

ASP.NET

Data handling & ADO.NET

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Demos created and add-ons to the content:

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Huom: XML-demot siirretty XML-kalvosettiin 2.11.2011

ASP.NET Overview

“It is always about data...”

VB

C++

C#

...

...

Common Language Specification

ASP.NET: Web Services
and Web Forms

WPF

WS
S

ADO.NET: Data and XML

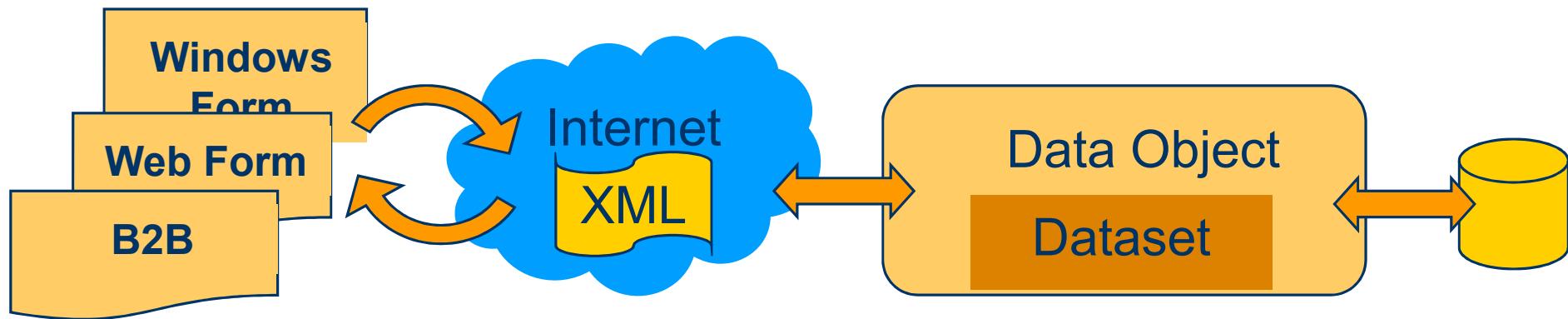
Base Classes

Common Language Runtime

Visual Studio.NET

Working with Data

◆ ADO.NET Overview



- Disconnected data architecture
- Datasets are complete relational views of data
- XML and XML schema

Agenda

- ◆ Background
- ◆ ASP.NET Overview
- ◆ Programming Model
- ◆ Programming Basics
- ◆ Server Controls
- ◆ **Data Binding** 
- ◆ Advanced topics
- ◆ Conclusion

Basics

DataControls:

Data Binding

DataRepeater

DataList

GridView 2.0→

DataSources:

SqlDataSource

XmlDataSource

LinqDataSource

AccessDataSource

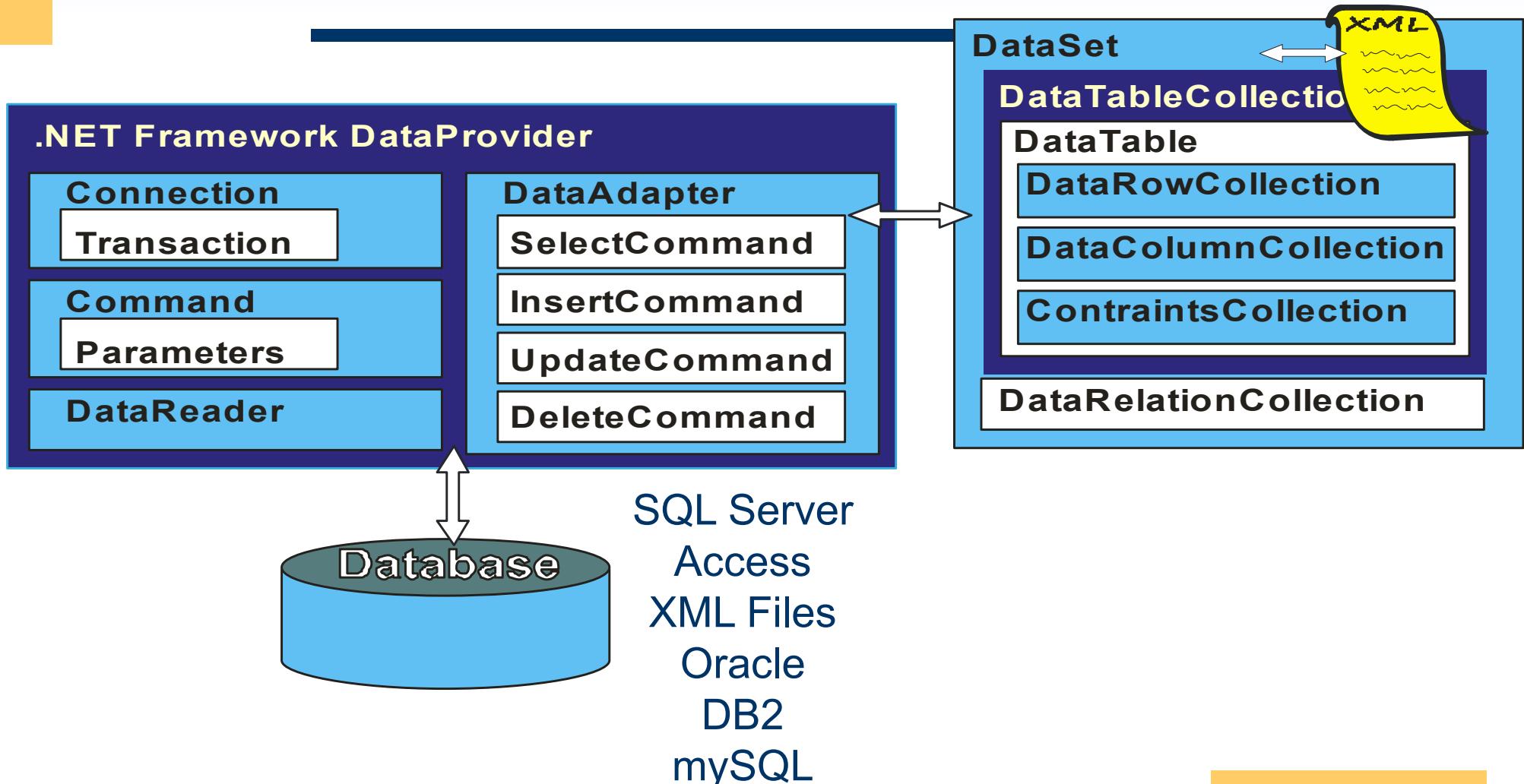
Conclusion

BASICS

ADO.NET architecture

- ◆ .NET was designed for distributed systems → **two modes**
 - In connected mode
 - specific provider classes (Sql..., Oracle..., OleDb..., Odbc...) manipulate database data directly (Consistent access to all databases)
 - In disconnected mode
 - data access is separated from data manipulation into discrete components
 - **but one programming model:** Key object is **DataSet**
- ◆ ADO.NET supports XML at a fundamental level
 - ADO.NET and the XML classes converge in DataSet object

ADO.NET kertaus...



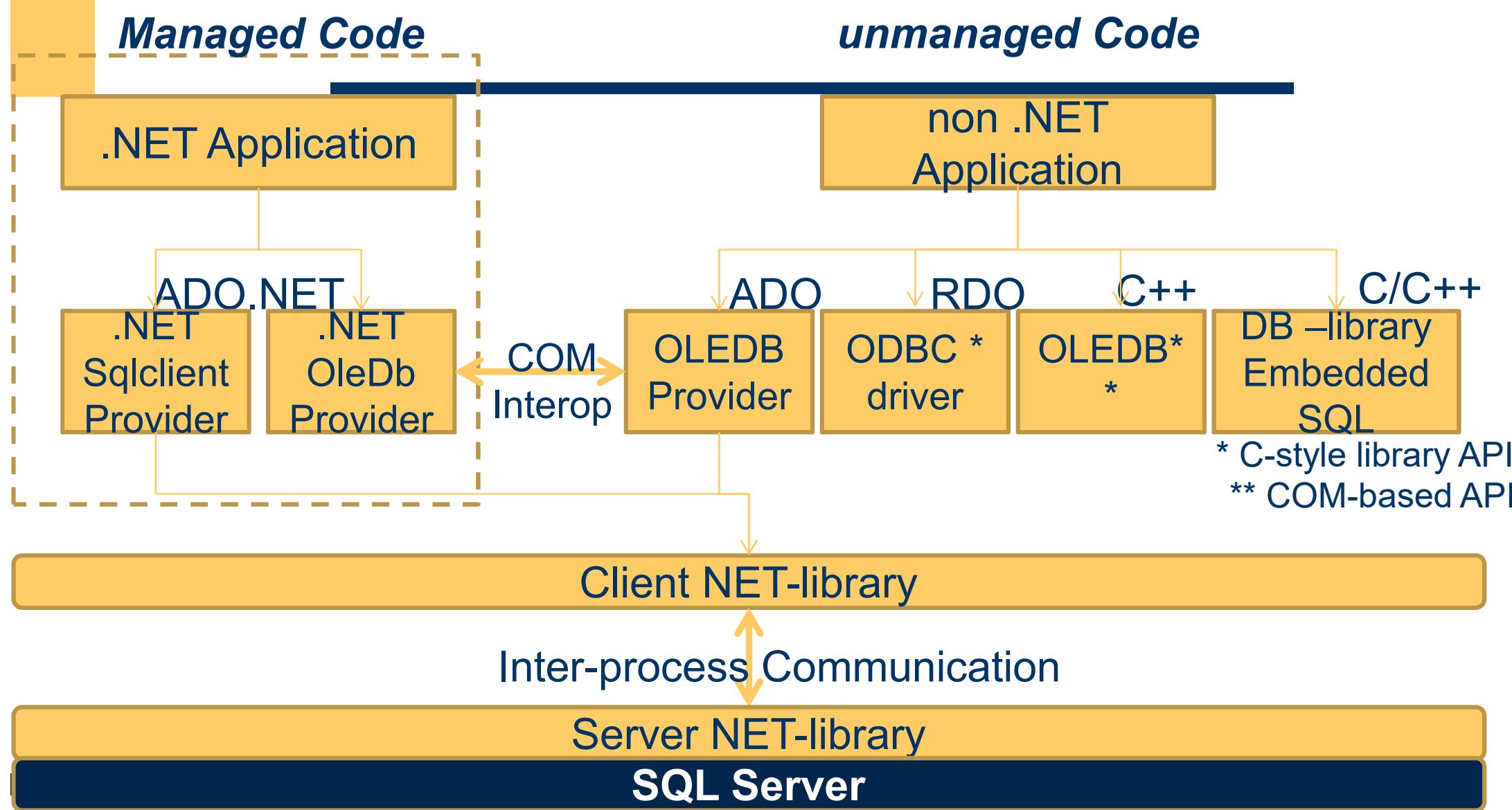
ADO.NET main classes

- ◆ DataSet
- ◆ DataTable
- ◆ DataView
- ◆ Data Provider
 - Connection object
 - Command object
 - DataReader object
 - DataAdapter object

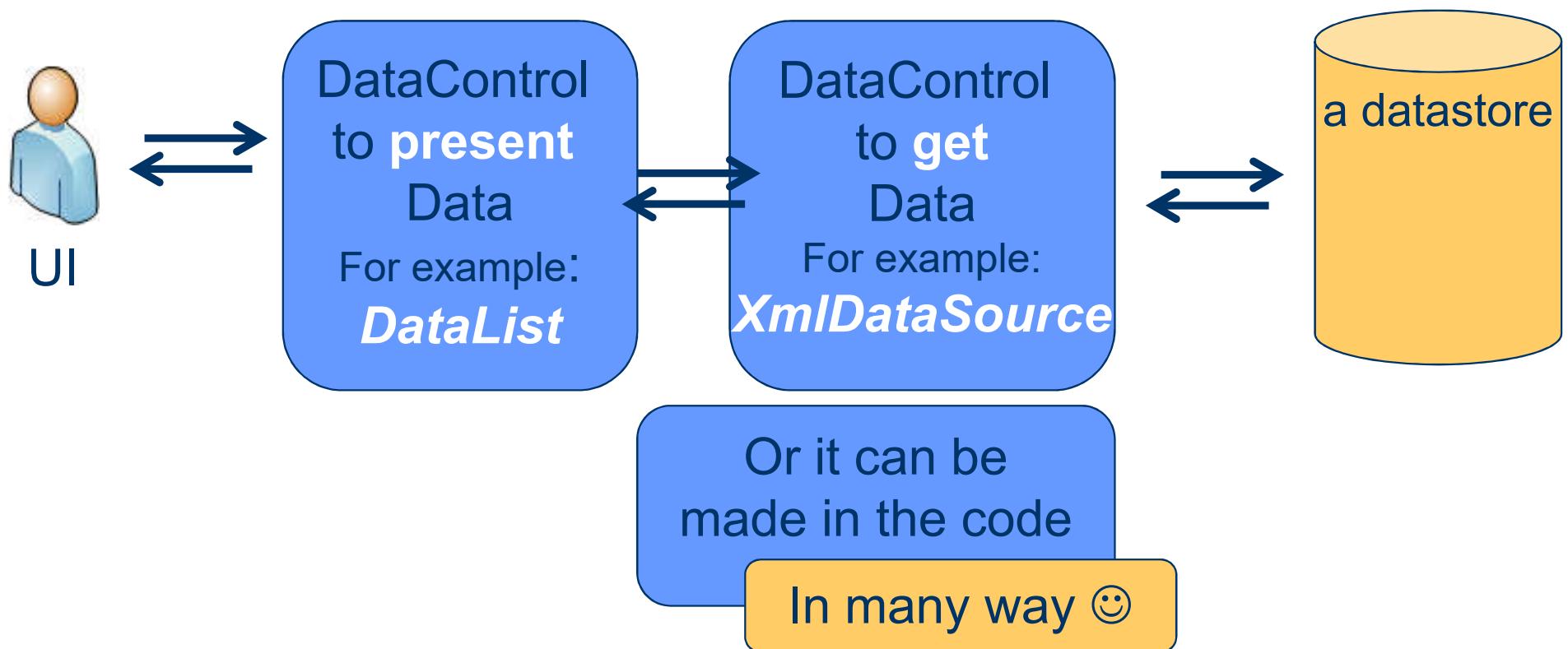
Managed Data Providers in .NET 4.5

.NET Framework data provider	Description
.NET Framework Data Provider for SQL Server	Provides data access for Microsoft SQL Server. Uses the System.Data.SqlClient namespace.
.NET Framework Data Provider for OLE DB	For data sources exposed by using OLE DB. Uses the System.Data.OleDb namespace.
.NET Framework Data Provider for ODBC	For data sources exposed by using ODBC. Uses the System.Data.Odbc namespace.
.NET Framework Data Provider for Oracle	For Oracle data sources. The .NET Framework Data Provider for Oracle supports Oracle client uses the System.Data.OracleClient namespace.
EntityClient Provider	Provides data access for Entity Data Model (EDM) applications. Uses the System.Data.Entity namespace.
.NET Framework Data Provider for SQL Server Compact 4.0.	Provides data access for Microsoft SQL Server Compact 4.0. Uses the System.Data.SqlServerCe namespace.

Accessing SQL Server

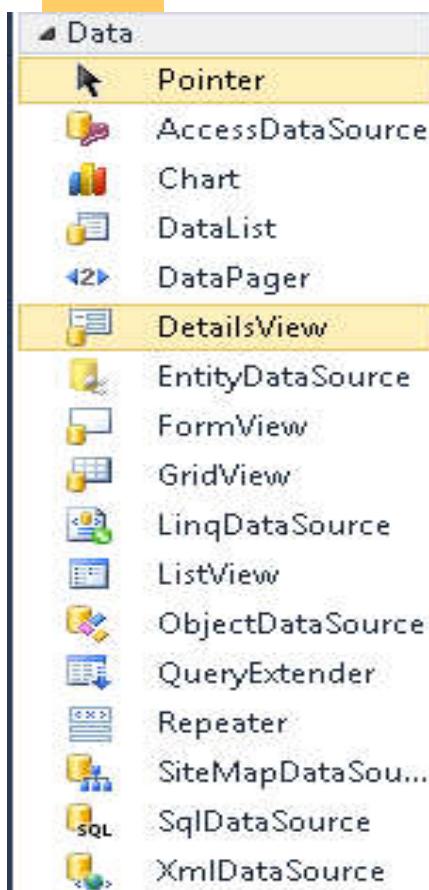


“not so big picture” of Data Controls

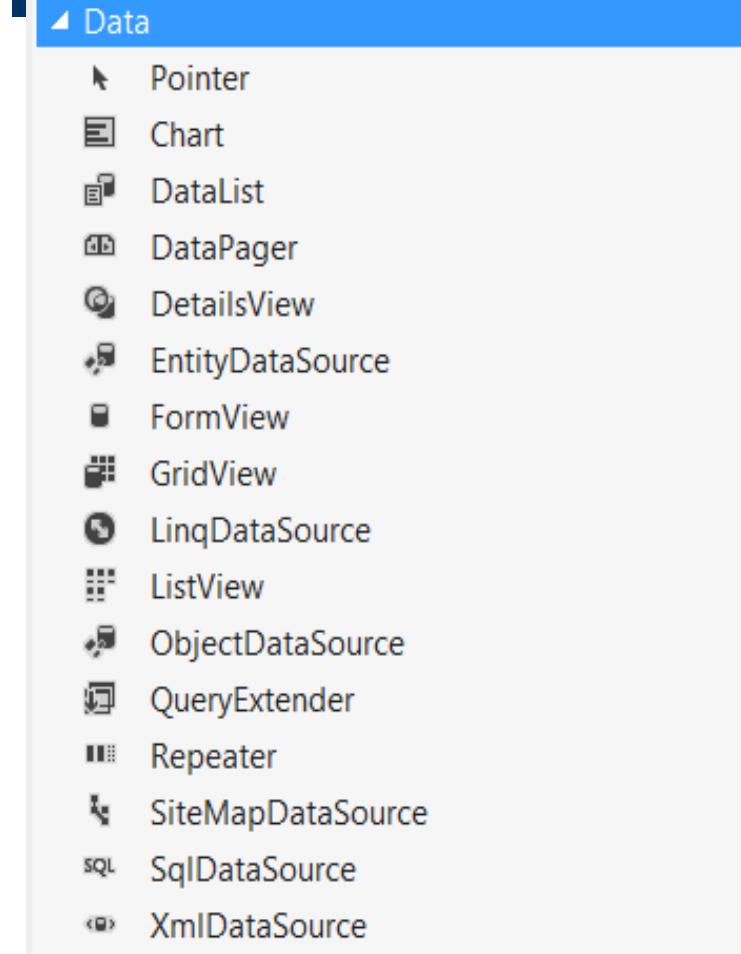


The ASP.NET Data Controls

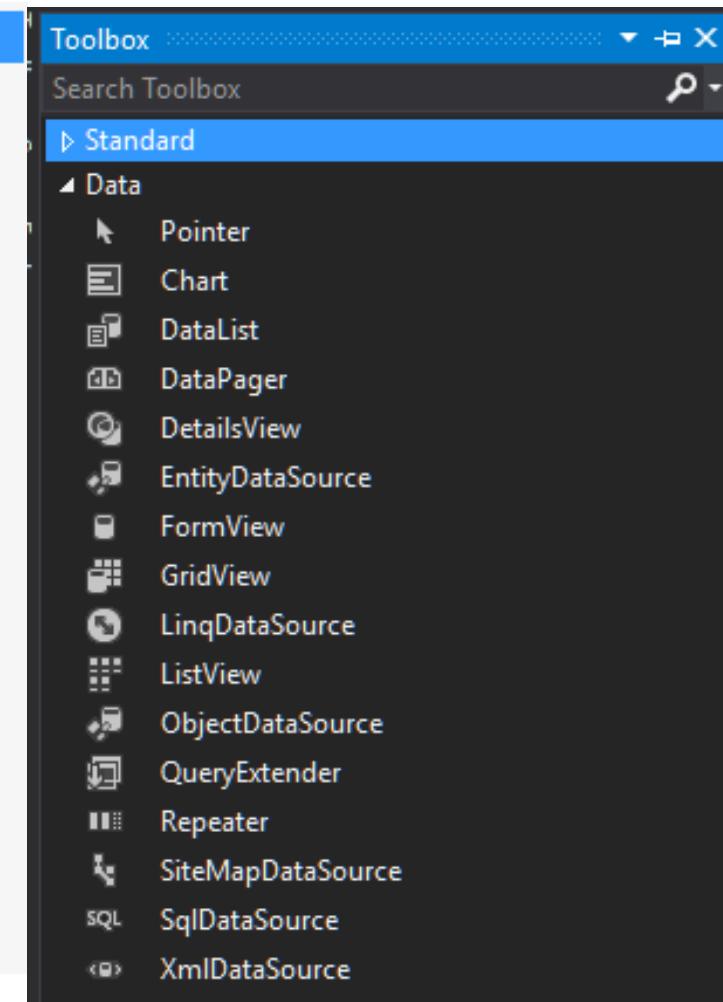
VisualStudio2010



Visual Studio 2012



Visual Studio 2015



The list of ASP.NET Data Controls

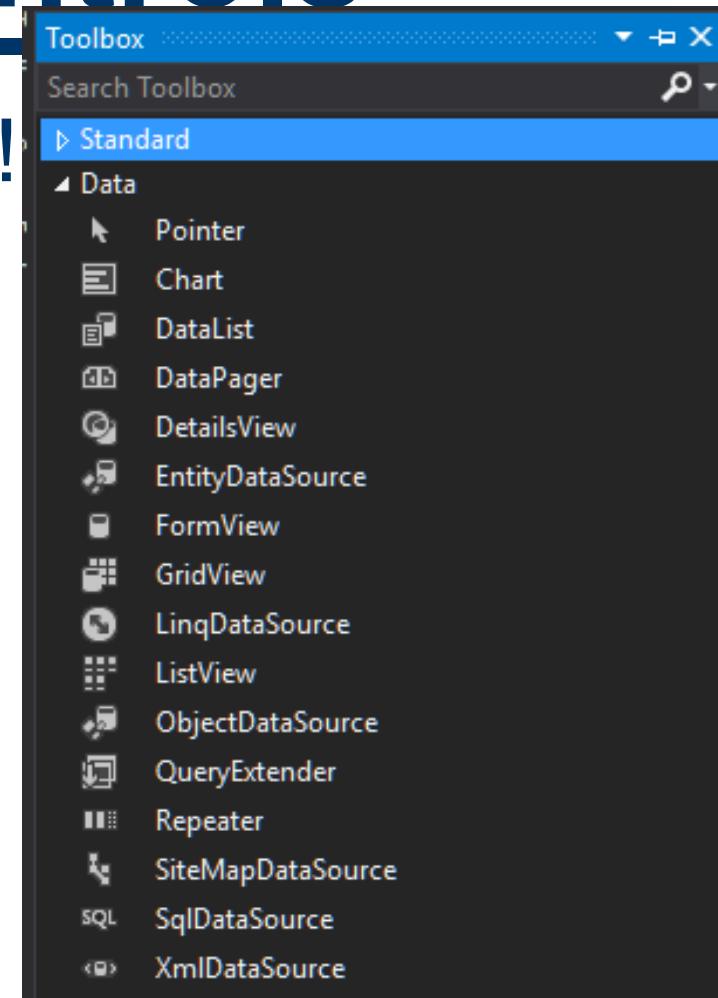
- ◆ List controls (ListBox, DropDownList, etc)
- ◆ Repeater control
- ◆ DataList control
- ◆ GridView control
- ◆ DetailsView control
- ◆ FormView control
- ◆ TreeView control
- ◆ ListView control
- ◆ DataPager control

Data Source Controls

- ◆ Web applications commonly display data that comes from a relational database such as
 - SQLServer, MySql, Oracle, Access or an OLEDB or ODBC data store.
- ◆ ASP.NET includes **data source controls** that
 - allow you to work with different types of data sources such as a database, an XML file, or a middle-tier business object.
 - connect to and retrieve data from a data source and make it available for other controls to bind to, without requiring code.
 - can also support modifying data.

The List of DataSource Controls

- ◆ ~~AccessDataSource~~—depreciated!!
- ◆ EntityDataSource
- ◆ LinqDataSource
- ◆ ObjectDataSource
- ◆ SiteMapDataSource
- ◆ SqlDataSource
- ◆ XmlDataSource



PRESENTING DATA WITH HTML



Demo: Data from SqlServer using DataReader and HTML

Buttonen

```
<asp:Button ID="Button1" runat="server"  
Text="Show authors" onclick="Button1_Click" />
```

Paikka johon haun tulokset kirjoitetaan

```
<div runat="server" id="tulokset">...</div>
```

Kirjailijat haetaan kannasta ja kirjoitetaan
suoraan HTMLään

tulokset.InnerHtml =

```
"<h1>We Proudly presents authors:</h1>";
```

Käytä datareader-luokkaa ja Kirjoita

```
tulokset.InnerHtml += string.Format("author {0} is {1} {2}<br>", i, rdr[1], rdr[2]);
```

Muotoilut css:llä

```
<link href="Demo.css"  
rel="Stylesheet" type="text/css" />
```

Lisää maailmankirjallisuutta Priexiltä - Windows Internet Explorer
http://localhost:49619/Test1Empt
Show authors

We Proudly presents authors:

author 1 is Bennet Abraham
author 2 is Blotchet-Halls Reginald
author 3 is Carson Cheryl
author 4 is DeFrance Michel
author 5 is del Castillo Innes
author 6 is Dull Ann
author 7 is Greene Morningstar
author 8 is Gringlesby Burt
author 9 is Hunter Sheryl
author 10 is Karsen Livia
author 11 is Locksley Charlene
author 12 is MacFeather Stearns
author 13 is McBadden Heather
author 14 is O'Leary Michael
author 15 is Panteley Sylvia
author 16 is Ringer Anne
author 17 is Smith Meander

author 22 is Waltari Mika
author 23 is Yokomoto Akiko

23 authors listed from priex.labranet.jamk.fi.



ei sen aina tarvitse olla niin vaikeaa...

SQL SERVER DATA WITH NICE AND EASY WIZARDS

Demo: Local Videokellari

- ♦ **Jos/kun SQL Server asennettu localhostille**, niin näin edetään:

1. luodaan uusi projekti ASP.NET Web Application (kokeile toimiiko)
2. avataan site.master --> luodaan uusi tab Videos
3. luodaan uusi sivu Videos.aspx (Web Form using Master Page)
 - testaa näkyykö
4. Add New Item | Data | SQL Server Database - Video.mdf
 - vahvista että haluat luoda **mdf-tarkenteisen** tiedoston App_Data kansioon
5. Ota Open Video.mdf tiedoston päällä - avautuu Server Exploreriin
6. Tables | Add New Table
 - Kentät (columns): **id** int IsIdentity , **name** nvarchar(50), **director** nvarchar(50)
 - Tallenna taulu nimellä Elokuvat
7. Show table data → lisää pari elokuvan tiedot
8. Sitten Videos.aspx sivulle Design.-moodiin
ja DragAndDrop Elokuvat-taulu → Hit F5!

id	name	director
1	Hiljaiset sillat	Clint Eastwood

DATABINDING AND CONTROLS

ADO.NET Overview

Data Binding

- ◆ Key component of Web Forms framework
- ◆ Flexible and easy to use
 - Bind a control's property to information in any type of data store
 - Provides control over how data moves back and forth
 - Simple controls for displaying a single value
 - Complex controls for displaying a data structure

```
<asp:Label runat=server Text='<%# CustList(0).FirstName %>'>
```

Data Binding Database

- ◆ Data binding can be used to populate server controls with data from a database
 - Each UI element corresponds to a row
- ◆ Bind to a **DataReader** (preferred)
- ◆ Bind to a **Dataview** of a **DataSet**
- ◆ Bind to a **DataTable**
 - Specify value and text with **DataValueField** and **DataTextField**, respectively
 - Each of these corresponds to a column

Data Binding Data Source Example

```
Private  DataView  GetSampleData () {  
    DataSet ds;  
    SqlConnection conn;  
    SqlDataAdapter da;  
    conn = new SqlConnection(connString);  
    da= new  SqlDataAdapter (  
        "select CategoryID, CategoryName from Categories", conn)  
    ds = new DataSet();  
    da.Fill(ds);  
    return ds.Tables["Categories"].DefaultView;  
}
```

DataBinding

DataBind Examples

Almost any control can be bound to any data source

- E.g. filling up a list box from array

```
protected void Page_Load(object sender, EventArgs e) {  
    string[] s = {"ASP.NET", "ADO.NET", "C# (CSharp)", "VB .NET"};  
    lstTopics.DataSource = s;  
    lstTopics.DataBind();  
}
```

ASP.NET
ADO.NET
C# (CSharp)
VB.NET

```
protected void Page_Load(object sender, EventArgs e) {  
    DataView dv = GetSampleData(); //from the last example  
    lstTopics.DataSource = dv;  
    lstTopics.DataBind();  
}
```

Data Binding

How to Populate Server Controls?

- ◆ Specify the data in the control's tags
 - Not dynamic: can't get data from a database
- ◆ Write code that uses the control's object model
 - This is okay if you need to populate a simple value or list, but quickly gets too complicated for populating sophisticated displays
- ◆ Data binding
 - Create an object that holds the data (DataTable, DataView, Array, List of strings, etc.)
 - Associate that object with the control

Data Binding

List Binding Examples

```
void Page_Load(object s, EventArgs e) {  
    ListBox1.DataSource = GetSampleData();  
    ListBox1.DataValueField = "CategoryID";  
    ListBox1.DataTextField = "CategoryName";  
    ListBox1.DataBind();  
}  
  
<asp:ListBox id="ListBox1" runat="server" />
```

```
void Page_Load(object s, EventArgs e) {  
    ListBox1.DataBind();  
}  
  
<asp:ListBox id="ListBox1" runat="server"  
    DataSource=<%# GetSampleData() %>  
    DataValueField="CategoryID"  
    DataTextField="CategoryName" />
```

Data Binding

What Is It?

- ◆ Provides a single simple yet powerful way to populate Web Form controls with data
 - Enables clean separation of code from UI
- ◆ Supports binding to any data source
 - Properties, expressions, method calls
 - Collections (`List<>`, `Array`, `Hashtable`, etc.)
 - `DataSet`, `DataTable`, `Dataview`, `DataReader`
 - XML
- ◆ One way snapshot model
 - Requires code to reapply to data model

Data Binding

What Is It?

- ◆ Allows you to specify an expression
- ◆ When the **.DataBind** method of the control is called, the expression is evaluated and bound
 - `.DataBind` for a single control (and subcontrols)
 - `Page.DataBind` binds all controls on a page
- ◆ Works for scalars, e.g. `Label` control
- ◆ Works for lists, e.g. `DropDown` control, `ListBox` control, etc.
- ◆ Enables the use of templates

Data Binding Scalar Expressions

- ◆ Data binding expression: <%# expression %>
- ◆ Expression is evaluated when DataBind()
is called

```
<asp:Label id=label1  
Text=<%# "The result is " + (1 + 2) +  
    ", the time is " + DateTime.Now.ToString() %>  
runat="server" />  
  
public void Page_Load(object s, EventArgs e) {  
    if (! Page.IsPostBack)  
        Page.DataBind(); }
```

Data Binding

Simple Lists

- ◆ Data binding a list creates a user interface element for each item in the list
- ◆ Each item contains text (displayed to user) and an optional value (not displayed)
- ◆ The simple list controls:
 - `<asp:CheckBoxList>`
 - `<asp:DropDownList>`
 - `<asp:ListBox>`
 - Single or multiple select
 - `<asp:RadioButtonList>`

Data Binding

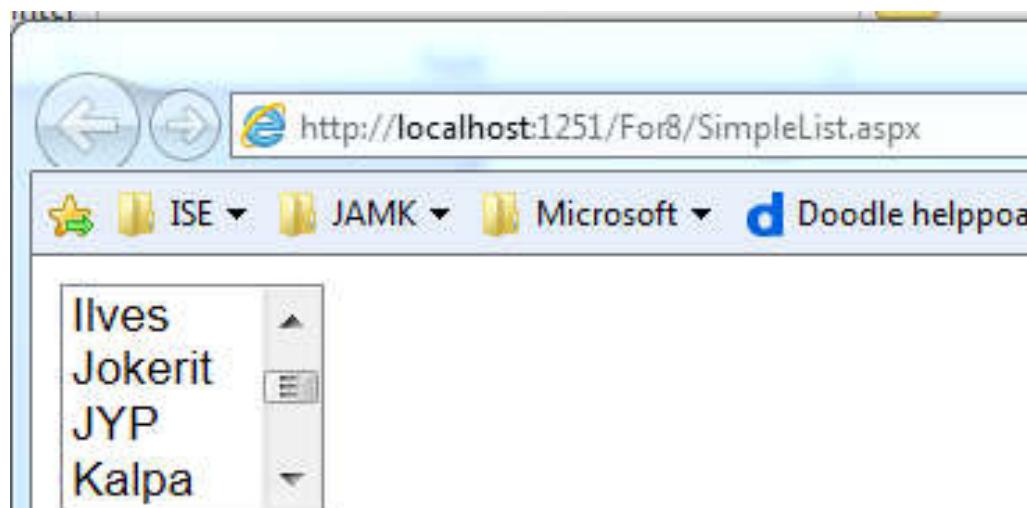
Simple Lists

- ◆ Steps to data bind a list control
 - 1. Declare the list control
 - 2. Optionally set DataValueField and DataTextField
 - 3. Set its DataSource
 - 4. Call DataBind() method



Demo: SimpleList (dynaamisesti)

- ◆ Data binding to simple lists
- ◆ List<String>
- ◆ Luodaan ListBox-kontrolli “lennosta” dynaamisesti, eli sivulle määritelty ainoastaan PlaceHolder



```
<asp:PlaceHolder  
ID="PlaceHolder1"  
runat="server">  
</asp:PlaceHolder>
```

Data Binding Templates

- ◆ Templates provide a powerful way to customize the display of a server control
 - Customize structure – not just style
 - Can use controls or other HTML within a template
 - 3rd party controls can expose new templates
- ◆ With data binding, templates specify a set of markup (HTML or server controls) for each bound piece of data
 - Not just specifying formatting and style for a column
- ◆ However, templates are not limited to data binding
 - No fixed set of templates
 - Controls may define their own and expose any number of them

Data Binding Templates

- ◆ Standard templates for list-bound controls
 - `HeaderTemplate`: rendered once before all data bound rows
 - `ItemTemplate`: rendered once for each row in the data source
 - `AlternatingItemTemplate`: like `ItemTemplate`, but when present is used for every other row
 - `SeparatorTemplate`: rendered between each row
 - `FooterTemplate`: rendered once, after all data bound rows

Data Binding Templates

HeaderTemplate

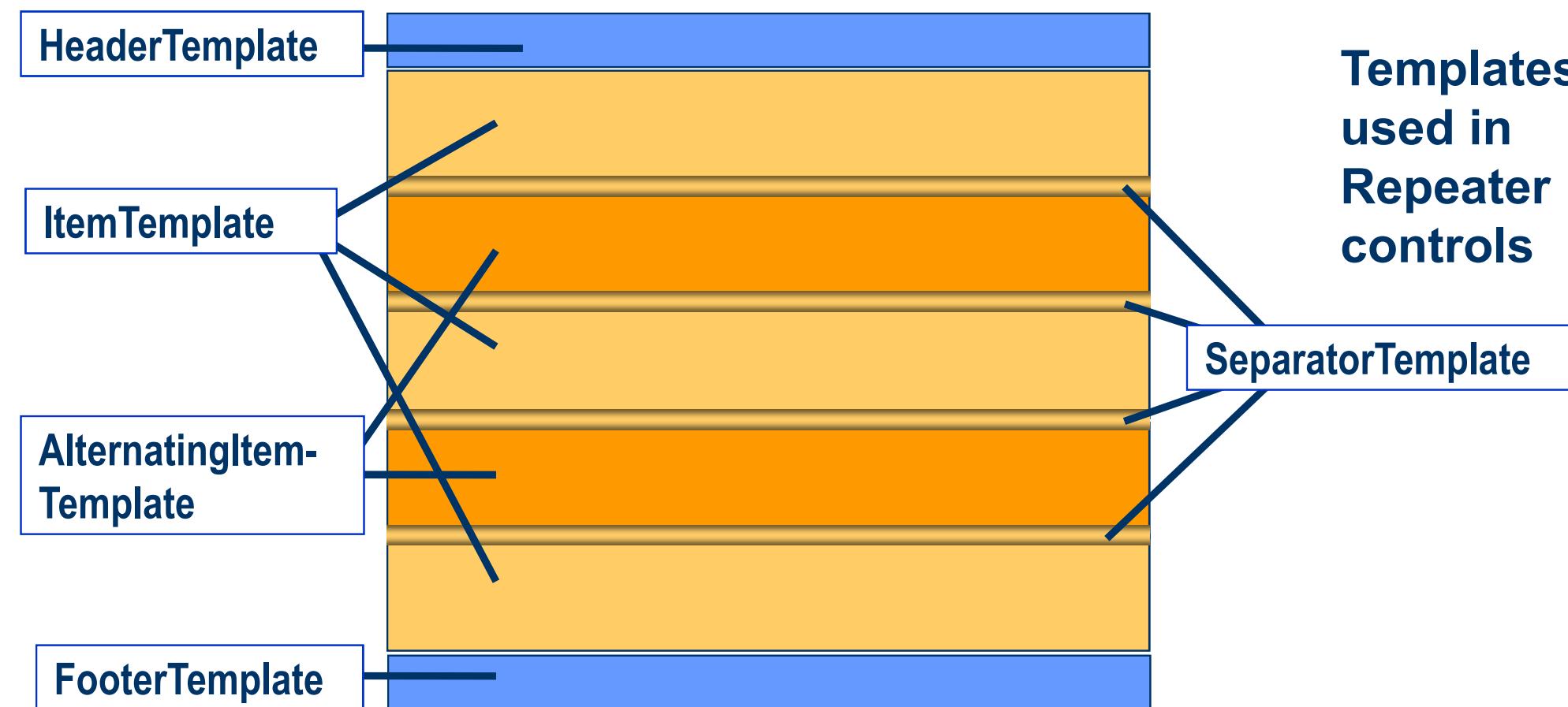
ItemTemplate

AlternatingItem-
Template

FooterTemplate

Templates
used in
Repeater
controls

SeparatorTemplate



Data Binding

Data Binding in Templates

- ◆ Templates need to access the bound data
- ◆ Container is an alias for the template's containing control
- ◆ DataItem is an alias for the current row of the datasource
- ◆ DataBinder.Eval is a utility function provided

```
<%# DataBinder.Eval(Container.DataItem, "price", "$ {0}") %>
```

.NET2 alkaen lyhyesti: <%# Eval("price") %>

REPEATER CONTROL

Data Binding Repeater Control

- ◆ Provides simple output of a list of items
- ◆ No inherent visual form
- ◆ Templates provide the visual form
- ◆ No paging
- ◆ Can provide templates for separators
- ◆ Not updateable

Data Binding Repeater Control

```
<asp:Repeater id="repList" runat="server">
<template name="HeaderTemplate">
  <table>
    <tr><td>Title</td><td>Type</td></tr>
</template>

<template name="ItemTemplate">
  <tr>
    <td><%# DataBinder.Eval(Container.DataItem,"title_id") %></td>
    <td><%# DataBinder.Eval(Container.DataItem,"type") %></td>
  </tr>
</template>

<template name="FooterTemplate">
  </table>
</template>
</asp:Repeater>
```



Demo: Repeater-kontrolli



1

ContentPlaceHolder1 (Custom)

Hae yritykset koodista

Hae yritykset Accesista

Yritys

Kaupunki

Maa

Databound

Databound

Data Hae yritykset koodista

Hae yritykset Accesista

2

Sukkutu ja huttu

Dump & bugs Oy

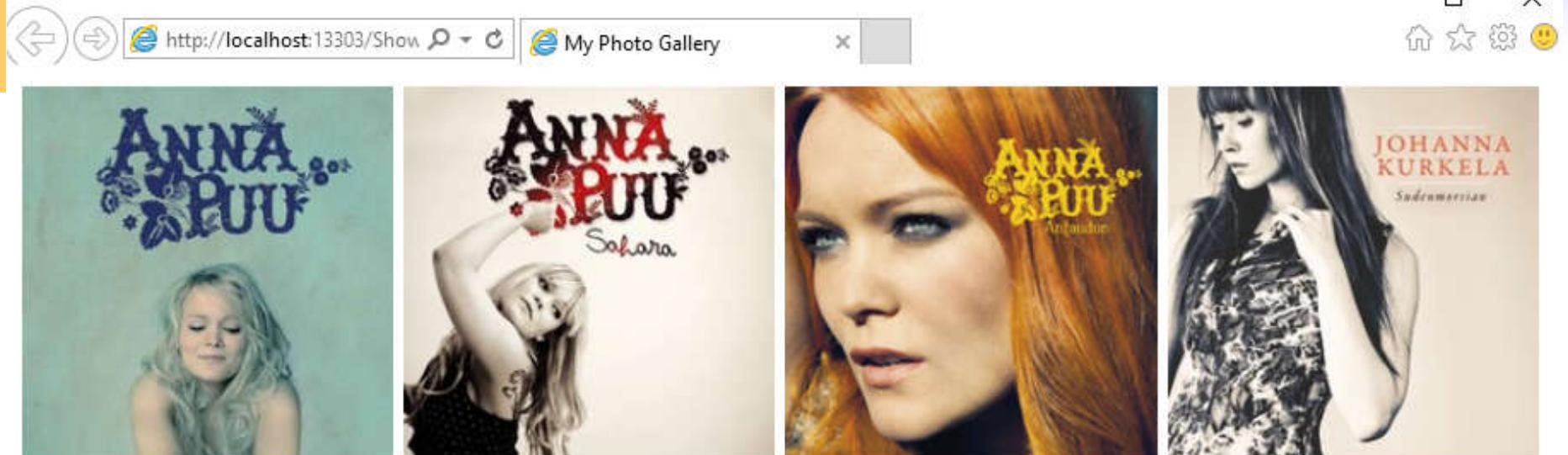
Åttå Long Drink

Listaus tehty

```
<asp:Repeater id="katalooki"  
    runat="server">  
    <td><%# Eval ("nimi") %></td>
```

Luodaan oma BL-luokka
jossa staattinen metodi,
joka palauttaa DataTableen
jossa oikeat kentät

Demo: Photo Repetear #0



Demo: Photo Repetear #1

```
<asp:Repeater ID="Repeater1" runat="server" >  
    <ItemTemplate>  
        <asp:Image ID="Image1" Width="150px"  
            ImageUrl='<%# Container.DataItem %>' runat="server" />  
    </ItemTemplate>  
</asp:Repeater>
```

```
protected void Page_Load(object sender, EventArgs e)  {  
    try  {  
        Repeater1.DataSource = GetPhotos(); //Bind photos to Repeater  
        Repeater1.DataBind();  
    }  
}
```

Demo: Photo Repetear #2

```
protected List<String> GetPhotos()  {
    try  {
        List<String> photos = new List<string>();
        string photosPath = MapPath("~/Images");
        string[] files = Directory.GetFiles(photosPath);
        foreach (var filename in files)
        {
            photos.Add("~/Images/" + Path.GetFileName(filename));
        }
        return photos;
    }
    catch (Exception ex)
    {
    }
}
```



Demo: Repeater-kontrolli 2

DataRepeater.aspx

- Luetaan Access-tietokannasta Yritykset.mdb taulu yritys ja muodostetaan siitä DataTable, joka kytketään DataRepeaterin tietolähteenä.

Deprecated in VS2012

yritys						
id	Y-tunnus	Nimi	Kaupunki	Maa	Liikevaihto	LisaysPvm
1	123456-1	Jaskan kulta ja rompe	Jyväskylä	FIN	0,00 €	1.1.2010
2	2 34567-2	Sepon Bitit ja Bugit	Laukaa	FIN	0,00 €	2.2.2011

The screenshot shows a Microsoft Internet Explorer window displaying a web page titled "JAMK Teknologia ICT Ohjel...". The page content is a DataRepeater control showing data from a database table named "yritys". The table has columns: id, Y-tunnus, Nimi, Kaupunki, Maa, Liikevaihto, and LisaysPvm. There are two rows of data: one for "Jaskan kulta ja rompe" (Y-tunnus 123456-1) and another for "Sepon Bitit ja Bugit" (Y-tunnus 2 34567-2). At the bottom of the page, the logo of Jyväskylän Ammattikorkeakoulu is displayed.

DATALIST CONTROL

Data Binding

DataList Control

- ◆ Provides list output with editing
- ◆ Default look is a table
- ◆ Customized via templates
- ◆ Directional rendering (horizontal or vertical)
- ◆ Single and multiple selection
- ◆ Alternate item
- ◆ Updateable
- ◆ No paging

Data Binding DataList Control

```
void Page_Load(object s, EventArgs e) {  
    myDataGrid.DataSource = GetSampleData();  
    myDataGrid.DataBind();  
}  
  
<asp:datalist id=myDataList runat=server>  
    <template name="itemtemplate">  
        <b>Title id:</b>  
        <%# DataBinder.Eval(Container.DataItem, "title_id") %>  
        <br> <b>Title:</b>  
        <%# DataBinder.Eval(Container.DataItem, "title") %>  
    </template>  
</asp:datalist>
```

Demot XMLASP.NET_XML



GRIDVIEW CONTROL

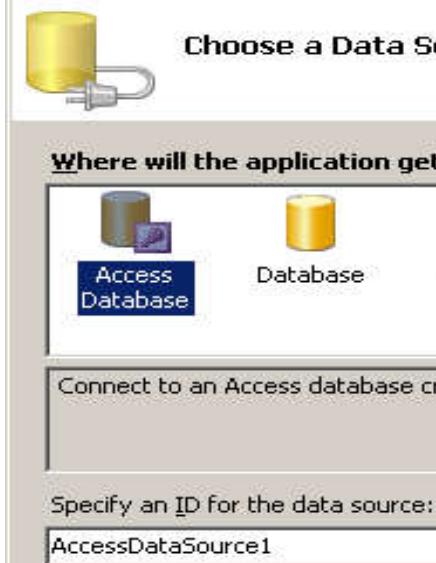
GridView

- ◆ Displays the values of a data source in a table where each column represents a field and each row represents a record.
- ◆ The GridView control enables you to select, sort, and edit these items.

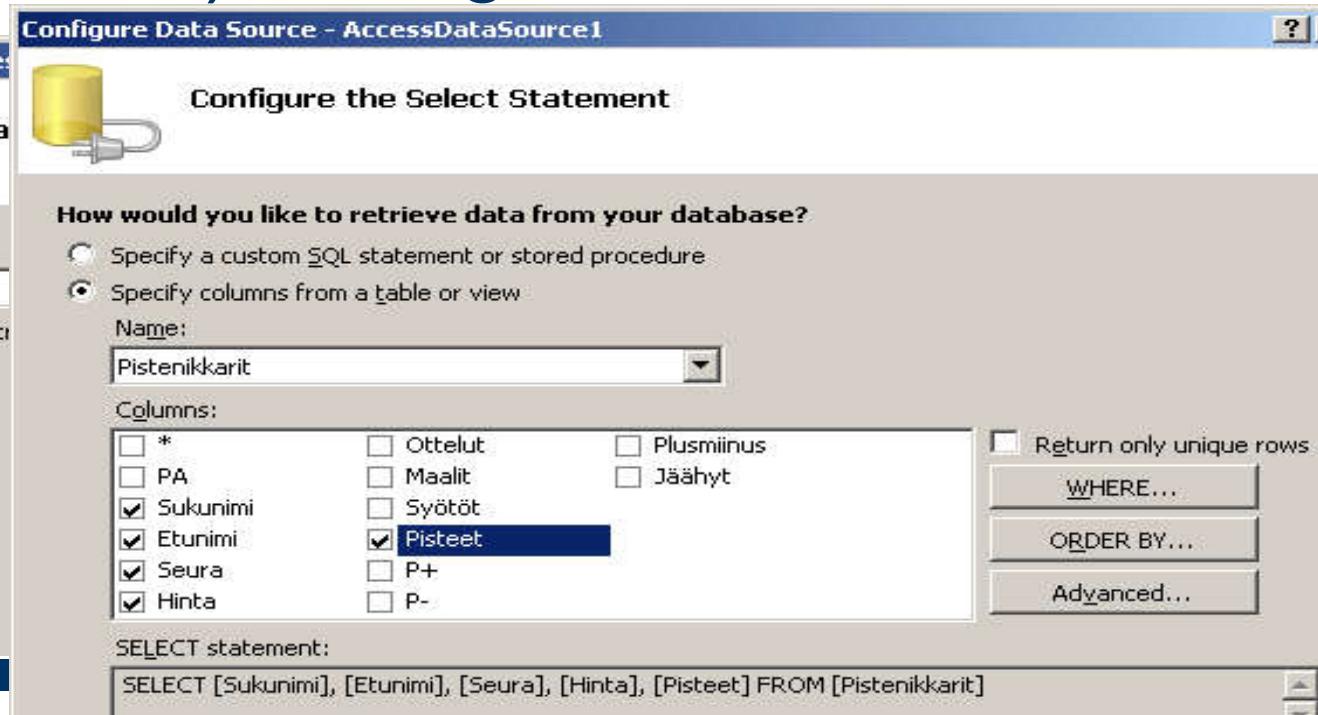
Creating Gridview

- 1) Create a web page → drag a gridview control
- 2) Create DataSource

Data Source Configuration Wizard



- 3) Configure Select



Creating Gridview #2

4) Test Query

5) DataSource Set → Set other proper

4) Test Query

5) DataSource Set → Set other properties

GridView Tasks

- Auto Format...
- Choose Data Source: AccessDataSource1
- Configure Data Source...
- Refresh Schema
- Edit Columns...
- Add New Column...

Enable Paging

Configure Data Source - AccessDataSource1

Test Query

To preview the data returned by this data source.

Sukunimi	Etunimi	Seura	Hinta
Viitaluoma	Ville	Blues	50000
Kariya	Martin	Blues	100000
Bros	Michal	Kärpät	200000
Sahlstedt	Kalle	Kärpät	
Laine	Teemu	Tappara	
Daconen	Jonne	Kärpät	

SELECT statement:

```
SELECT [Sukunimi], [Etunimi], [Seura], [Hinta]
```

Untitled Page - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search

Address http://localhost:3383/ASPNET2/DBExample0.aspx Links

JYVÄSKYLÄN AMMATTIKORKEAKOULU
JYVÄSKYLÄ UNIVERSITY OF APPLIED SCIENCES

	<u>Sukunimi</u>	<u>Etunimi</u>	<u>Seura</u>	<u>Hinta</u>	<u>Pisteet</u>
Select	Viitaluoma	Ville	Blues	50000	9
Select	Kariya	Martin	Blues	100000	9
Select	Bros	Michal	Kärpät	200000	9
Select	Sahlstedt	Kalle	Kärpät		8



Demo: Tiedonluku Access-tietokannasta #1

Deprecated in VS2012

Aseta sopivat
oletusarvot



Provider=Microsoft.ACE.OLEDB.12.0;Data Source=|DataDirectory|\SMliiga.accdb

tietokanta: Provider=Microsoft.ACE.OI taulun nimi: Pisteet joukkueet: Blues

Hae (DataView) Hae (DataReader)

sukunimi	etunimi	seura	pisteet	maalit	syötöt	plusmäärä
Pesonen	Janne	Kärpät	78	34	44	39
Leino	Ville	Jokerit	77	28	49	34
Hyvönen	Hannes	Kärpät	66	24	42	33
Immonen	Jarkko	JYP	63	26	37	4
Stapleton	Tim	Jokerit	62	29	33	22

GridView

Käytä funktiota GetTable joka palauttaa DataTable -on

Käytä DataReaderia -objektiin



Demo jatkuu: DataReader

Deprecated in VS2012



JYVÄSKYLÄN
AMMATTIKORKEAKOULU

haettiin 381 tietuetta

tietokanta: Provider=Microsoft.ACE.OLEDB.12.0 taulun nimi: Pisteet joukkueet: Blues

Hae (DataView) Hae (DataReader)

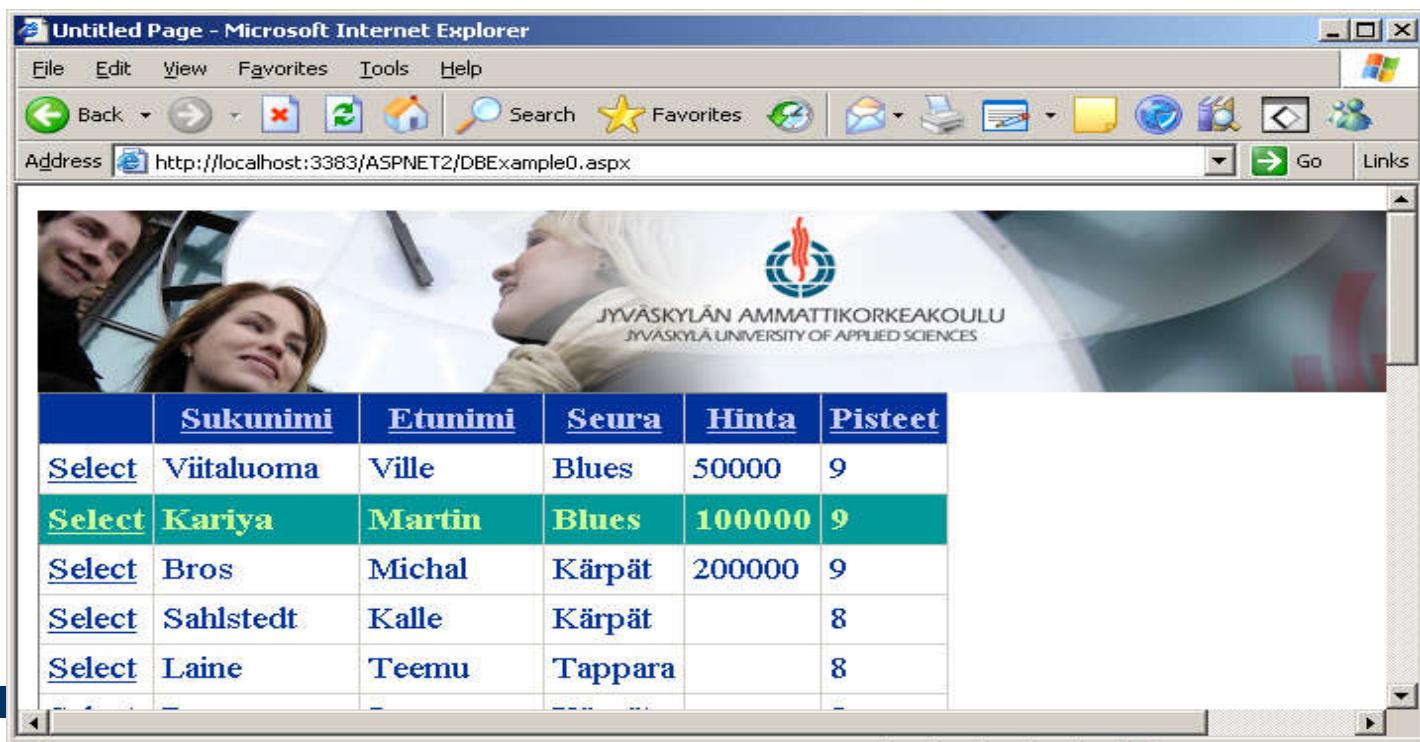
sukunimi	etunimi	seura	pisteet
Pesonen	Janne	Kärpät	78
Leino	Ville	Jokerit	77
Hyvönen	Hannes	Kärpät	66
Immonen	Jarkko	JYP	63

GRIDVIEW AND DETAILS VIEW CONTROLS

GridView & DetailView Controls

ASP2.0 →

- ◆ Displays the values of a data source in a table where each column represents a field and each row represents a record.
- ◆ The **GridView** control allows you to **select, sort and edit** these items.



The screenshot shows a Microsoft Internet Explorer window titled "Untitled Page - Microsoft Internet Explorer". The address bar displays the URL "http://localhost:3383/ASPNET2/DBExample0.aspx". The page content features a banner with two people's faces and the logo of Jyväskylän Ammattikorkeakoulu (Jyväskylä University of Applied Sciences). Below the banner is a **GridView** control with the following data:

	Sukunimi	Etunimi	Seura	Hinta	Pisteet
Select	Viitaluoma	Ville	Blues	50000	9
Select	Kariya	Martin	Blues	100000	9
Select	Bros	Michal	Kärpät	200000	9
Select	Sahlstedt	Kalle	Kärpät		8
Select	Laine	Teemu	Tappara		8

Demo DVD kellari



DVD kellari - Windows Internet Explorer

http://localhost:55149/Default.aspx

Favorites DVD kellari

Tee mitä teet

ID	Blade Runner	Scifiä parhaimmillaan	tammi 12, 2010
1	Blade Runner	Scifiä parhaimmillaan	tammi 12, 2010
2	Hohto	Se jostakin	huhti 24, 2010 blaah blaah
3	Viimeinen tango Pariisissa	erotiikkaa	touko 5, 2010
4	Koirankynnenleikkaaja	suomalaista draamaa	touko 6, 2010

[Edit](#) [Delete](#) 1 Blade R

[Edit](#) [Delete](#) 2 Hohto

[Edit](#) [Delete](#) 3 Viimeinen tango Pariisissa erotiikkaa touko 5, 2010

[Edit](#) [Delete](#) 4 Koirankynnenleikkaaja suomalaista draamaa touko 6, 2010

DVD kellari - Windows Internet Explorer

http://localhost:55149/Default.aspx

Favorites DVD kellari

Tee mitä teet

ID	Title	Description	Lisätty
1	Blade Runner	Scifiä parhaimmillaan	tammi 12, 2010
2	Hohto	Se jostakin	huhti 24, 2010 blaah blaah
3	Viimeinen tango Pariisissa	erotiikkaa	touko 5, 2010
4	Koirankynnenleikkaaja	suomalaista draamaa	touko 6, 2010

[Edit](#) [Delete](#)

[Update](#) [Cancel](#)

[Edit](#) [Delete](#)

[Edit](#) [Delete](#)

[New](#)

Done

FormView - ItemTemplate

Comparing GridView & DetailView controls

- GridView
 - Displays data as a table
 - Sorting, paging
 - Editing, deleting

Code	Name	UnitPrice	OnSale
0	abc	0	<input type="checkbox"/>
1	abc	0,1	<input checked="" type="checkbox"/>
2	abc	0,2	<input type="checkbox"/>
3	abc	0,3	<input checked="" type="checkbox"/>
4	abc	0,4	<input type="checkbox"/>

GridView Tasks

- Auto Format...
- Choose Data Source: SqlDataSource1
- Configure Data Source...
- Edit Columns...
- Add New Column...
- Enable Paging
- Enable Sorting
- Enable Selection

Edit Templates

- DetailsView
 - Renders a single record at a time
 - Paging through multiple records
 - Inserting, editing, deleting

Code	0
Name	abc
UnitPrice	0
OnSale	<input type="checkbox"/>

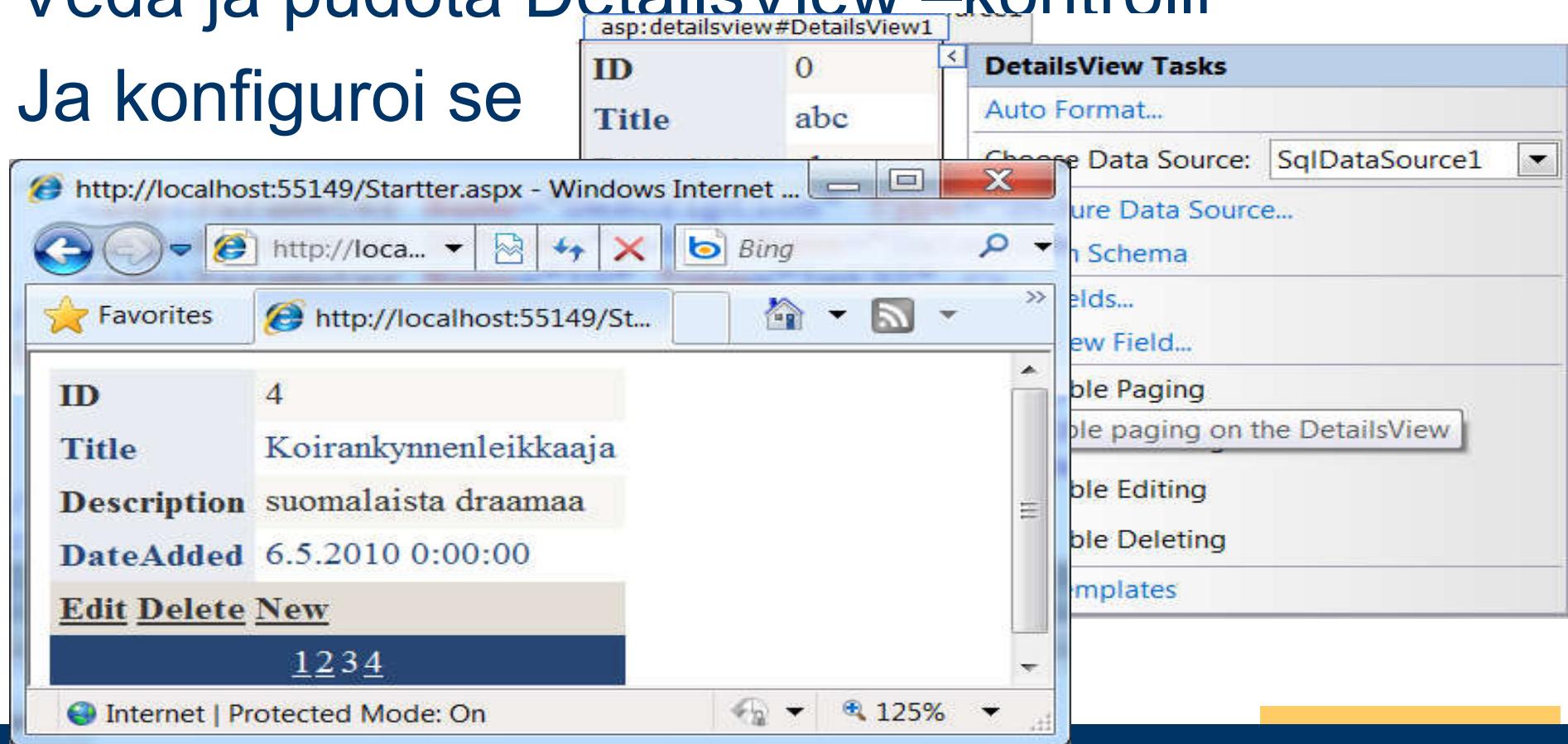
DetailsView Tasks

- Auto Format...
- Choose Data Source: SqlDataSource1
- Configure Data Source...
- Refresh Schema
- Edit Fields...
- Add New Field...
- Enable Paging

Edit Templates

Datan esittäminen DetailsView

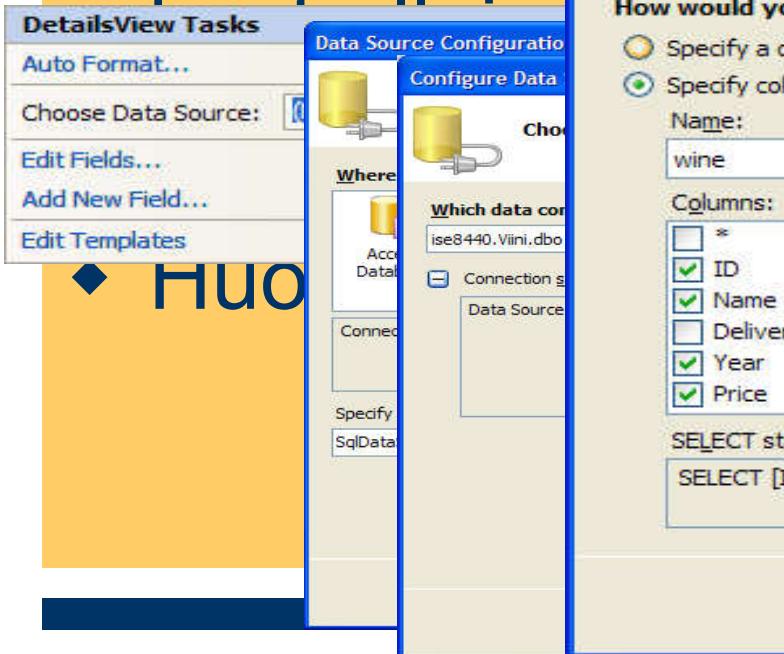
- ◆ Vedä ja pudota DetailsView –kontrolli
- ◆ Ja konfiguroi se



GridView: Tiedon lisäys, muokkaus

KESKEN!

- ◆ GridView – k
editoinnin,
sillä ei voi t



The screenshot shows two overlapping dialog boxes for 'SqlDataSource1'. The top box is 'Add Connection' with the instruction 'Enter information to connect to the selected data source or click "Change" to choose a different data source and/or provider.' and a 'Data source:' dropdown set to 'Microsoft SQL Server (SqlClient)' with a 'Change...' button. The bottom box is 'Configure Data Source - SqlDataSource1' with a 'Test Query' section containing the text 'To preview the data returned by this data source, click Test Query. To complete this wizard, click Finish.' and a preview grid showing wine data:

ID	Name	Year	Price	Type
1	Fume Blanc	1999	4,0000	white
2	Côtes du Rhône	1997	5,0000	red
3	Liebfraumilch	2002	3,5000	white
4	Gato Negro Merlot	2000	5,0000	red
5	Gato Negro Cabernet Sauvignon	2000	6,0000	red

Below the grid is a 'Test Query' button. At the bottom of the dialog is a 'SELECT statement:' field containing 'SELECT [ID], [Name], [Year], [Price], [Type] FROM [wine]'.



Demo DVD kellari

Windows Internet Explorer

http://localhost:55149/Default.aspx

Favorites DVD kellari

Grid View

	ID	Title	Description	Lisätty
Edit	1	Blade Runner	Scifiä parhaimmillaan	tammi 12, 2010
Delete	2	Hohto	Se jostakin	huhti 24, 2010
Edit	3	Viimeinen tango Pariisissa	erotiikkaa	touko 5, 2010
Delete	4	Koirankynnenleikkaaja	suomalaista draamaa	touko 6, 2010

Tee mitä teet

Title: Tuntematon sotilas

Description: Sotaelokuva

Date Added: 7.5ksksk

Insert **Cancel**

FormView - InsertItemTemplate

tarkista pvm

Custom Validator

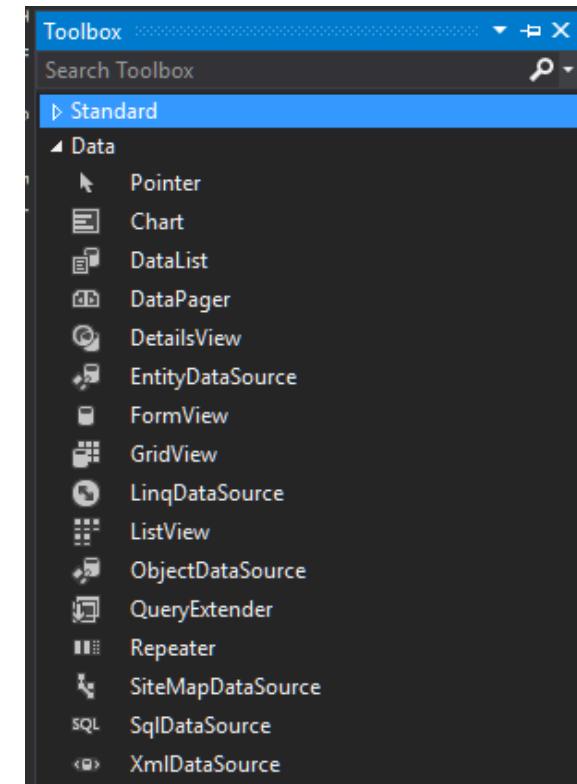
Internet | Protected Mode: On

156%

DATA SOURCES

The List of DataSource Controls

- ◆ ~~AccessDataSource~~ *depricated*
- ◆ EntityDataSource
- ◆ LinqDataSource
- ◆ ObjectDataSource
- ◆ SiteMapDataSource
- ◆ SqlDataSource
- ◆ XmlDataSource



[Source and more](#)

No more Access in ASP.NET !

► Can my ASP.NET web application use a Microsoft Access database?

Microsoft **strongly recommends against using Access in web applications**. The **AccessDataSource** control has been removed from the Visual Studio Toolbox for projects that target ASP.NET 4.5, and Microsoft customer support will not help resolve problems resulting from the use of Microsoft Access in web applications. Such use might be successful for a while if you use the native Jet OLE DB Provider in place of the Microsoft Access ODBC driver, if you access an .mdb or .accdb file that is located within your web application's folder structure, and if web site traffic is very low. But a system failure with possible database corruption is likely to develop eventually, especially as traffic to the application increases. In addition, bugs in the database provider are no longer being fixed; the Jet provider has been superseded by the ACE provider, which specifically disallows use in web applications. Even if no errors are encountered, database security is especially important in a public web site, and Access databases have fewer security features than SQL Server databases.

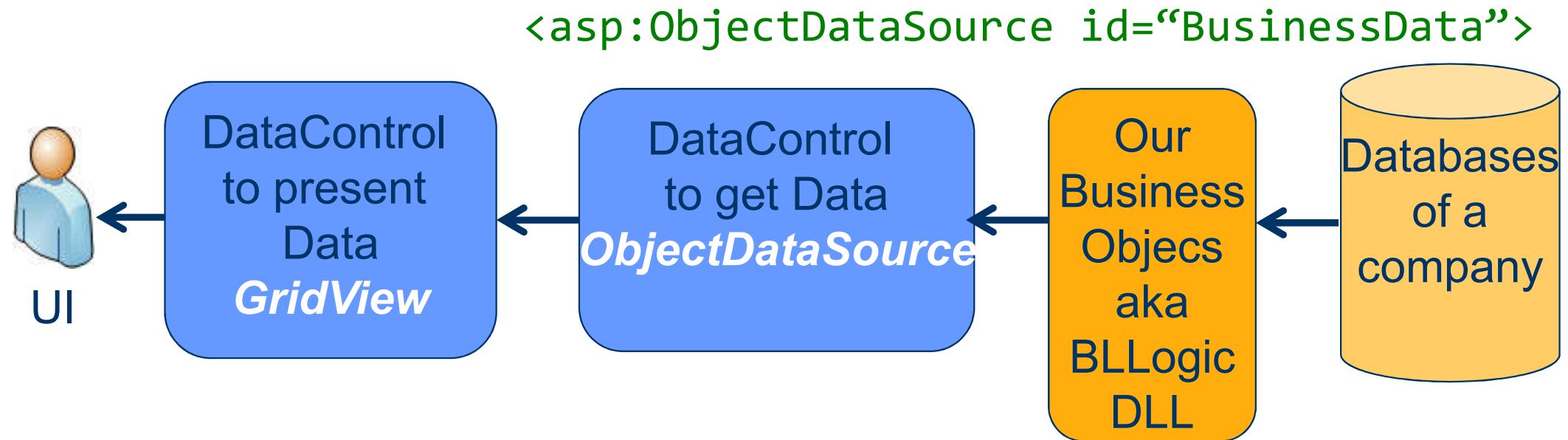
Microsoft recommends SQL Server for web applications. For more information, see [ASP.NET Data Access Options](#).

If you want to accept the risks and use Microsoft Access in a web site, see the Microsoft Support page on [Using Microsoft Jet with IIS](#).

- ◆ <http://msdn.microsoft.com/en-us/library/jj653753.aspx>

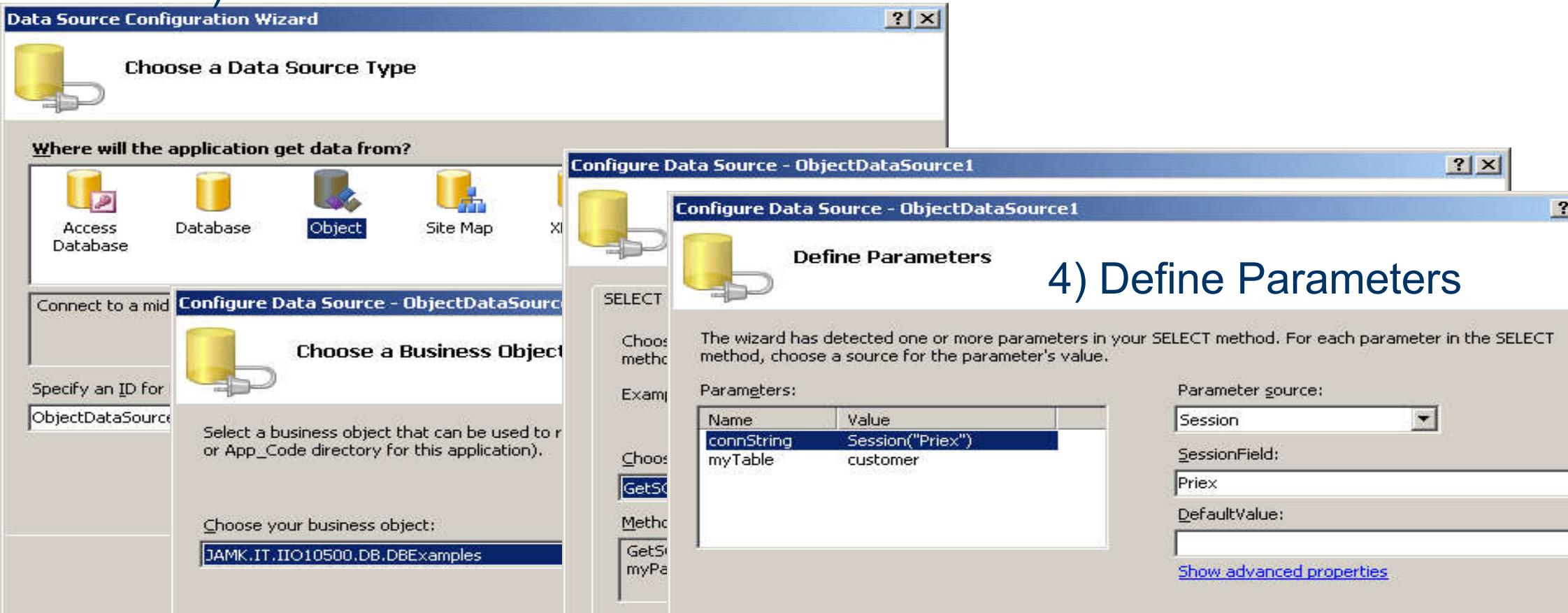
ObjectDataSource

- Represents a business object that provides data to data-bound controls in multitier Web application architectures,
[more in MSDN](#)



Using Object as a datasource

- 1) Create first folder Bin to you project
- 2) Place a suitable DLL to the Bin folder



4) Define Parameters



Demo: Placebo2010

ASP.NET oppilaat - Windows Internet Explorer

http://localhost:1129/TestiSaitti2010/NaytaOppilaat.aspx

Suosikit | Codezone FI - Site Home ... | TechNet 110 videotallenteet | MSDN | MSDN AA lataukset | Etusivu | Yle Areeni

ASP.NET oppilaat

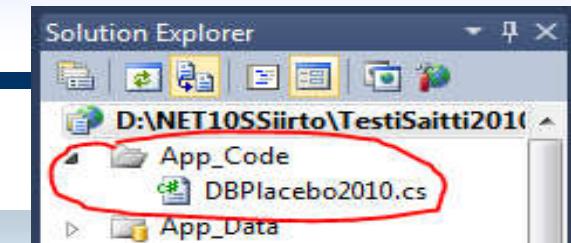
oppilas A3581 on nimeltään Waltari Mika
oppilas B3553 on nimeltään King Stephen
oppilas C1238 on nimeltään Neruda Pablo

ASP.NET oppilaat

Oppilastiedot luetaan komponentin DBPlacebo2010.cs avulla

Hae 3 oppilasta

Paina Buttosta niin haetaan komponentin staattisella metodilla lista oppilaita



```
namespace JAMK.ICT.Data {  
    public static class DBPlacebo {  
        public static DataTable Get3Students()  
        {  
            . . .  
        }  
    }  
}
```

SQLDataSource

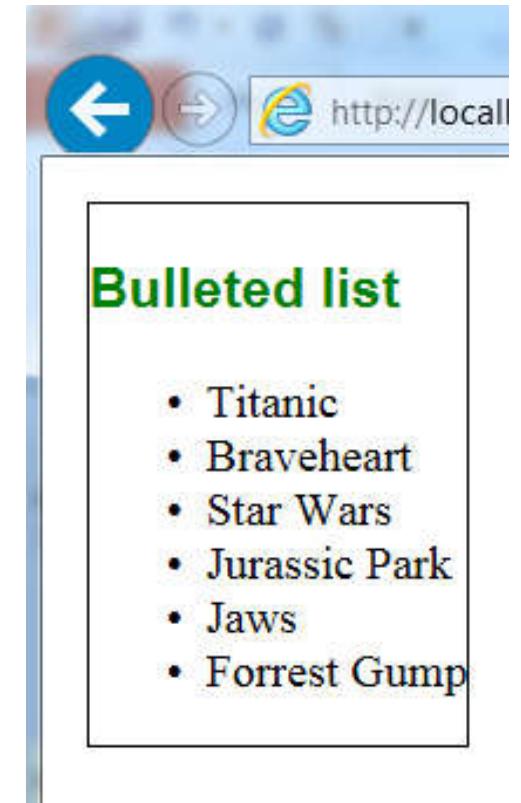
- The SqlDataSource data source control represents data in an SQL relational database to data-bound controls.

```
<asp:SqlDataSource id="MySource" runat="server">
```



Demo: Simple SqlDataSource

- ◆ <asp:SqlDataSource
ID="srcMovies"
ConnectionString="Data
Source=twelve.labranet.jamk.fi;Initial
Catalog=Movie;Persist Security Info=True;User
ID=koodari;Password=koodari16"
SelectCommand="SELECT title FROM Movies"
runat="server">
</asp:SqlDataSource>



Demo. GridView & SqlDataSource

- ♦ tee kuvan mukainen webbisivu käyttämällä SqlDataSource ja GridView:tä

The screenshot shows a Microsoft Edge browser window with the following details:

- Title Bar:** iGoogle, Windows 8.1 app bar, Esa Salmikangas, IIO13200 ASP.NET-C.
- Address Bar:** localhost:50319/viikkotehtava1-GitSourceContorolTesti/salesa_dbcontrols.aspx
- Toolbar:** Apps, CASE Tools, ETS, JAMK, Lehdet, .NET
- Page Content:**
 - EsaSoft Developer Network**
 - ASP.NET Databound Controls**
 - CONTROLS TO DISPLAY A SET OF DATA**
 - GRIDVIEW**
 - Displays a set of data items in an HTML table. This control enables displaying, sorting, and updating data from a database.**
 - Data Table:** A table showing movie information with columns: title, director, and year. The data includes:

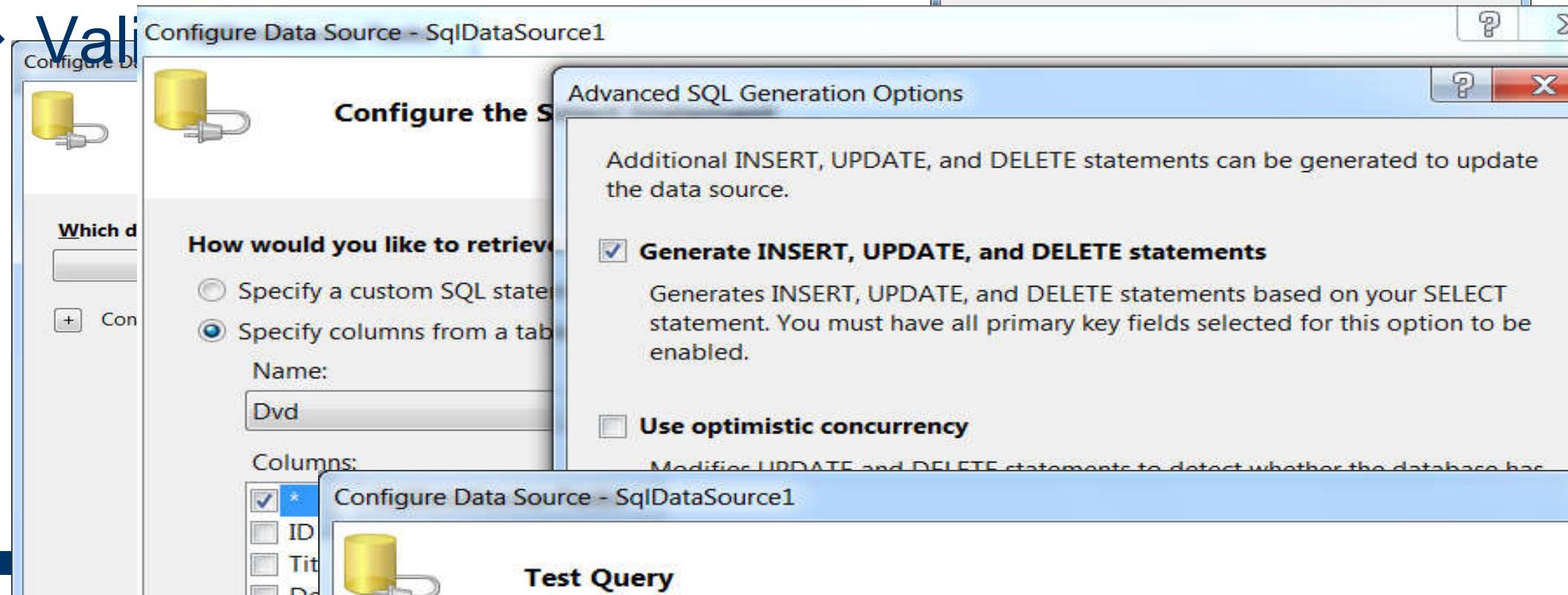
title	director	year
Avatar	James Cameron	2009
Braveheart	Mel Gibson	1995
Forrest Gump	Robert Zemeckis	1994
Iron Man 3	Shane Black	2013
Jaws	Steven Spielberg	1977
Jurassic Park	Steven Spielberg	2000
Skyfall	Sam Mendes	2012
Star Wars	George Lucas	1975
Titanic	James Cameron	1999

COPYRIGHT Esa&KNIT

Adding and configuring a SqlDataSource control

- ◆ Vedä ja pudota sqlDataSource Toolboxista

- ◆ Vali





Demo: WineData from SQL Server

- ◆ Tee sovellus joka hakee `Priex.labranet.jamk.fi`-palvelimen **Viini**-tietokannasta **wine** –taulusta tiedot
 - Käyttäjätunnus="koodari", salasana="koodari10"

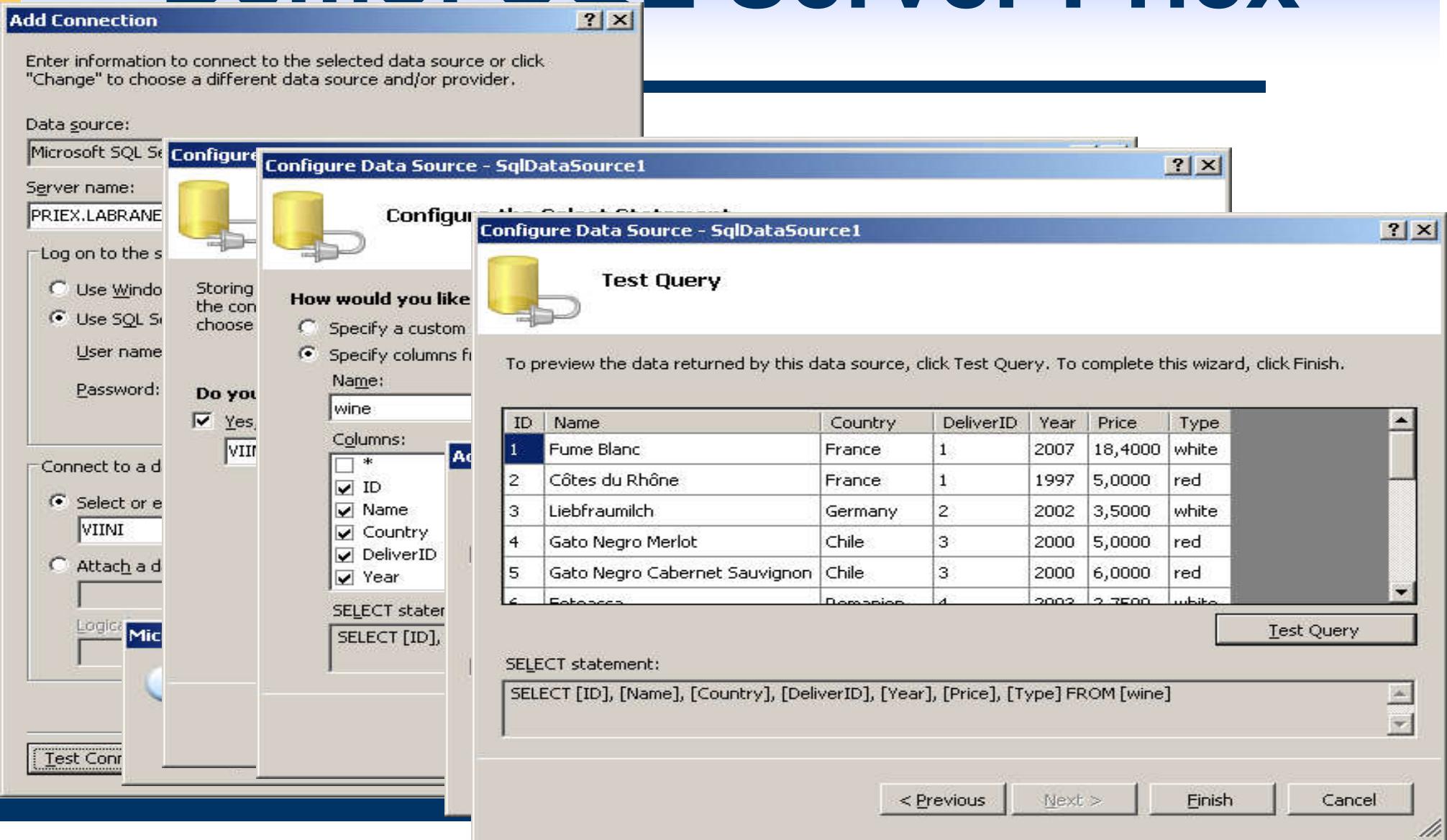
The screenshot displays two instances of Mozilla Firefox running side-by-side.

Left Firefox Window: The title bar says "Viinikellari - Mozilla Firefox". The address bar shows "http://localhost:1732/ASPNET2/DE". The page content shows a login form with fields for "server", "user", "password", and "database". Below the form is an error message: "SELECT permission denied on object 'wine', d...". A blue oval highlights the "Done" button at the bottom left of this window.

Right Firefox Window: The title bar says "Viinikellari - Mozilla Firefox". The address bar shows "http://localhost:1732/ASPNET2/DE". The page content shows a search result for "server=localhost;user=koodari;password=koodari07;database=de". Below the search bar is a heading "Haettu 9 tietuetta taulusta wine". A table follows, showing the following data:

ID	Name	DeliverID	Year	Price	Type
1	Fume Blanc	1	1999	4,0000	white
2	Côtes du Rhône	1	1997	5,0000	red
3	Liebfraumilch	2	2002	3,5000	white
4	Gato Negro Merlot	2	2000	5,0000	red

Demo: SQL Server Priex



Tiedon lisäys: Advanced

Viinikellari - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:3098/Viini/Viini.aspx

Google Search RS Bookmarks PageRank Check AutoLink Settings

JYVÄSKYLÄN AMMATTIKORKEAKOULU JYVÄSKYLÄ UNIVERSITY OF APPLIED SCIENCES

server=ISE8440;database=viini;user=koodari;password=koodari07

Hae viinit

Haettiin 10 tietuetta taulusta wine

ID	Name	DeliverID	Year	Price	Type
1	Fume Blanc	1	1999	4,0000	white
2	Côtes du Rhône	1	1997	5,0000	red
3	Liebfraumilch	2	2002	3,5000	white
4	Gato Negro Merlot	3	2000	5,0000	red
5	Gato Negro Cabernet Sauvignon	3	2000	6,0000	red
6	Feteasca	4	2003	2,7500	white
7	Chateau Lafitte	5	2001	10,5500	red
8	Devils Rock	2	2005	11,5500	white
9	Santa Anna	5	2004	9,9500	red
11	Kulkurin Valssi		2007	9,9900	tosi kuiva

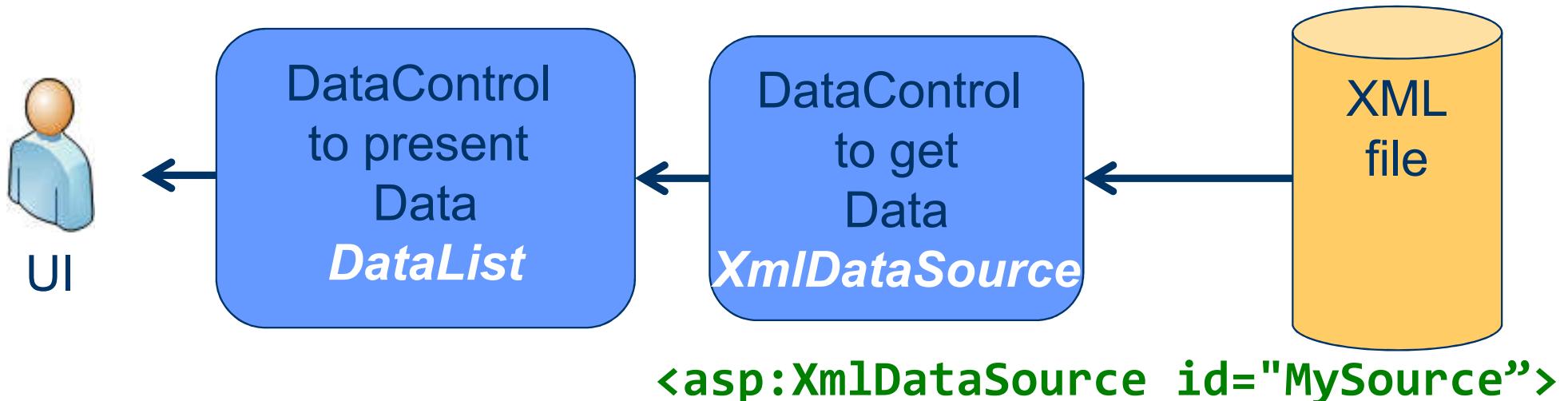
Done

Google Settings

DRI

XmlDataSource

- ◆ Represents an XML data source to data-bound controls, [more in MSDN](#)
- ◆ Demot setissä XMLASP.NET_XML



TRANSACTION HANDLING IN ADO.NET

Transactions

- ◆ Transaction is a sequence of SQL statements that constitute a logical unit of work.
- ◆ Must adhere to ACID properties
 - Atomic: All statements execute successfully or all fail
 - Consistent: Must leave the data in a consistent state when completed
 - Isolated: Cannot see the modifications made by concurrent transactions
 - Durable: Must be permanent when complete, even in the event of system failure

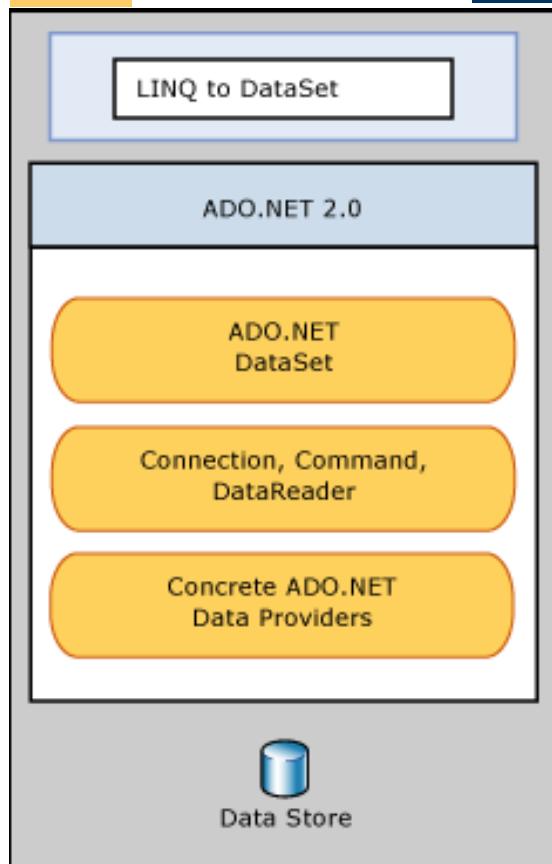
To work with transactions in ADO.NET, follow these steps

1. Create a connection
2. Open the connection
3. Create a transaction instance
4. Start the transaction
5. Execute the SQL statements
6. Commit the transaction OR roll back the transaction
7. Close the connection

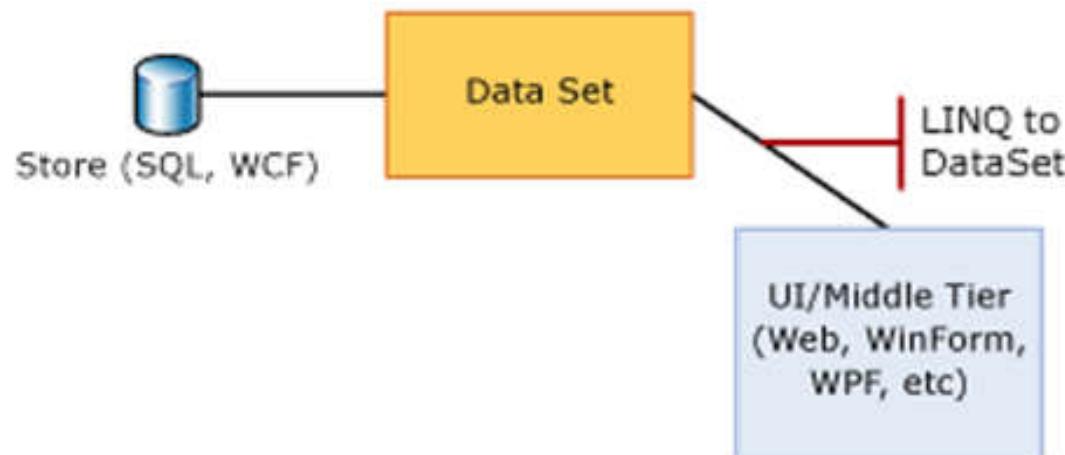


LINQ

LINQ to DataSet



- ◆ LINQ to DataSet makes it easier and faster to query over data cached in a DataSet object



Querying DataSets Using LINQ to DataSet

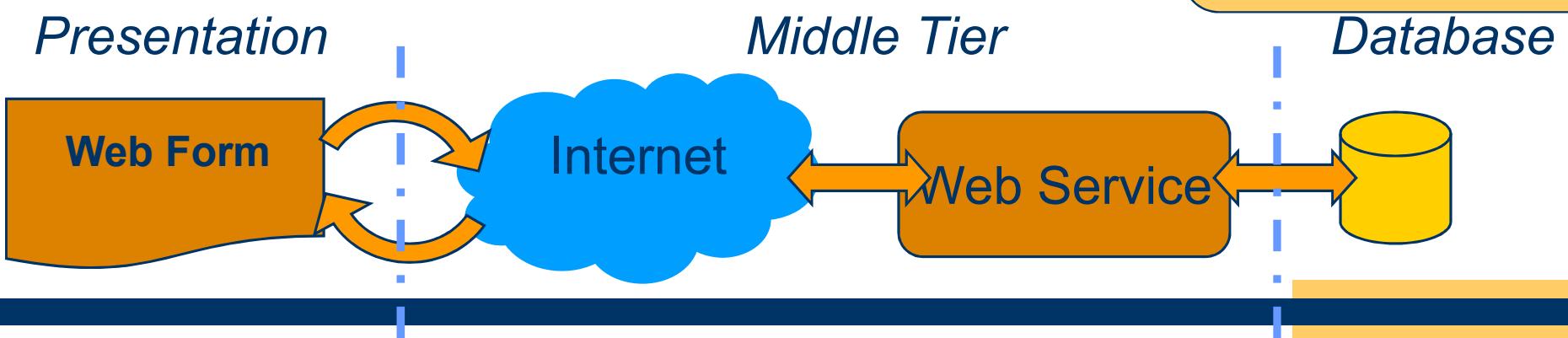
- ◆ Kesken katso projekti
- ◆ NaytaOppilaatGV.aspx
- ◆ TestXMLAndLINQ mitä tekee

SOA & WEBSERVICES

Why Web Services? Web Applications

- ◆ ASP.NET defines a Web application as the “sum of all files, pages, handlers, modules, and executable code that can be invoked or run in the scope of a given virtual directory on a web application server”
- ◆ Distributed Applications

WebServiceistä
Lisää myöhemmin



Demo: Todo Odata?

NOTES FROM THE FIELDS

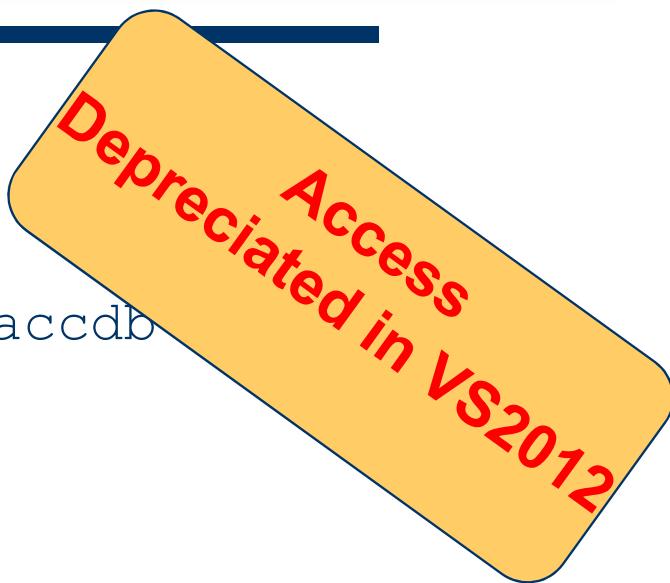
App_Data

- ◆ Koodissa —

```
String connString =  
    "Provider=Microsoft.ACE.OLEDB.12.0;"  
    + "Data Source=" +  
    Server.MapPath("~/App_Data/Placebo10.accdb")
```

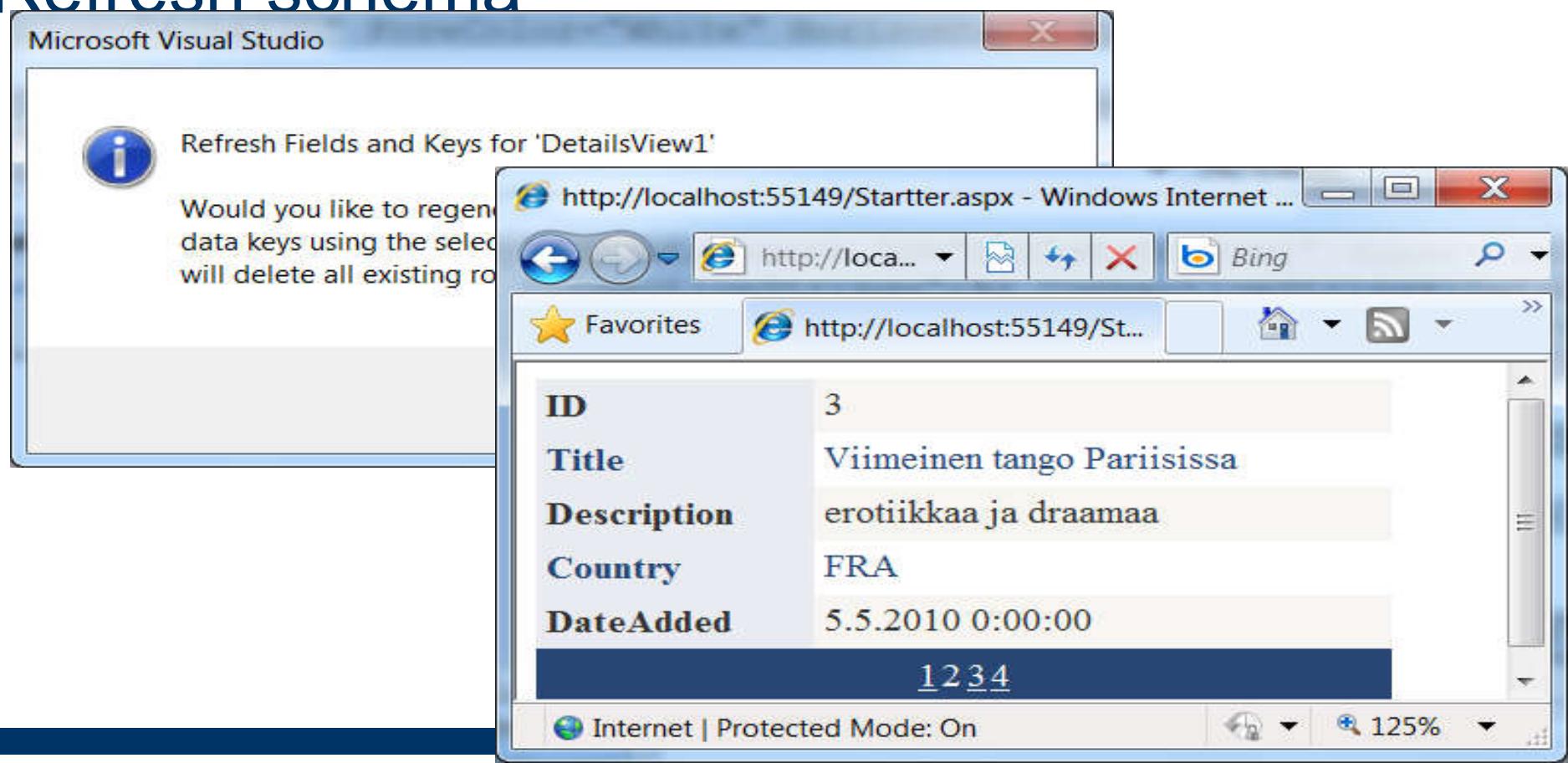
- ◆ Web.Configissa

```
<connectionStrings>  
    <add name="oppilaat"      absoluuttinen  
        connectionString="Provider=Microsoft.ACE.OLEDB.12.0;  
        Data Source=D:\Syksy2010\App_Data\Placebo10.accdb"/>  
    <add name="oppilaatSuht"   suhteellinen  
        connectionString="Provider=Microsoft.ACE.OLEDB.12.0;  
        Data Source=|DataDirectory|\Placebo10.accdb"/>  
</connectionStrings>
```



Muutoksia taulun rakenteeseen

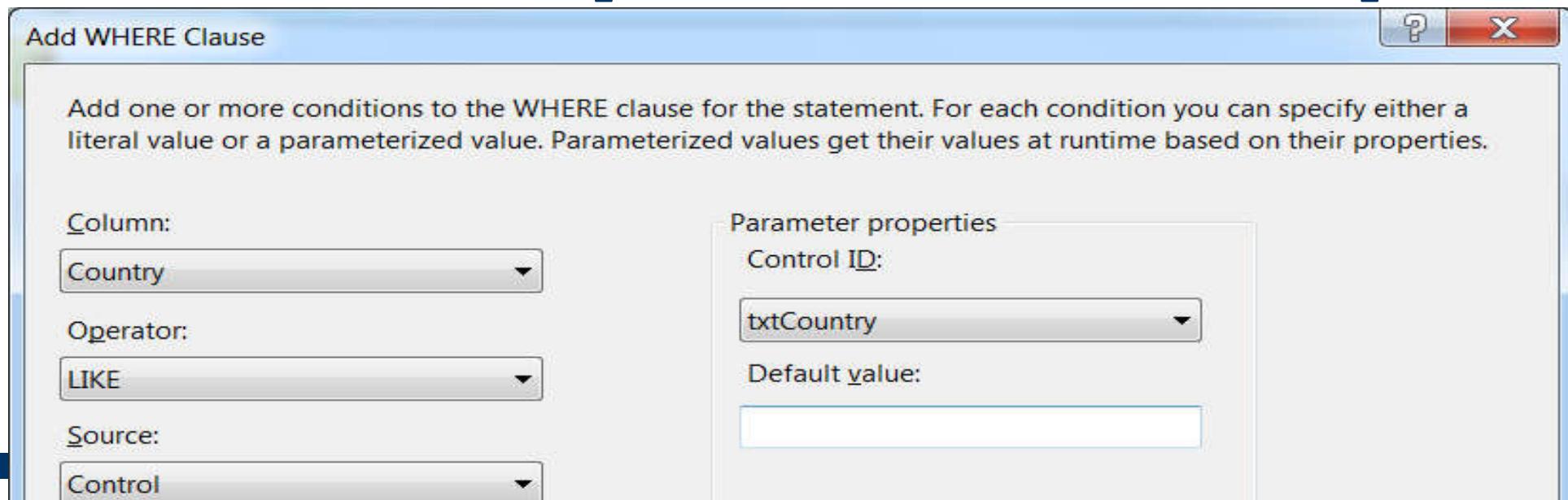
- ◆ Refresh schema



Datan suodatus

- ◆ Lisää textbox ja button kontrollit
- ◆ Avaa SqlDataSource ja valitse configure Data source
- ◆

```
SELECT * FROM [Dvd]
WHERE ([Country] LIKE '%' + @Country + '%')
```



Datan suodatus jatkuu

The screenshot shows two instances of Microsoft Internet Explorer running side-by-side. Both windows have the URL <http://localhost:55149/Startter.aspx> displayed in the address bar. The title bar of the top window reads "Datan suodatus jatkuu".

The left window displays a list of movies:

ID	Title	Description	Country	DateAdded
1	Blade Runner	Scifiä parhaimmillaan	USA	12.1.2010 0:00:00

The right window displays the details for the movie with ID 1:

USA	Suodata
ID	1
Title	Blade Runner
Description	Scifiä parhaimmillaan
Country	USA
DateAdded	12.1.2010 0:00:00

Both windows show the status bar at the bottom indicating "Internet | Protected Mode: On". The right window also has a zoom level of "125%".

Remember

- ◆ **All user input are evil until proven otherwise!**
- secure all user inputs

Demo: Data

```
<connectionStrings>
  <add name="authors"
    connectionString="Data Source=Priex;Initial Catalog=
    providerName="System.Data.SqlClient" />
```



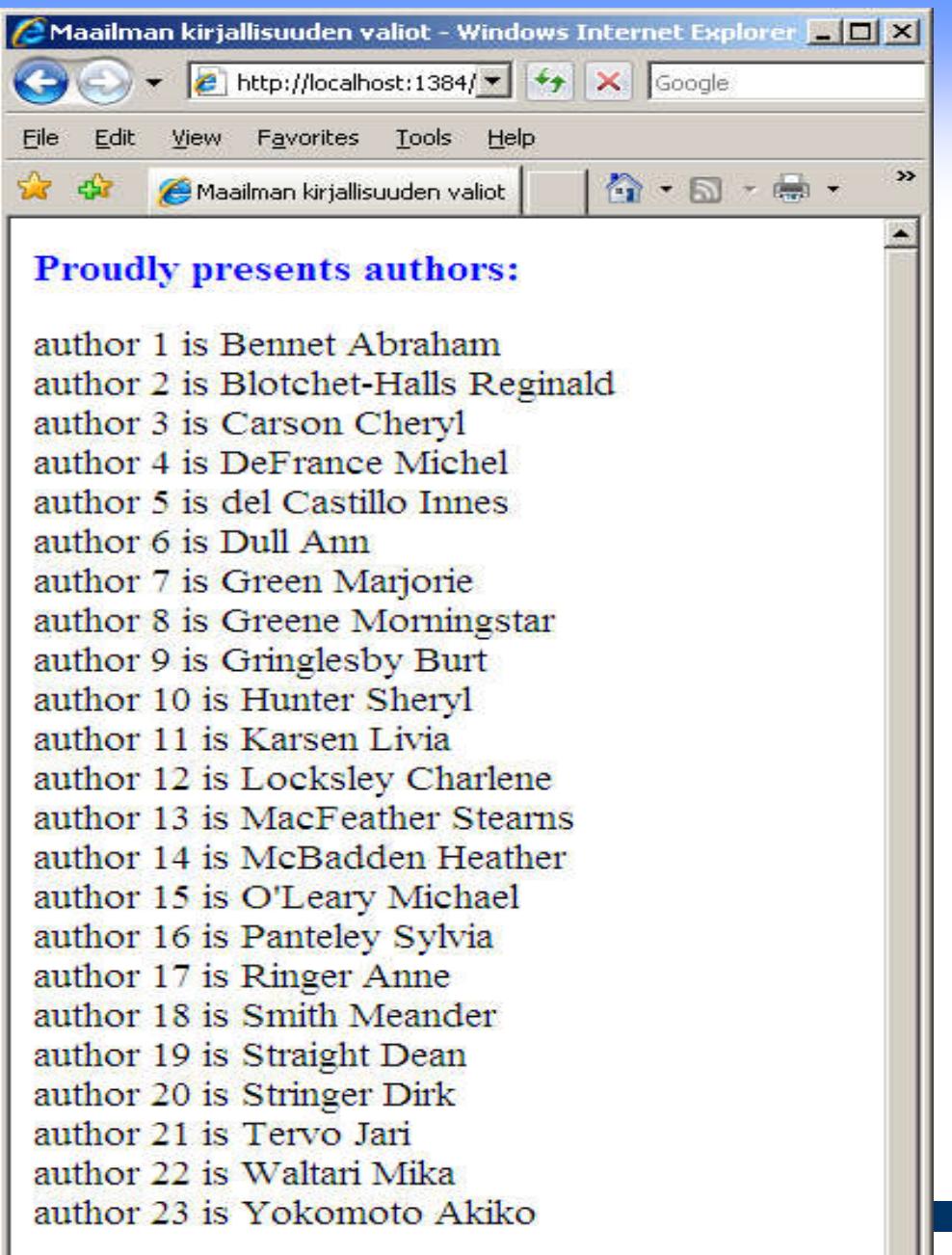
Server Error in '/09K' Application.

Cannot open database "pubs" requested by the login failed for user 'koodari'.

Description: An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.

Exception Details: System.Data.SqlClient.SqlException: Cannot open database "pubs" requested by the login failed.

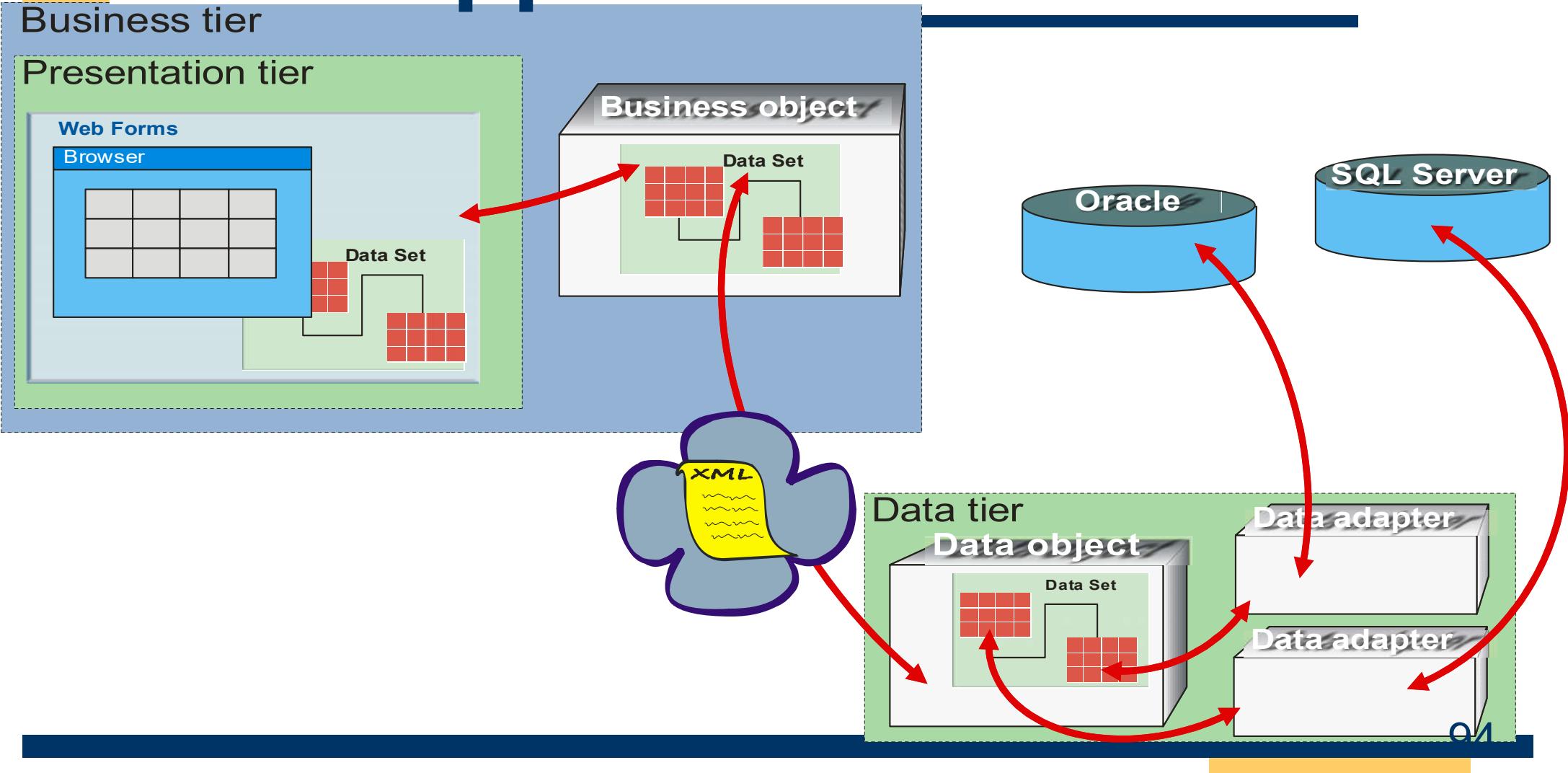
Done



ADO.NET n-tier application model

Business tier

Presentation tier





Demo: Virheitä otettaessa yhteyttä SQL Serverille

```
<add name ="viini"
      connectionString="server=195.148.26.146;
user=koodari:password=koodari07;database=viini"/>
```

The screenshot shows three separate instances of Microsoft Internet Explorer. The top window has a yellow callout pointing to its title bar: "Väärä palvelin/IP-osoite". The middle window has a yellow callout pointing to its title bar: "Autentikointi tietokantaan ei onnistu". The bottom window has a yellow callout pointing to its title bar: "Ei riittäviä oikeuksia tauluun".

Top Window: Väärä palvelin/IP-osoite

Middle Window: Autentikointi tietokantaan ei onnistu

Bottom Window: Ei riittäviä oikeuksia tauluun

Left Panel Content (Visible in Middle and Bottom Windows):

```
server=195.148.26.146;user=koodari:password=koodari07;database=viini
Hae viinit
An error occurred while establishing a connection to the server. The
be cause by the server being unavailable or the client not
Pipes Pipe
Copyright Esa&knit
```

Middle Window Content:

```
server=195.148.26.146;user=koodari:password=koodari07;database=viini
Hae viinit
Cannot open database 'Viini' because it does not exist or you do not have
SELECT permission on it.
Copyright Esa&knit
```

Bottom Window Content:

```
server=195.148.26.146;user=koodari:password=koodari07;database=viini
Hae viinit
kuva.jpg
SELECT permission denied on object 'wine', database 'Viini', schema 'dbo'.
Copyright Esa&knit
Home
```

SQL Server Table properties

The screenshot shows two open windows in SQL Server Management Studio:

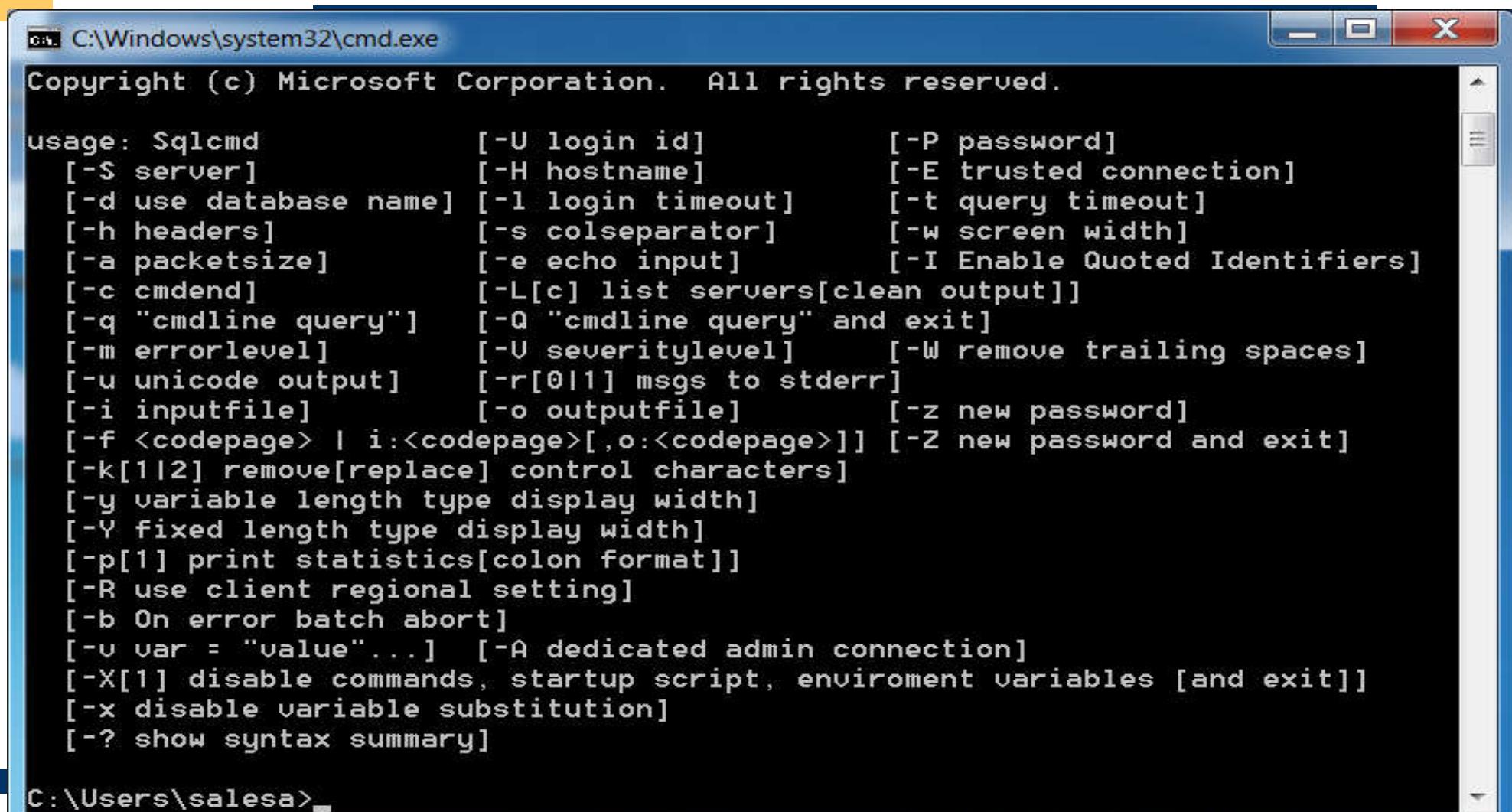
- Database User - New**: A wizard window for creating a new database user. It has three pages:
 - General**: Shows the user name 'koodari' and the 'User type' dropdown set to 'User'.
 - Securables**: Shows the 'Default schema' dropdown set to 'dbo'.
 - Extended Properties**: Shows the 'Description' field with the value 'Test user'.
- Table Properties - wine**: A properties window for the 'wine' table. It has three tabs:
 - General**: Shows the schema as 'dbo' and the table name as 'wine'.
 - Permissions**: Shows the 'Users or roles' section with 'koodari' listed as a user.
 - Extended Properties**: Shows the 'Effective Permissions' table.

Effective Permissions table (Visible in the Table Properties window):

Permission	Grantor	Grant	With Grant	Deny
Alter	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Delete	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insert	dbo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
References	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Take ownership	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Update	dbo	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SQLCMD

◆ SQLCMD –S (LOCAL)\SQLEXPRESS



The screenshot shows a Windows Command Prompt window titled "C:\Windows\system32\cmd.exe". The title bar includes standard window controls (minimize, maximize, close) and a maximize/minimize button. The main area of the window displays the usage information for the sqlcmd command. The text is white on a black background, typical of a terminal or command-line interface.

```
Copyright (c) Microsoft Corporation. All rights reserved.

usage: Sqlcmd [options] [script_file]
  [-S server]           [-U login id]          [-P password]
  [-d use database name] [-H hostname]        [-E trusted connection]
  [-h headers]          [-l login timeout]     [-t query timeout]
  [-a packetsize]        [-s colseparator]      [-w screen width]
  [-c cmdend]            [-e echo input]       [-I Enable Quoted Identifiers]
  [-q "cmdline query"]  [-L[c] list servers[clean output]]
  [-m errorlevel]        [-Q "cmdline query" and exit]
  [-u unicode output]   [-U severitylevel]     [-W remove trailing spaces]
  [-i inputfile]         [-r[0|1] msgs to stderr]
  [-f <codepage> | i:<codepage>[,o:<codepage>]] [-Z new password and exit]
  [-k[1|2] remove[replace] control characters]
  [-y variable length type display width]
  [-Y fixed length type display width]
  [-p[1] print statistics[:colon format]]
  [-R use client regional setting]
  [-b On error batch abort]
  [-v var = "value"...]  [-A dedicated admin connection]
  [-X[1] disable commands, startup script, environment variables [and exit]]
  [-x disable variable substitution]
  [-? show syntax summary]
```

The command prompt at the bottom of the window shows the path "C:\Users\salesa>" followed by a cursor.