SQL Statement (as before)

The screenshot shows a Windows-style dialog box titled "Configure Data Source -". Inside, there's a tab labeled "Configure the Select Statement" with a yellow cylinder icon. The main question is "How would you like to retrieve data from your database?". There are two radio buttons: "Specify a custom SQL statement or stored procedure" (unselected) and "Specify columns from a table or view" (selected). Below the selected option, there's a "Name:" label and a dropdown menu showing "customer". To the right of the dropdown is a "Columns:" label and a list box containing: "\* (checked)", "cust\_no", "firstname", "surname", "address", and "contact". To the right of the list box is a checkbox labeled "Return only unique rows" which is unchecked. Below the list box are three buttons: "WHERE...", "ORDER BY...", and "Advanced...". At the bottom, there's a "SELECT statement:" label and a text area containing "SELECT \* FROM [customer]". At the very bottom are four buttons: "< Previous", "Next >", "Finish", and "Cancel".

Configure Data Source -

**Configure the Select Statement**

How would you like to retrieve data from your database?

☐ Specify a custom SQL statement or stored procedure

☒ Specify columns from a table or view

Name:  
customer

Columns:

- ☒ \*
- ☐ cust\_no
- ☐ firstname
- ☐ surname
- ☐ address
- ☐ contact

☐ Return only unique rows

WHERE...

ORDER BY...


Advanced...

SELECT statement:  
SELECT \* FROM [customer]

< Previous   Next >   Finish   Cancel

# Test Query as Before

Configure Data Source -

 **Test Query**

To preview the data returned by this data source, click Test Query. To complete this wizard, click Finish.

cust_no	firstname	surname	address	contact
1	Bilbo	Baggins	21 Bag End	99887766
2	Fred	Flintstone	72 Rubble Drive	22334455
3	Peter	Pan	22 Never Road	55664488
4	Sylvester	Stallone	78 Balboa Crescent	25836978
5	Frodo	Baggins	21 Bag End	99887766
6	Percy	Penguin	15 North Pole Street	32132122
7	John	Connor	23 Terminator Terrace	45645666

SELECT statement:

SELECT \* FROM [customer]



## SQLDataSource Tag Created in web.config file

```
<connectionStrings>
```

```
<add name="BillnBenConnectionString"
```

```
connectionString="Provider=Microsoft.ACE.OLEDB.12.0; Data  
Source=|DataDirectory|\BillnBen.accdb"
```

```
providerName="System.Data.OleDb" />
```

```
</connectionStrings>
```

# Accessing the DataSource in aspx file

```
<asp:sqldatasource runat="server"
```

```
ConnectionString=
```

```
"<%%$ ConnectionStrings:BillnBenConnectionString %>"
```

```
ProviderName=
```

```
"<%%$ ConnectionStrings:BillnBenConnectionString.ProviderName%>"
```

```
SelectCommand="SELECT * FROM [customer]">
```

```
</asp:sqldatasource>
```

# Displaying Images

# Displaying Images

Rather than displaying the File name of an Image

The image can be displayed

Using a asp:imagefield control

Need to specify properties:

DataImageUrlField - which database field to display

DataImageUrlFormatString - how to format the display

# ImageField Control

An image column can be added using an **ImageField** Control

```
<asp:ImageField  
DataImageUrlField="product_image"  
DataImageUrlFormatString="pix/{0}"  
HeaderText="image">  
</asp:ImageField>
```

Product Details

product_id	product_name	product_price	product_image	image
1001	Fushia	9.9	fushia.jpg	
1002	Nodding Heads	7.95	nodding.jpg	
1003	Snowdrops	11.5	snowdrops.jpg	

# Summary

1. Introduction
2. Creating **datastores**
3. **Using** datastores – Access
4. **Using** datastores – SQL

# What you will do in the Studio

Complete topic 8 exercises

Read ahead ASP examples from topic 9

Run using Visual Studio 2015/2017





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Thanks and See you in the  
Studio!