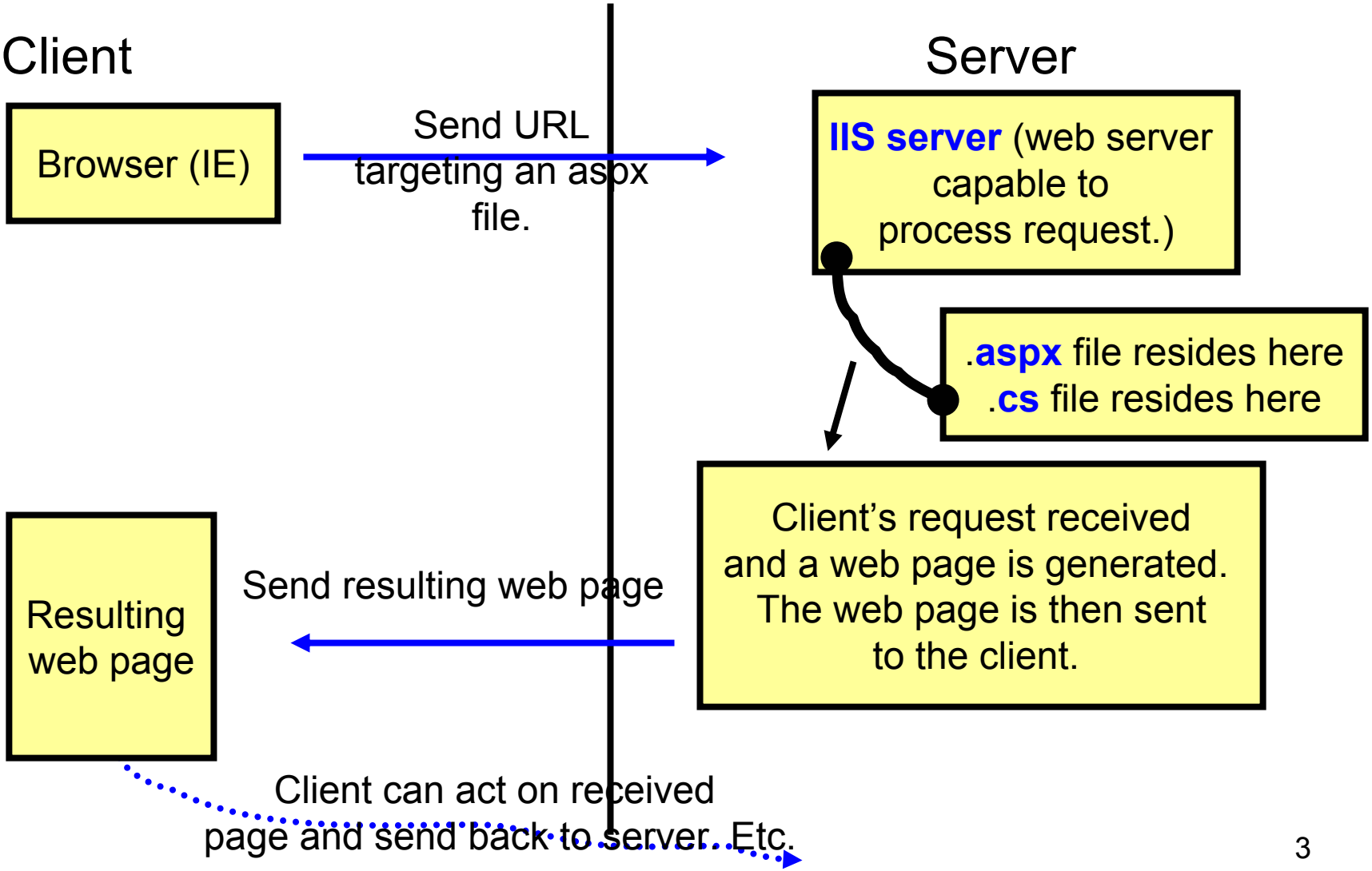
ASP .NET (1)

ASP .NET (Active Server Pages .NET)

- ASP .NET is a component of .NET that allows developing interactive web pages, which are typically GUI programs that run from within a web page.
- Those GUI programs can be written in any of the .NET languages, typically C# or VB.
- An ASP.NET application consists of two major parts:
  - The .aspx file: this is essentially the GUI that you see on the web page.
  - The .cs file (code behind): this is essentially the code that executes the logic (calculations) associated with the GUI of the web page.

Architecture

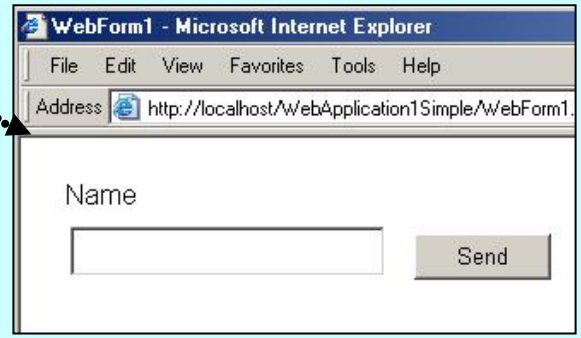


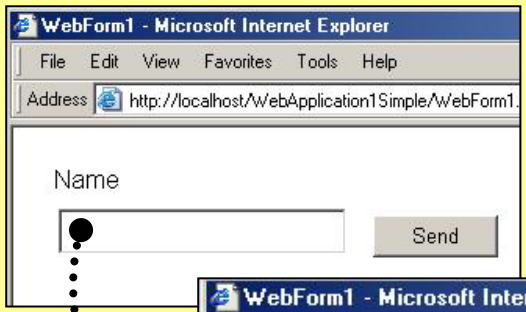
Example

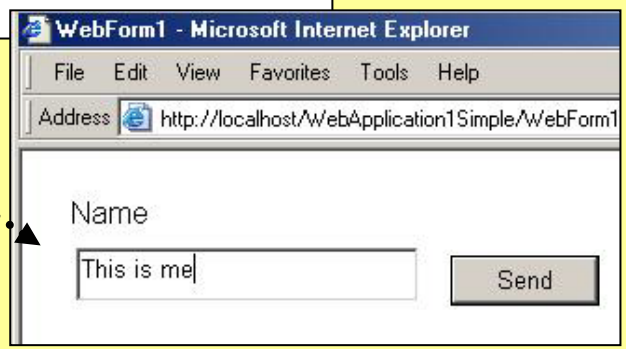
client

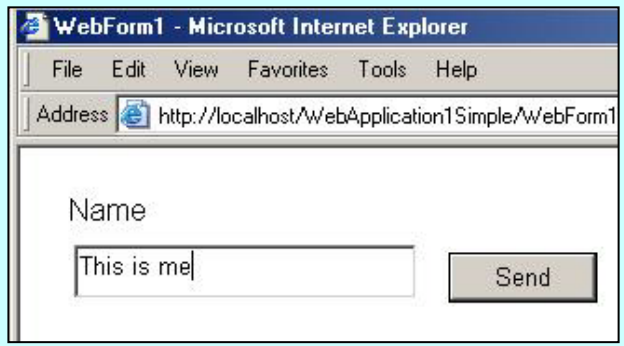
Server

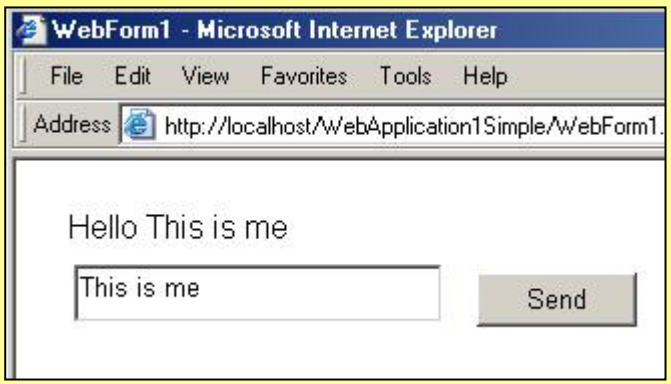
Client's request received and a web page is generated.

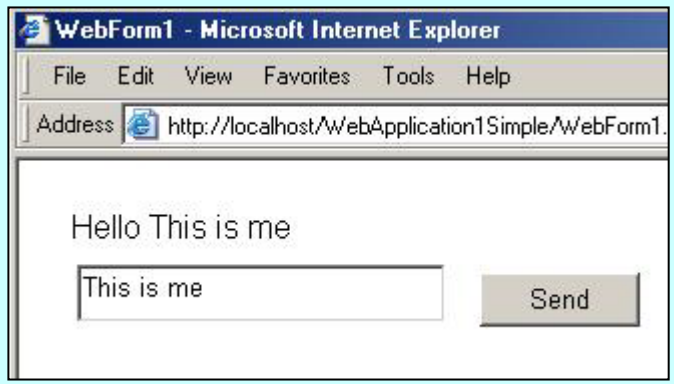








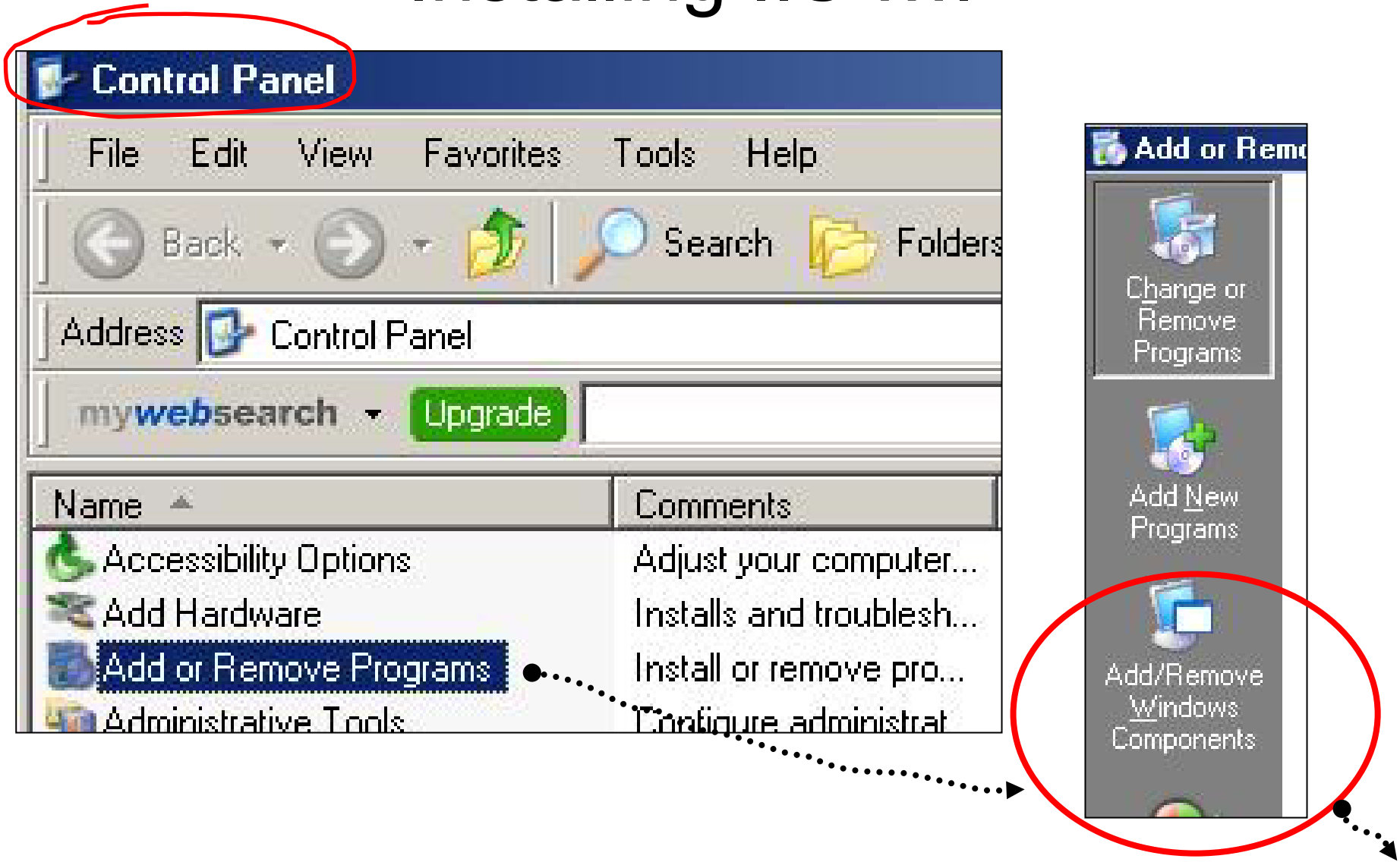




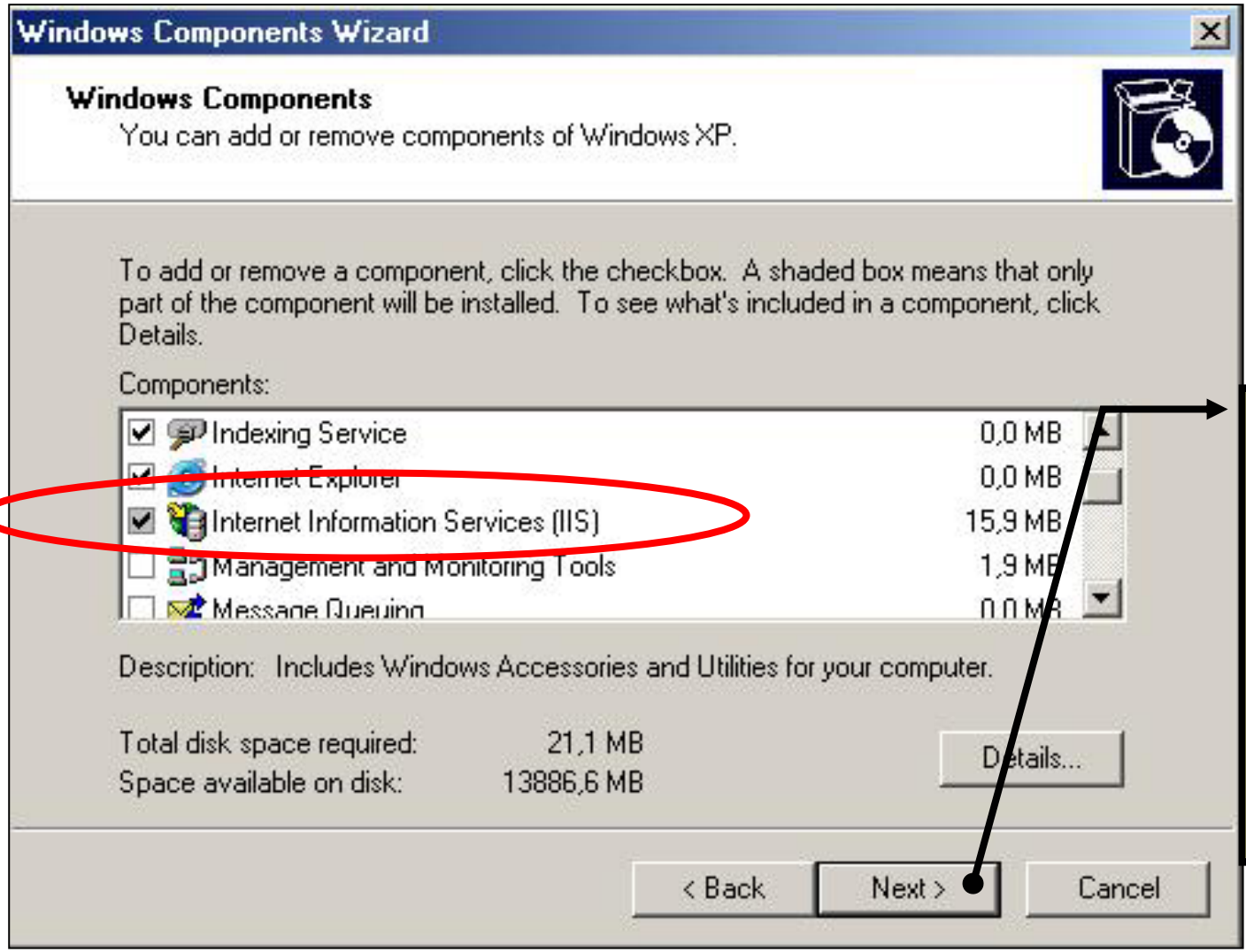
Visual Studio .NET makes it very easy to build ASP. NET applications.

- Must have IIS (Internet information Server) installed. (This is the Microsoft web server.)
- To install IIS you need the Windows XP Professional CD. It is also assumed that you have already installed and running the XP Professional OS.

Installing IIS ….

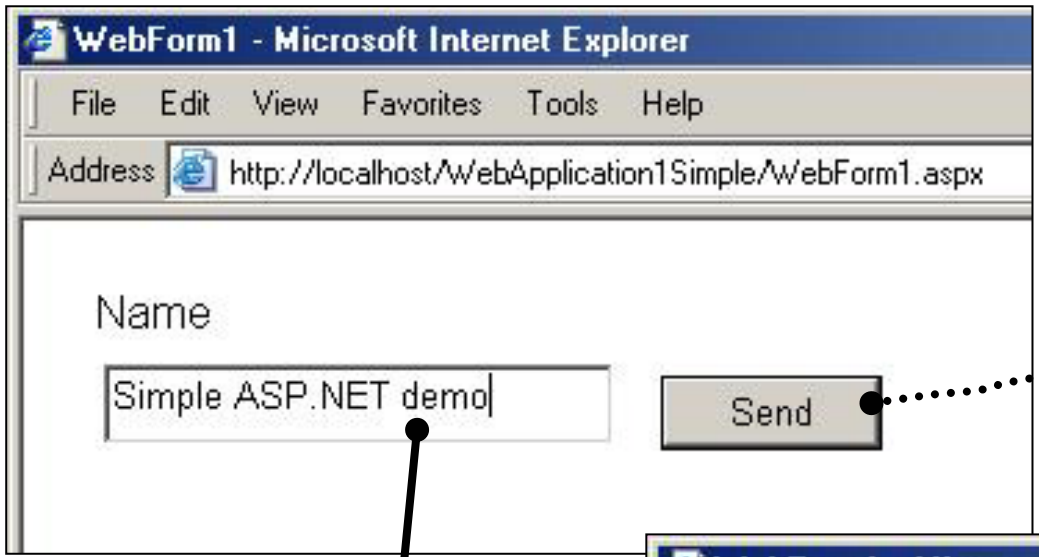


Installing IIS …./

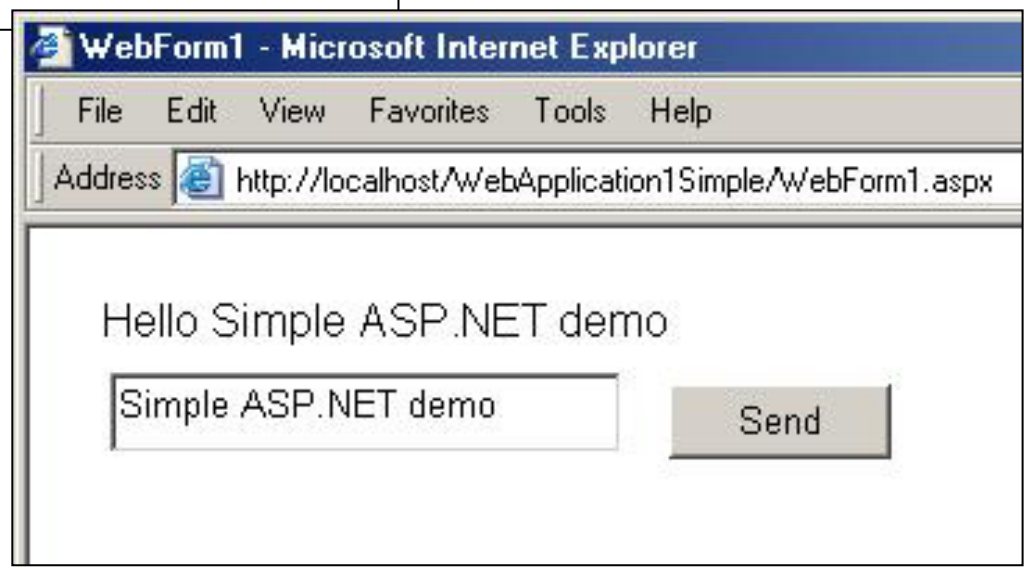


Click “Next” and follow instructions. (the subscreens will give several checkboxes. Select all of them.)

Example of an ASP .NET application

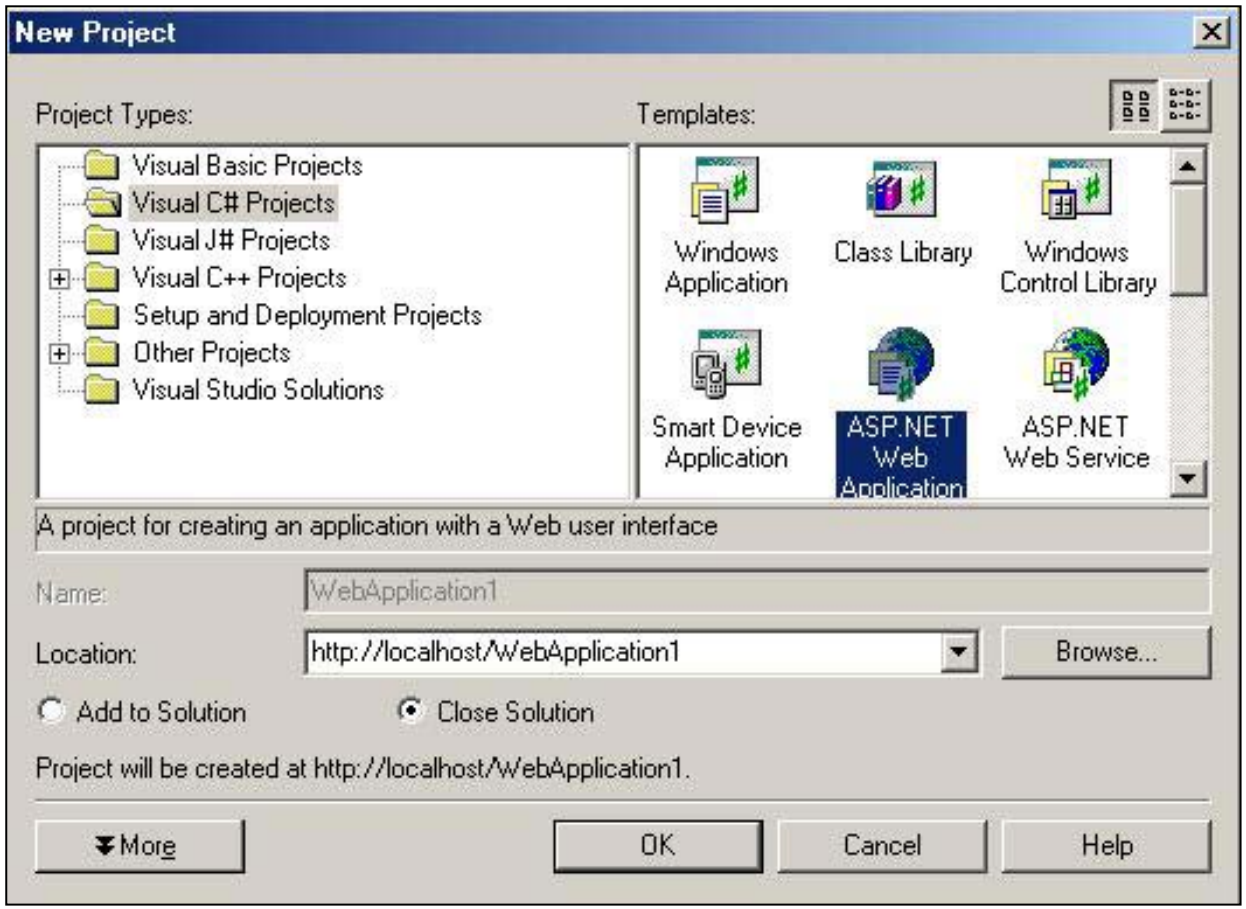


User types here and then clicks “Send” button.

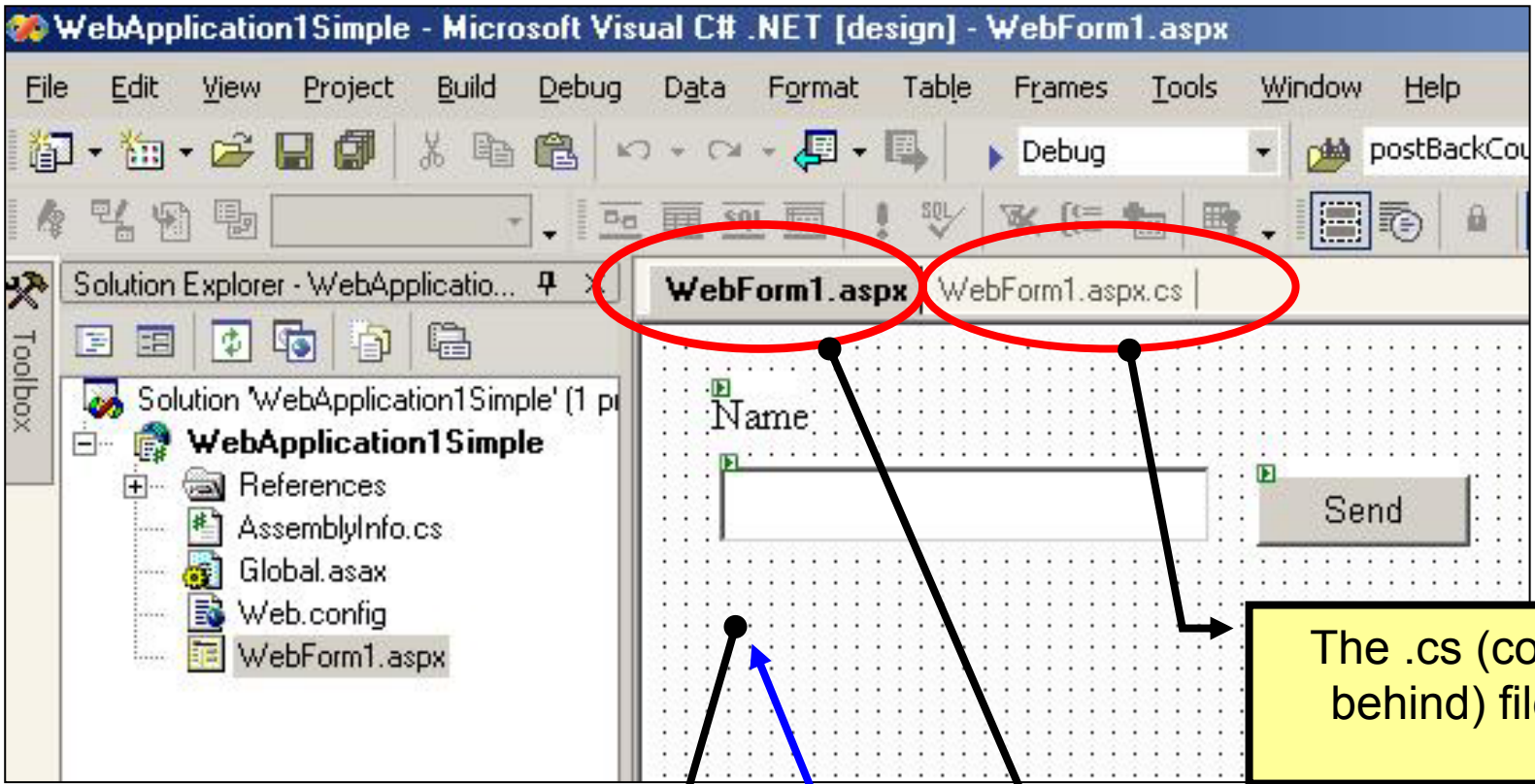


Creating an ASP.NET application…

- Create a C# project as ASP.NET Web Application.



Creating an ASP.NET application…



The .cs (code behind) file.

Design view. Looks similar to a windows application designer view (but without a form).

The .aspx file

HTML tab

The .aspx code (HTML tab)

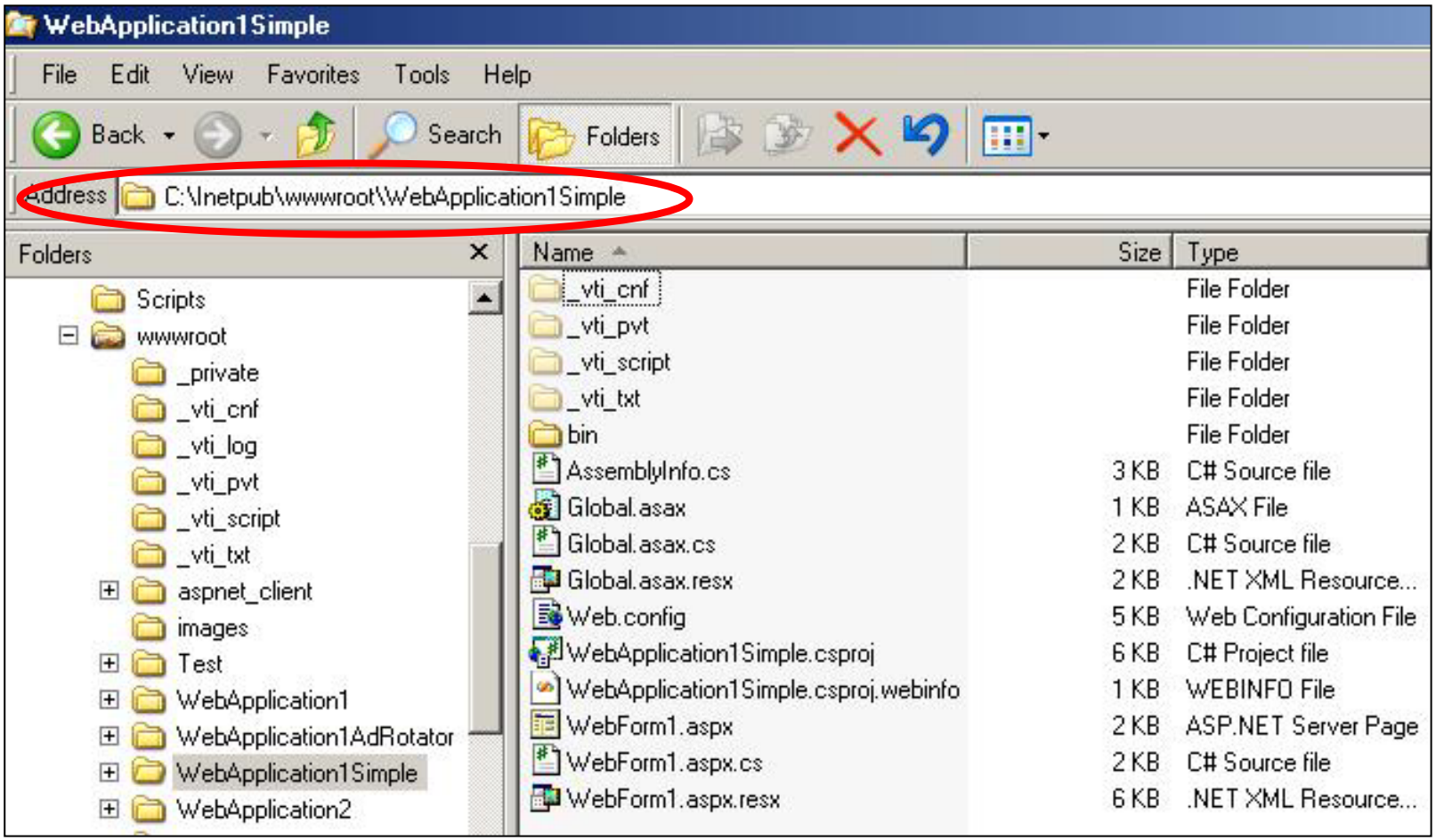
```
<%@ Page language="c#" Codebehind="WebForm1.aspx.cs" AutoEventWireup="false"
    Inherits="WebApplication1Simple.WebForm1" %>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN" >
<HTML>
    <HEAD>
        <title>WebForm1</title>
        <meta name="GENERATOR" Content="Microsoft Visual Studio .NET 7.1">
        <meta name="CODE_LANGUAGE" Content="C#">
        <meta name="vs_defaultClientScript" content="JavaScript">
        <meta name="vs_targetSchema" content="http://schemas.microsoft.com/intellisense/ie5">
    </HEAD>
    <body MS_POSITIONING="GridLayout">
        <form id="Form1" method="post" runat="server">
            <asp:TextBox id="TextBox1" style="Z-INDEX: 101; LEFT: 29px; POSITION:
                absolute; TOP: 52px" runat="server"
                Width="184px" Height="29px">
            </asp:TextBox>
            <asp:Button id="Button1" style="Z-INDEX: 102; LEFT: 230px; POSITION:
                absolute; TOP: 56px" runat="server"
                Width="80px" Height="27px" Text="Send">
            </asp:Button>
            <asp:Label id="Label1" style="Z-INDEX: 103; LEFT: 26px; POSITION: absolute;
                TOP: 24px" runat="server">Name
            </asp:Label>
        </form>
    </body>
</HTML>
```

The code behind file used to process logic.

All processing takes place at the server (IIS server).

Text of Label

Where is it all located? When we develop an ASP.NET application locally, then it is located in a virtual directory created by IIS.

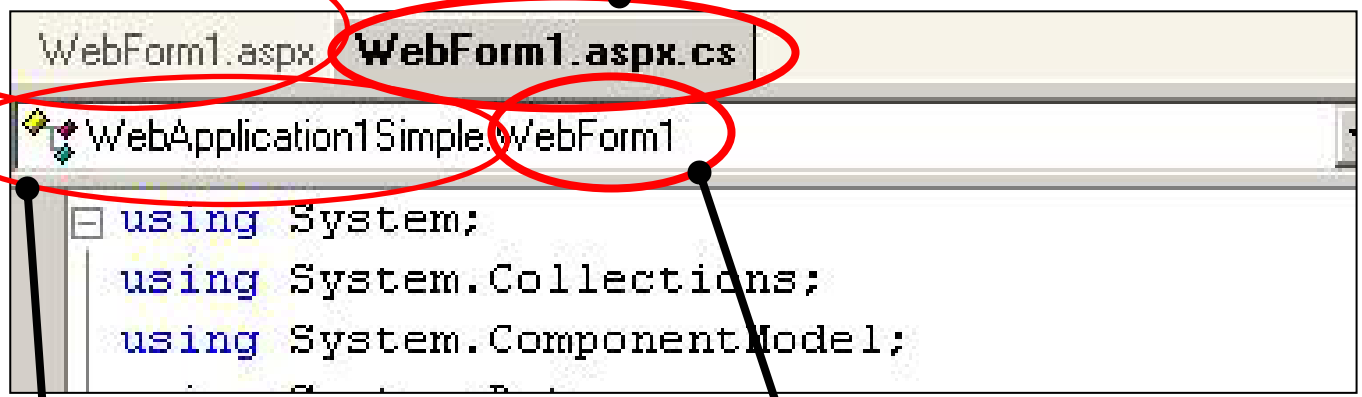


- If the application is located in a physically different computer, then it is located in a directory created in that computer (and managed by IIS which should reside in that computer).

The .cs code

The ASP part

The code behind part (C# file).



C# Namespace containing class WebForm1

Class WebForm1, which contains the C# source code.

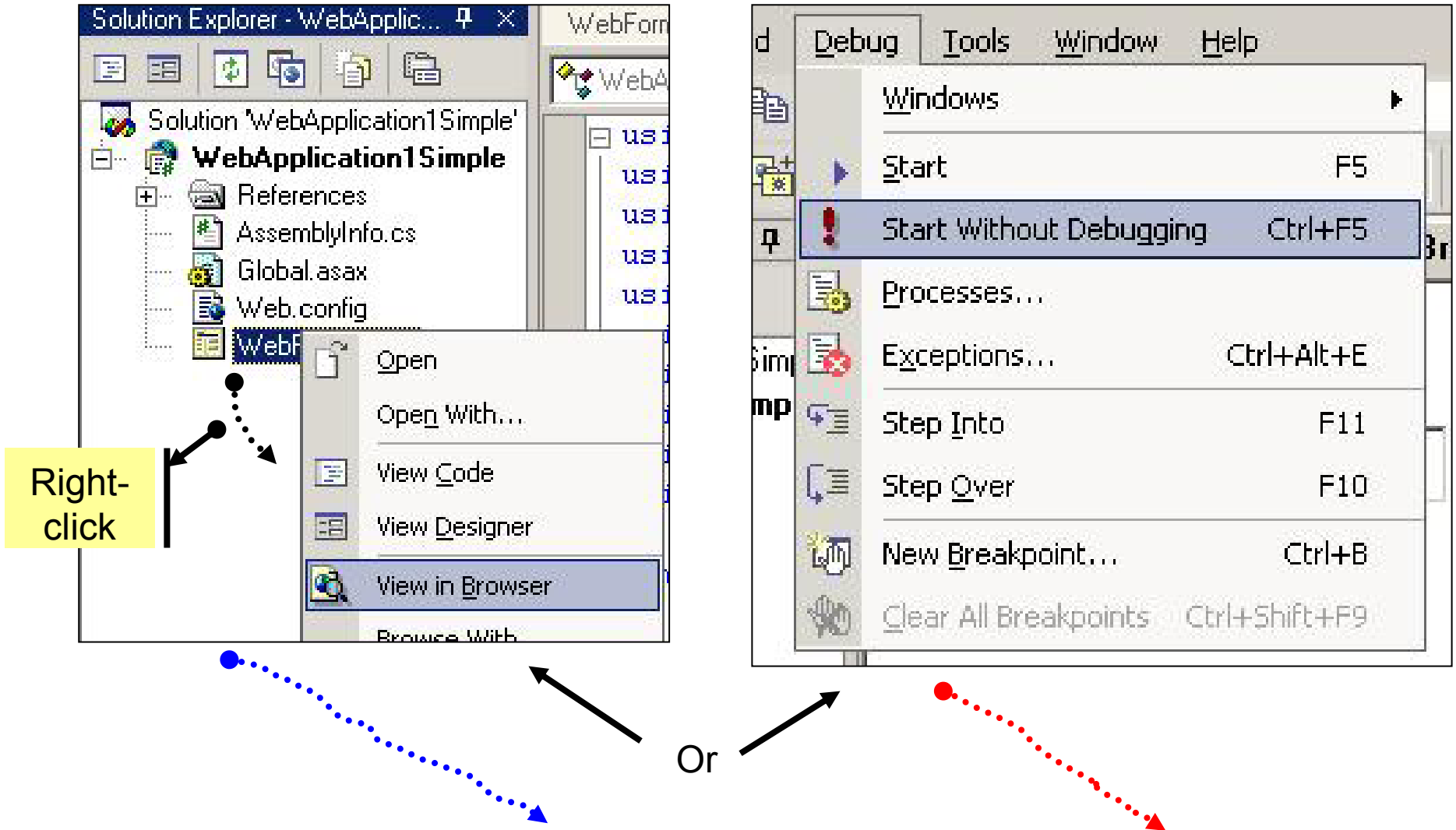
. . .

```
using System;
using System.Collections;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Web;
using System.Web.SessionState;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.HtmlControls;

namespace WebApplication1Simple
{
    /// <summary>
    /// Summary description for WebForm1.
    /// </summary>
    public class WebForm1 : System.Web.UI.Page
    {
          protected System.Web.UI.WebControls.TextBox TextBox1;
          protected System.Web.UI.WebControls.Button Button1;
          protected System.Web.UI.WebControls.Label Label1;

          private void Page_Load(object sender, System.EventArgs e)
          {
                    // Put user code to initialize the page here
          }
```

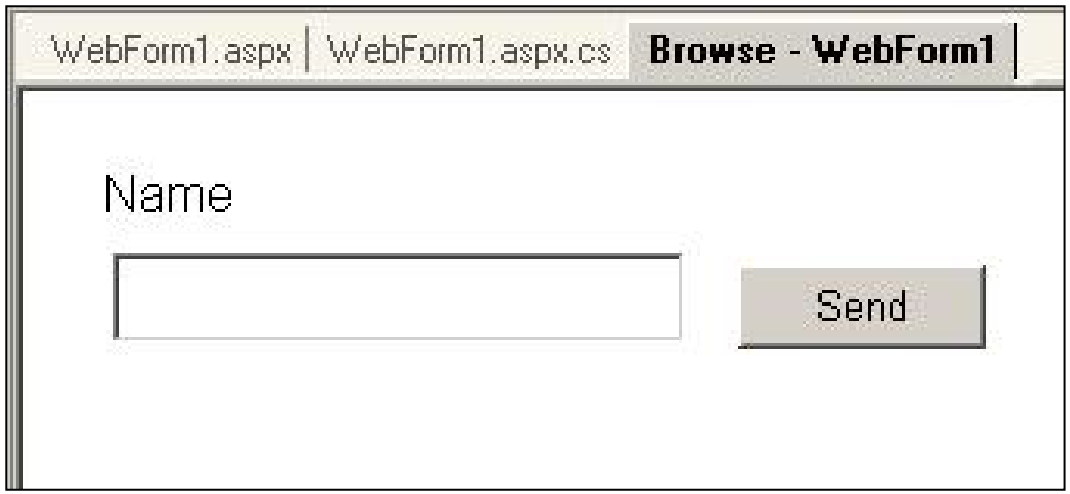
.../

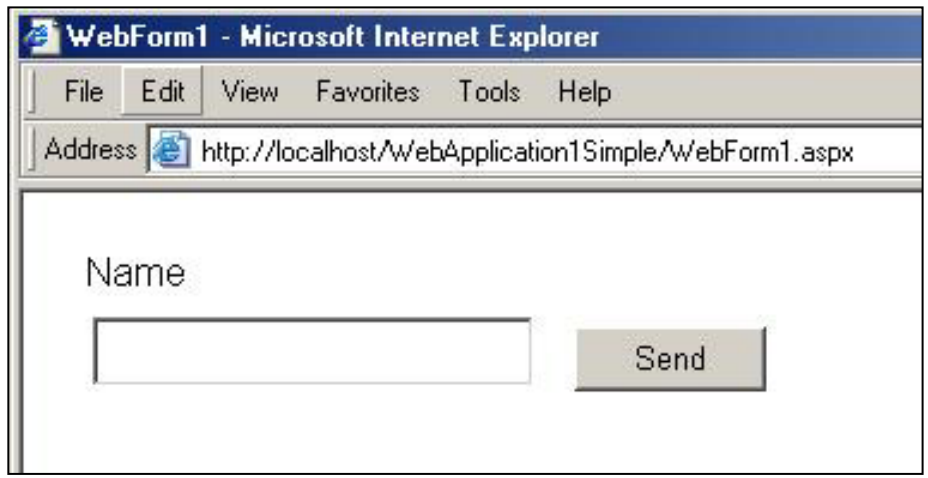
```
        #region Web Form Designer generated code
        override protected void OnInit(EventArgs e)
        {
                //
                // CODEGEN: This call is required by the ASP.NET Web Form Designer.
                //
                InitializeComponent();
                base.OnInit(e);
        }

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
                this.Button1.Click += new System.EventHandler(this.Button1_Click);
                this.Load += new System.EventHandler(this.Page_Load);

        }
        #endregion

        private void Button1_Click(object sender, System.EventArgs e)
        {
                Label1.Text = "Hello " + TextBox1.Text;
        }
    }
}
```

How to run it …

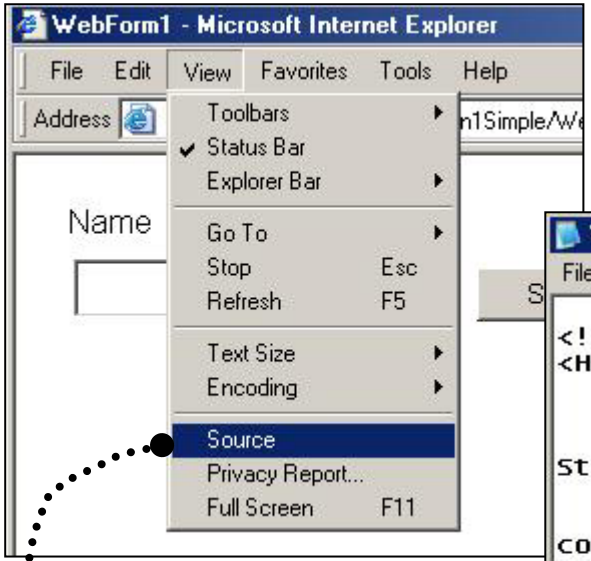

Solution Explorer - WebApplic...
Solution 'WebApplication1Simple'
WebApplication1Simple
References
AssemblyInfo.cs
Global.asax
Web.config
Open
Open With...
View Code
View Designer
View in Browser
Right-click
Debug
Tools
Window
Help
Windows
Start F5
Start Without Debugging Ctrl+F5
Processes...
Exceptions... Ctrl+Alt+E
Step Into F11
Step Over F10
New Breakpoint... Ctrl+B
Clear All Breakpoints Ctrl+Shift+F9
Or

Running …


WebForm1.aspx
WebForm1.aspx.cs
Browse - WebForm1
Name
Send


WebForm1 - Microsoft Internet Explorer
File
Edit
View
Favorites
Tools
Help
Address
http://localhost/WebApplication1Simple/WebForm1.aspx
Name
Send

The .html code as seen at the client site **before the button is clicked.**



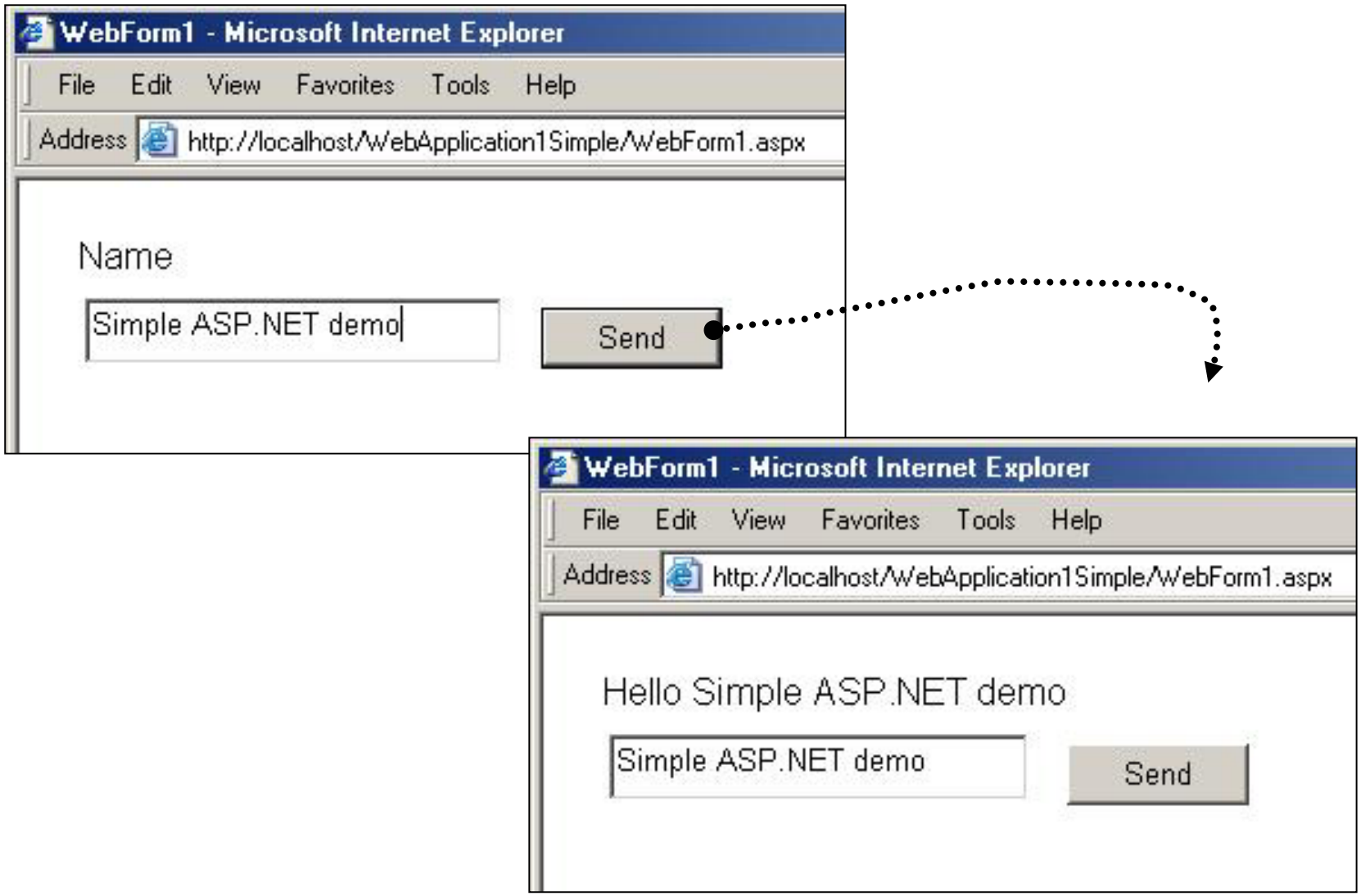
WebForm1[2] - Notepad

File Edit Format View Help

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN" >
<HTML>
        <HEAD>
                <title>WebForm1</title>
                <meta name="GENERATOR" Content="Microsoft Visual
Studio .NET 7.1">
                <meta name="CODE_LANGUAGE" Content="C#">
                <meta name="vs_defaultClientScript"
content="JavaScript">
                <meta name="vs_targetSchema"
content="http://schemas.microsoft.com/intellisense/ie5">
        </HEAD>
        <body MS_POSITIONING="GridLayout">
                <form name="Form1" method="post"
action="WebForm1.aspx" id="Form1">
<input type="hidden" name="__VIEWSTATE"
value="dDwtMTA4MzE0MjEwNTs7PmmrzFYCJTWI6i1EUTKKsHM6CyGg" />

                        <input name="TextBox1" type="text"
id="TextBox1" style="height:29px;width:184px;Z-INDEX: 101; LEFT: 29px;
POSITION: absolute; TOP: 52px" />
                        <input type="submit" name="Button1"
value="Send" id="Button1" style="height:27px;width:80px;Z-INDEX: 102;
LEFT: 230px; POSITION: absolute; TOP: 56px" />
                        <span id="Label1" style="Z-INDEX: 103; LEFT:
26px; POSITION: absolute; TOP: 24px">Name</span>
                </form>
        </body>
</HTML>
```

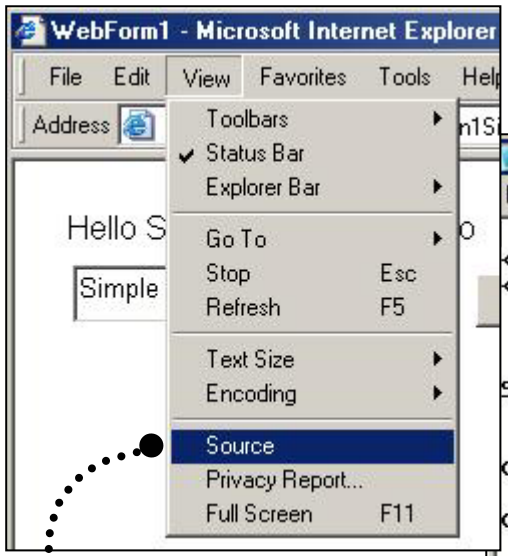
Text in Label

Running …


WebForm1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://localhost/WebApplication1Simple/WebForm1.aspx
Name
Simple ASP.NET demo
Send
WebForm1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://localhost/WebApplication1Simple/WebForm1.aspx
Hello Simple ASP.NET demo
Simple ASP.NET demo
Send

The .html code as seen at the client site **After the button is clicked.**

The .aspx file caused changes!



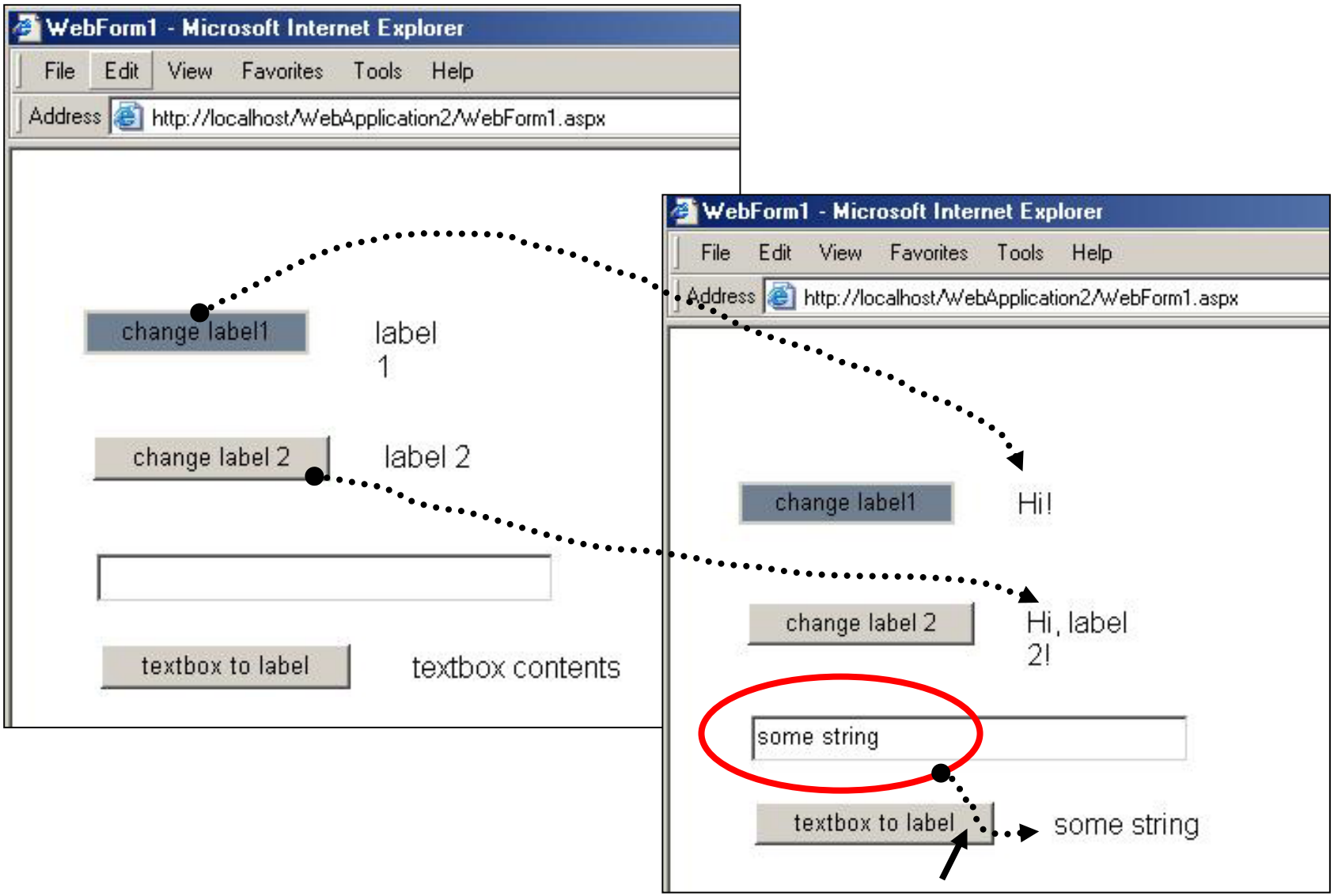
WebForm1[1] - Notepad

File Edit Format View Help

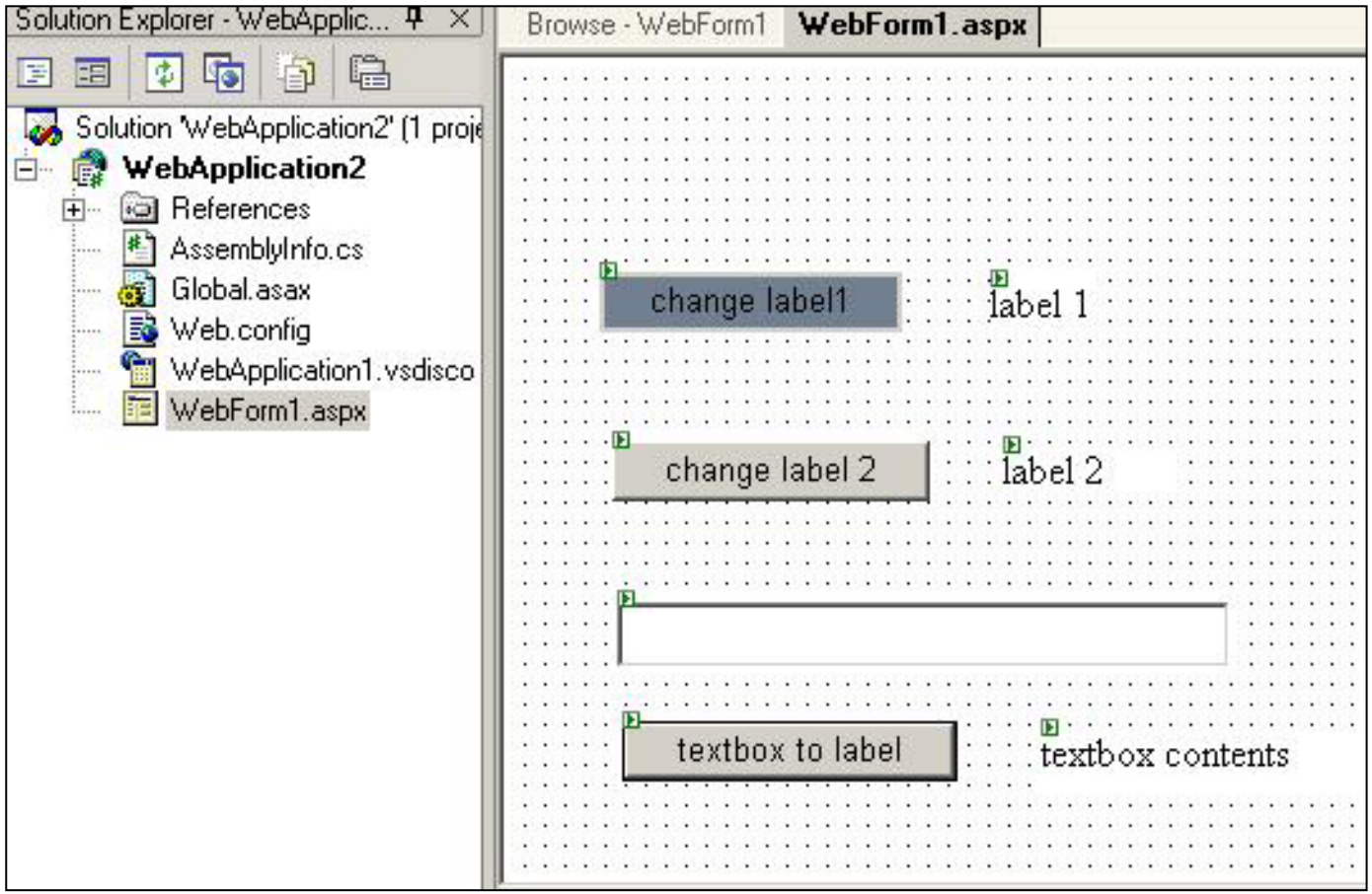
```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN" >
<HTML>
        <HEAD>
                <title>WebForm1</title>
                <meta name="GENERATOR" Content="Microsoft Visual
Studio .NET 7.1">
                <meta name="CODE_LANGUAGE" Content="C#">
                <meta name="vs_defaultClientScript"
content="JavaScript">
                <meta name="vs_targetSchema"
content="http://schemas.microsoft.com/intellisense/ie5">
        </HEAD>
        <body MS_POSITIONING="GridLayout">
                <form name="Form1" method="post"
action="WebForm1.aspx" id="Form1">
<input type="hidden" name="__VIEWSTATE"
value="dDwtMTA4MzE0MjEwNTt0PDtsPGk8MT47PjtsPHQ8O2w8aTw1Pjs+O2w8dDxwPHA
8bDxUZXh0Oz47bDxIZWxsbyBTaW1wbGUgQVNQLk5FVCBkZW1vOz4+Oz47Oz47Pj47Pj47P
hdbZAgThdMGUyvPK3FGfixaljNn" />

                        <input name="TextBox1" type="text"
value="Simple ASP.NET demo" id="TextBox1"
style="height:29px;width:184px;Z-INDEX: 101; LEFT: 29px; POSITION:
absolute; TOP: 52px" />
                        <input type="submit" name="Button1"
value="Send" id="Button1" style="height:27px;width:80px;Z-INDEX: 102;
LEFT: 230px; POSITION: absolute; TOP: 56px" />
                        <span id="Label1" style="Z-INDEX: 103; LEFT:
26px; POSITION: absolute; TOP: 24px">Hello Simple ASP.NET demo</span>
                </form>
        </body>
</HTML>
```

Text in Label changed!

Another example



Design view


Solution Explorer - WebApplic...
Solution 'WebApplication2' (1 proje
WebApplication2
References
AssemblyInfo.cs
Global.asax
Web.config
WebApplication1.vsdisco
WebForm1.aspx
Browse - WebForm1
WebForm1.aspx
change label1
label 1
change label 2
label 2
textbox to label
textbox contents

The code behind (.cs)

```
using System;
using System.Collections;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Web;
using System.Web.SessionState;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.HtmlControls;

namespace WebApplication2
{
    /// <summary>
    /// Summary description for WebForm1.
    /// </summary>
    public class WebForm1 : System.Web.UI.Page
    {
          protected System.Web.UI.WebControls.Label Label1;
          protected System.Web.UI.WebControls.Button Button1;
          protected System.Web.UI.WebControls.Button Button3;
          protected System.Web.UI.WebControls.TextBox TextBox1;
          protected System.Web.UI.WebControls.Button Button2;
          protected System.Web.UI.WebControls.Label Label3;
          protected System.Web.UI.WebControls.Label Label2;
```

```
private void Page_Load(object sender, System.EventArgs e)
{                                                                    . . .
        // Put user code to initialize the page here
}

#region Web Form Designer generated code
override protected void OnInit(EventArgs e)
{
        //
        // CODEGEN: This call is required by the ASP.NET Web Form Designer.
        //
        InitializeComponent();
        base.OnInit(e);
}

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
        this.Button1.Init += new System.EventHandler(this.Page_Load);
        this.Button1.PreRender += new System.EventHandler(this.Page_Load);
        this.Button1.Click += new System.EventHandler(this.Button1_Click);
        this.Button1.Load += new System.EventHandler(this.Page_Load);
        this.Button3.Click += new System.EventHandler(this.Button3_Click);
        this.Button2.Click += new System.EventHandler(this.Button2_Click);
        this.Load += new System.EventHandler(this.Page_Load);

}
#endregion
```

```
private void Button1_Click(object sender, System.EventArgs e)
{
        Label1.Text = "Hi!";
}

private void Button3_Click(object sender, System.EventArgs e)
{
        Label2.Text = "Hi, label 2!";
}

private void Button2_Click(object sender, System.EventArgs e)
{
        Label3.Text = TextBox1.Text;
}
   }
}
```

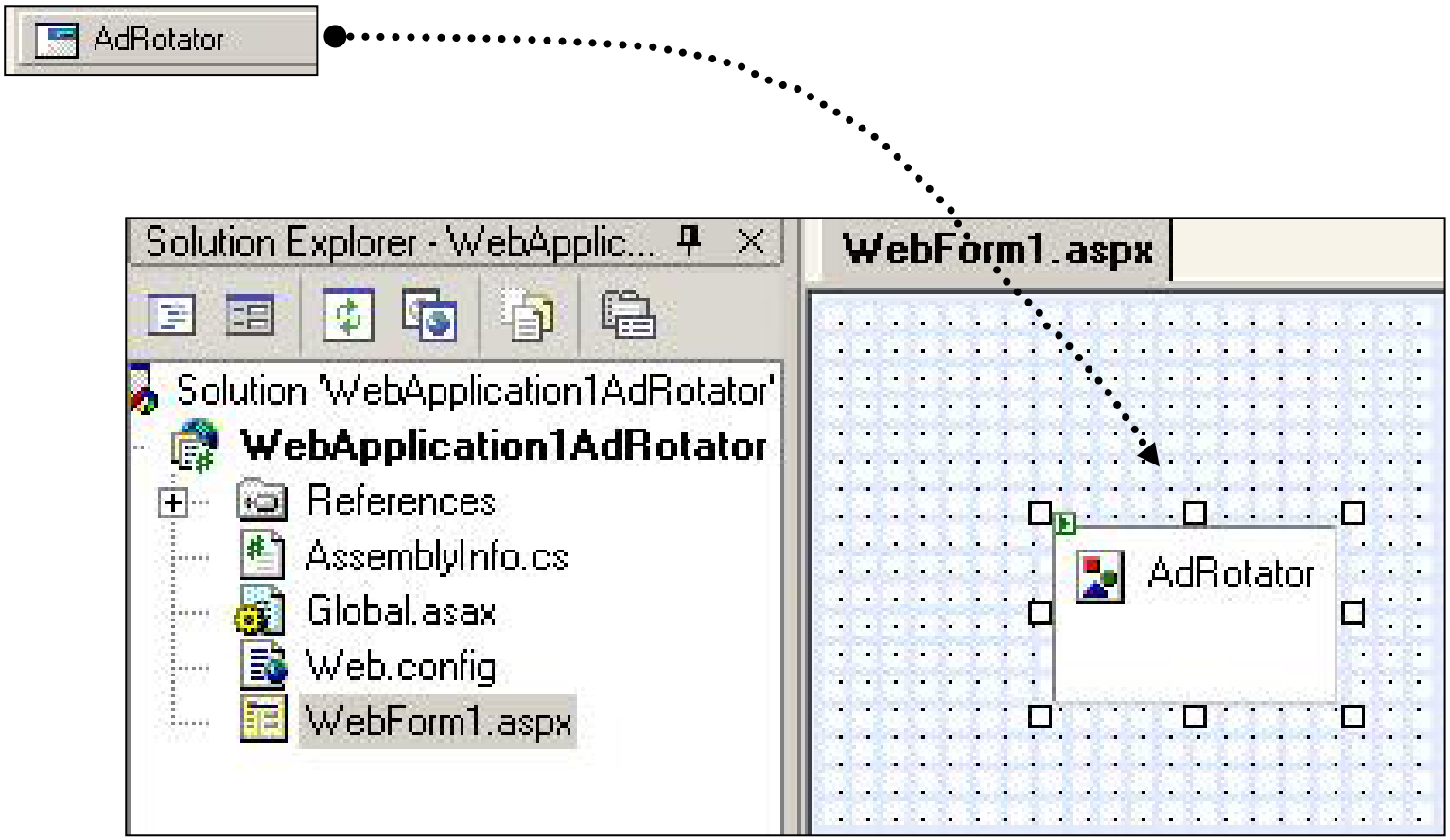
../

- Verify (via `View|Source`) the changes in the .html code at the client (before and after clicking the buttons and before and after entering text in the textbox).

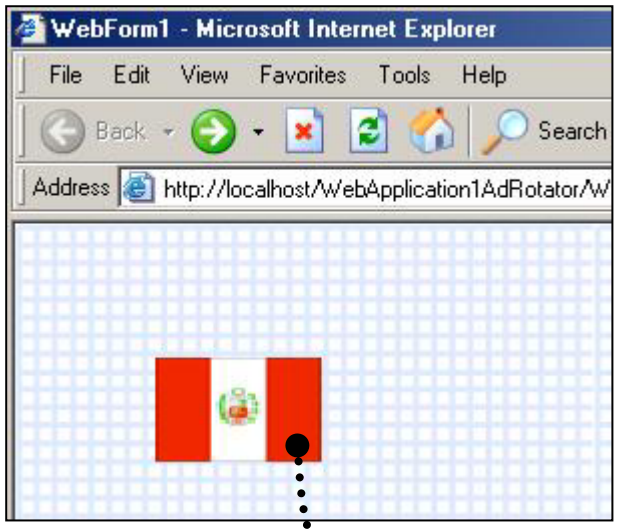
Another example (Ad rotator)

- Can use the AdRotator control to display different advertisements every time the web page is loaded.

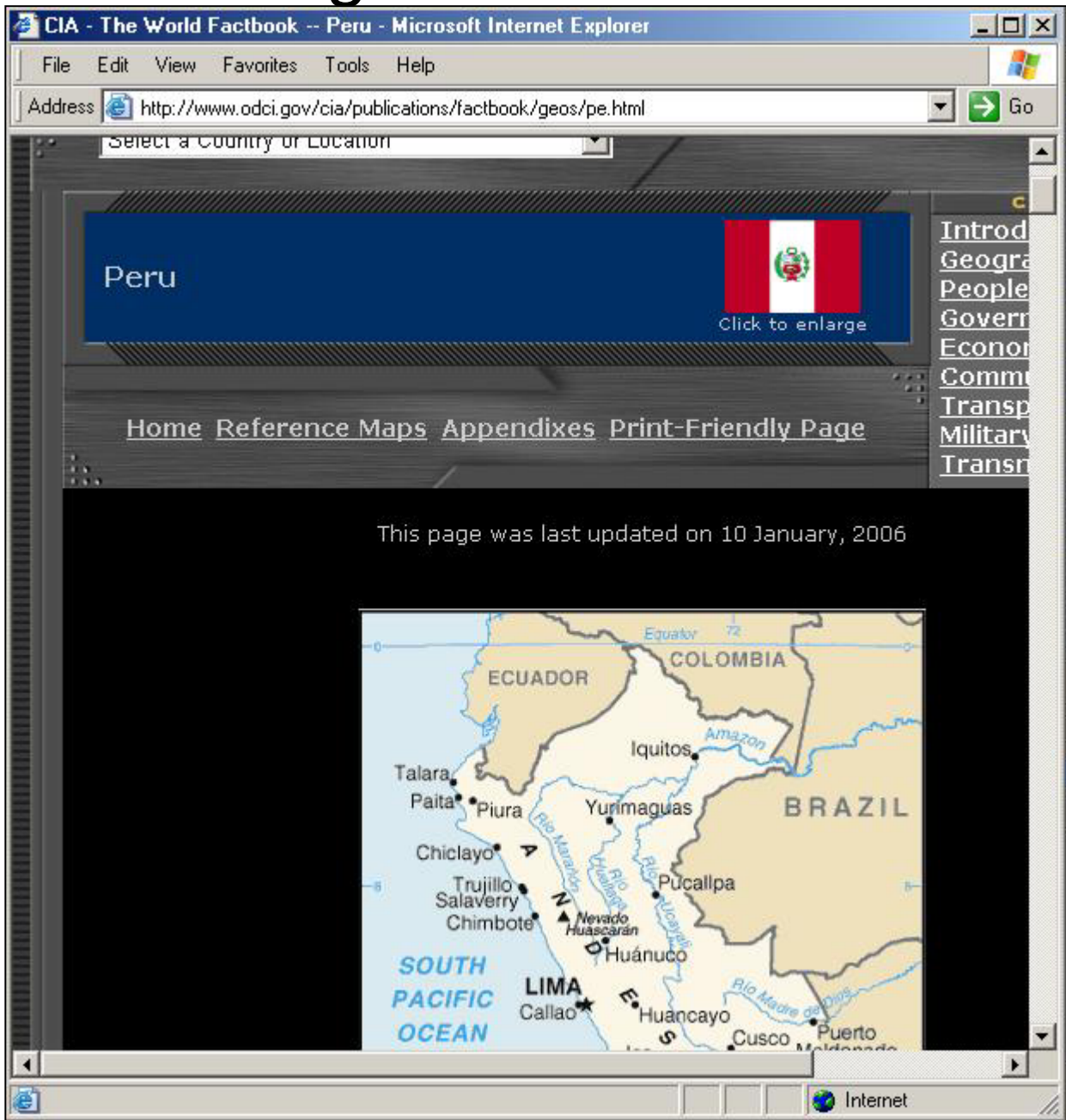
Design view


AdRotator
Solution Explorer - WebApplic...
Solution 'WebApplication1AdRotator'
WebApplication1AdRotator
References
AssemblyInfo.cs
Global.asax
Web.config
WebForm1.aspx
WebForm1.aspx
AdRotator

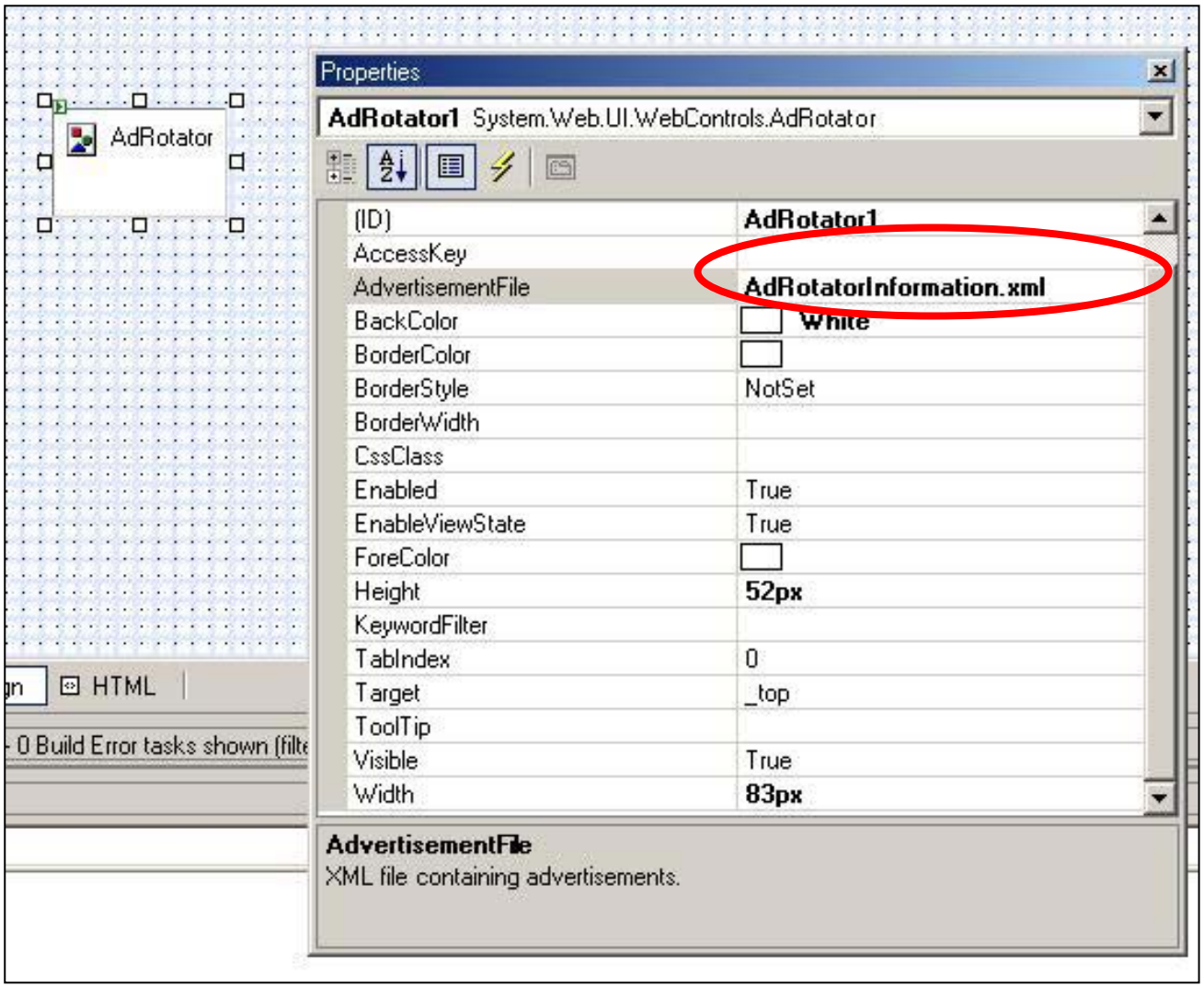
Running …



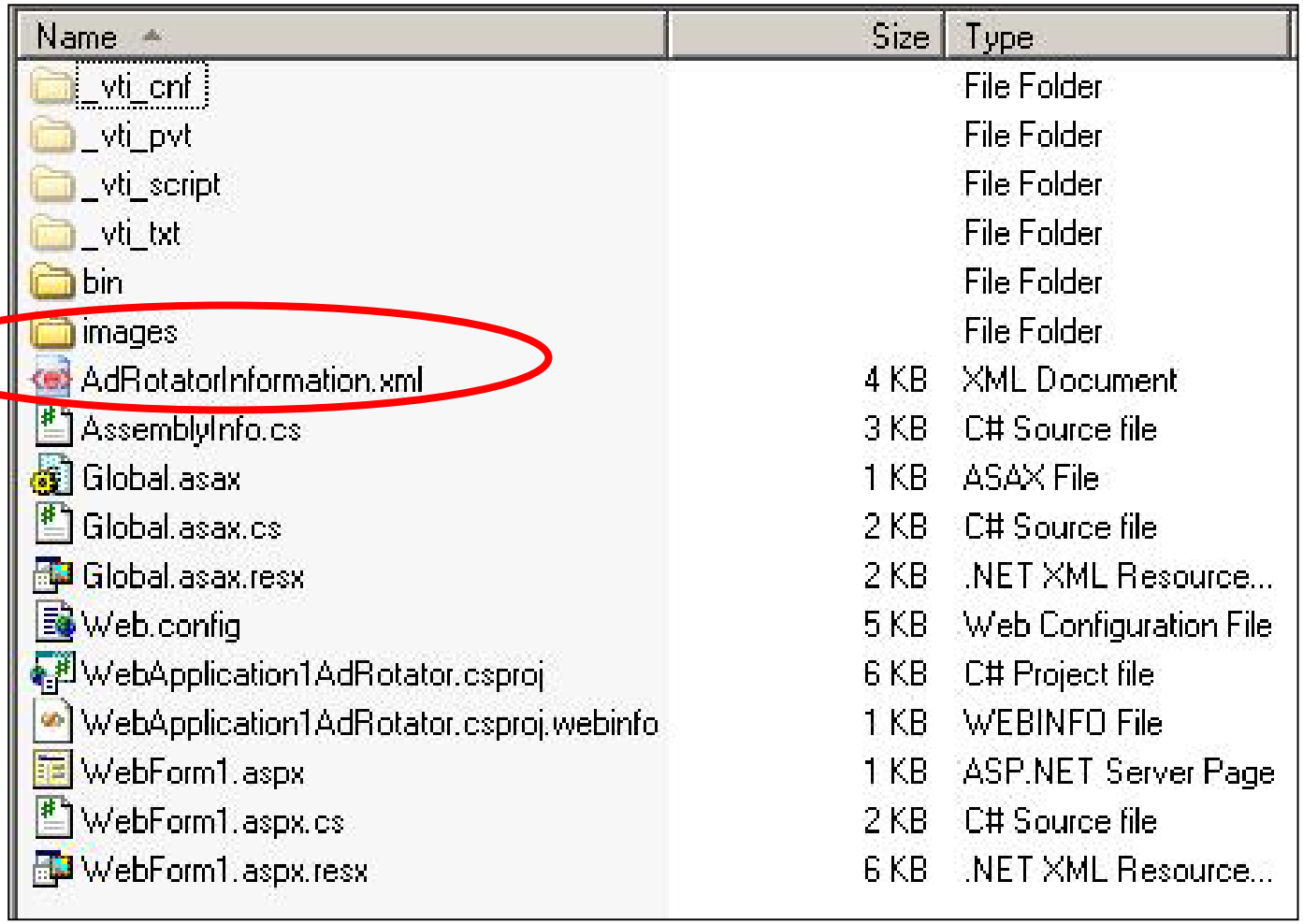
Click on the flag … gives country information.



The AdRotator works in conjunction with a XML file that contains the related ads.



The XML file in this example resides in the same directory as the ASP.NET application.



Name	Size	Type
_vti_cnf		File Folder
_vti_pvt		File Folder
_vti_script		File Folder
_vti_txt		File Folder
bin		File Folder
images		File Folder
AdRotatorInformation.xml	4 KB	XML Document
AssemblyInfo.cs	3 KB	C# Source file
Global.asax	1 KB	ASAX File
Global.asax.cs	2 KB	C# Source file
Global.asax.resx	2 KB	.NET XML Resource...
Web.config	5 KB	Web Configuration File
WebApplication1AdRotator.csproj	6 KB	C# Project file
WebApplication1AdRotator.csproj.webinfo	1 KB	WEBINFO File
WebForm1.aspx	1 KB	ASP.NET Server Page
WebForm1.aspx.cs	2 KB	C# Source file
WebForm1.aspx.resx	6 KB	.NET XML Resource...

The contents of AdRotatorInformation.xml …

```
<?xml version="1.0" encoding="utf-8"?>

<!-- Fig. 20.20: AdRotatorInformation.xml           -->
<!-- XML file containing advertisement information. -->

<Advertisements>
   <Ad>
      <ImageUrl>images/us.png</ImageUrl>
      <NavigateUrl>
         http://www.odci.gov/cia/publications/factbook/geos/us.html
      </NavigateUrl>
      <AlternateText>United States Information</AlternateText>
      <Impressions>1</Impressions>
   </Ad>

   <Ad>
     <ImageUrl>images\france.png</ImageUrl>
     <NavigateUrl>
        http://www.odci.gov/cia/publications/factbook/geos/fr.html
     </NavigateUrl>
     <AlternateText>France Information</AlternateText>
     <Impressions>1</Impressions>
   </Ad>
```

```
<Ad>
     <ImageUrl>images\germany.png</ImageUrl>
     <NavigateUrl>
        http://www.odci.gov/cia/publications/factbook/geos/gm.html
     </NavigateUrl>
     <AlternateText>Germany Information</AlternateText>
     <Impressions>1</Impressions>
  </Ad>

  <Ad>
     <ImageUrl>images\italy.png</ImageUrl>
     <NavigateUrl>
        http://www.odci.gov/cia/publications/factbook/geos/it.html
     </NavigateUrl>
     <AlternateText>Italy Information</AlternateText>
     <Impressions>1</Impressions>
  </Ad>

  <Ad>
     <ImageUrl>images\spain.png</ImageUrl>
     <NavigateUrl>
        http://www.odci.gov/cia/publications/factbook/geos/sp.html
     </NavigateUrl>
     <AlternateText>Spain Information</AlternateText>
     <Impressions>1</Impressions>
  </Ad>

  <Ad>
     <ImageUrl>images\latvia.png</ImageUrl>
     <NavigateUrl>
        http://www.odci.gov/cia/publications/factbook/geos/lg.html
     </NavigateUrl>
     <AlternateText>Latvia Information</AlternateText>
     <Impressions>1</Impressions>
  </Ad>
```

. . .

```
<Ad>
   <ImageUrl>images\peru.png</ImageUrl>                                    . . .
   <NavigateUrl>
      http://www.odci.gov/cia/publications/factbook/geos/pe.html
   </NavigateUrl>
   <AlternateText>Peru Information</AlternateText>
   <Impressions>1</Impressions>
</Ad>

<Ad>
   <ImageUrl>images\senegal.png</ImageUrl>
   <NavigateUrl>
      http://www.odci.gov/cia/publications/factbook/geos/sg.html
   </NavigateUrl>
   <AlternateText>Senegal Information</AlternateText>
   <Impressions>1</Impressions>
</Ad>

<Ad>
   <ImageUrl>images\sweden.png</ImageUrl>
   <NavigateUrl>
      http://www.odci.gov/cia/publications/factbook/geos/sw.html
   </NavigateUrl>
   <AlternateText>Sweden Information</AlternateText>
   <Impressions>1</Impressions>
</Ad>

<Ad>
   <ImageUrl>images\thailand.png</ImageUrl>
   <NavigateUrl>
      http://www.odci.gov/cia/publications/factbook/geos/th.html
   </NavigateUrl>
   <AlternateText>Thailand Information</AlternateText>
   <Impressions>1</Impressions>
```

.../

```
</Ad>

    <Ad>
        <ImageUrl>images\unitedstates.png</ImageUrl>
        <NavigateUrl>
            http://www.odci.gov/cia/publi‡ations/factbook/geos/us.html
        </NavigateUrl>
        <AlternateText>United States Information</AlternateText>
        <Impressions>1</Impressions>
    </Ad>

    <Ad>
        <ImageUrl>images/gr-flag.gif</ImageUrl>
        <NavigateUrl>
            http://www.odci.gov/cia/publications/factbook/geos/gr.html
        </NavigateUrl>
        <AlternateText>Greece Information</AlternateText>
        <Impressions>1</Impressions>
    </Ad>
</Advertisements>
```

The code … (nothing into it; all the functionality is included in the AdRotator control).

```
using System;
using System.Collections;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Web;
using System.Web.SessionState;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.HtmlControls;

namespace WebApplication1AdRotator
{
    /// <summary>
    /// Summary description for WebForm1.
    /// </summary>
    public class WebForm1 : System.Web.UI.Page
    {
          protected System.Web.UI.WebControls.AdRotator AdRotator1;

          private void Page_Load(object sender, System.EventArgs e)
          {
                    // Put user code to initialize the page here
          }

          #region Web Form Designer generated code
```

```
        override protected void OnInit(EventArgs e)
        {
                //
                // CODEGEN: This call is required by the ASP.NET Web Form Designer.
                //
                InitializeComponent();
                base.OnInit(e);
        }

        /// <summary>
        /// Required method for Designer support - do not modify
        /// the contents of this method with the code editor.
        /// </summary>
        private void InitializeComponent()
        {
                this.Load += new System.EventHandler(this.Page_Load);

        }
        #endregion
    }
}
```

Cookies

- When an ASP.NET application runs, the server can place cookies at the client.
- A cookie is a small text file that contains information about the information exchanged between the client and the server.
- On successive visits to the same web site by the same client, the server can retrieve all the cookies placed in that client (and therefore adjust its behavior accordingly).

Architecture

Client

Server

Browser (IE)

Send URL targeting an aspx file.

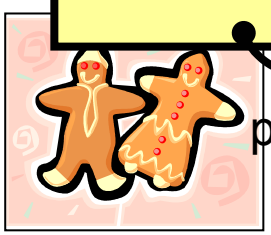
IIS server (web server capable to process request.)

cs and .**aspx** reside here

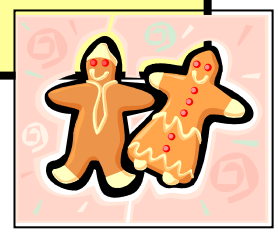
Client's request received and a web page is generated. Cookies also generated. The web page and the cookies are sent to the client.

Send resulting web page and Cookies

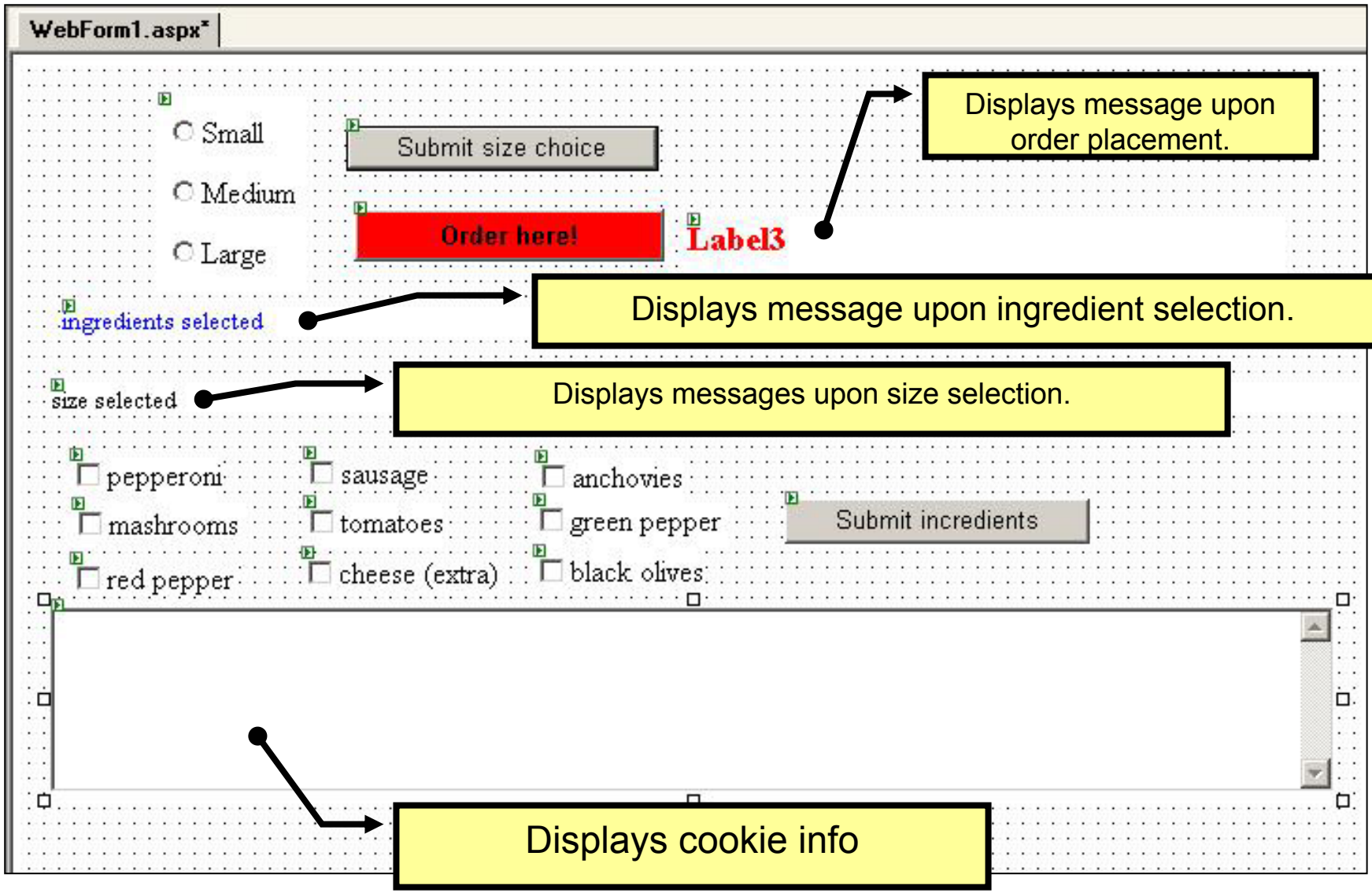
Resulting web page



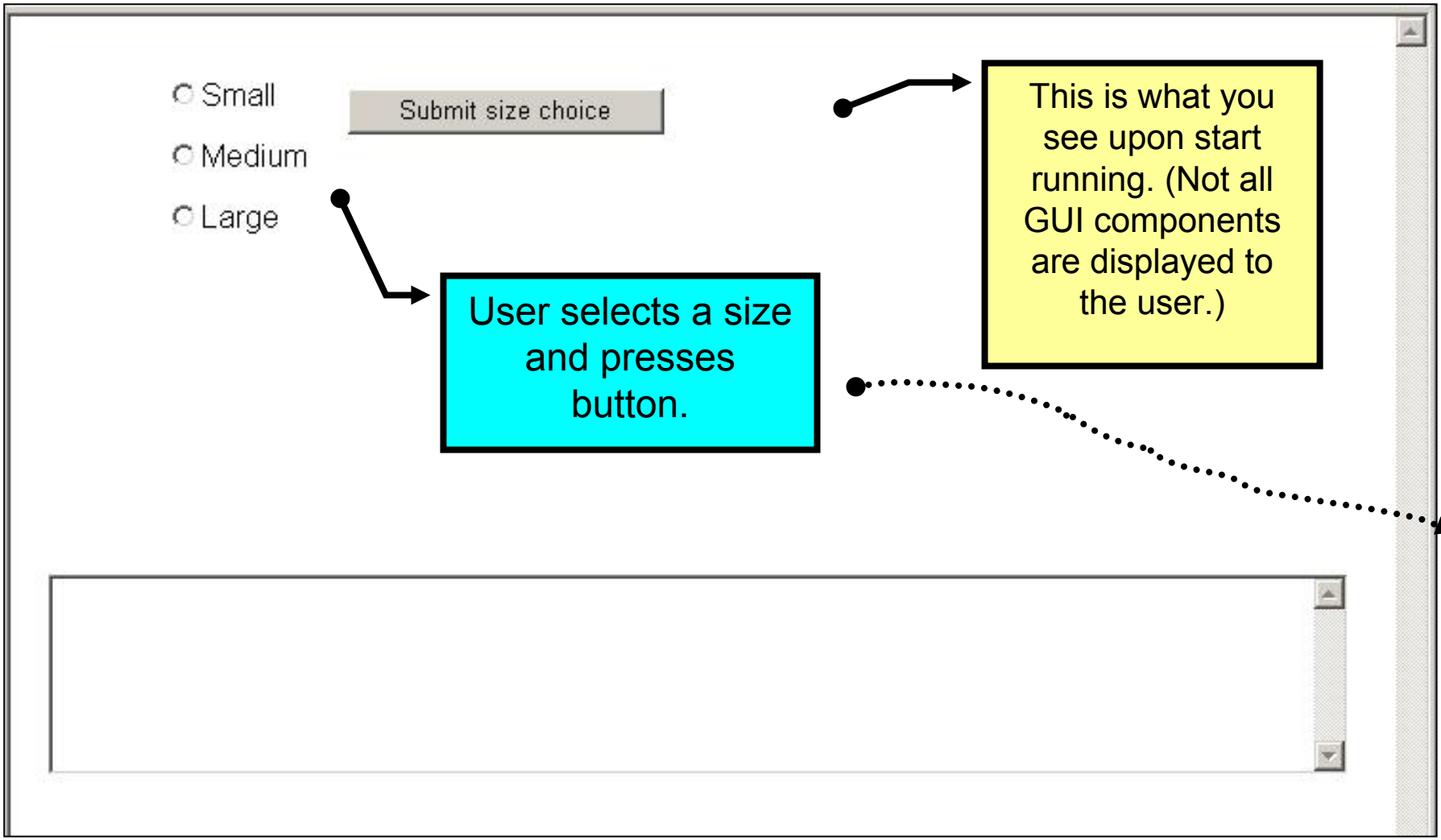
Client can act on received page and send back to server. At that time, the server can extract all cookies residing in the client.



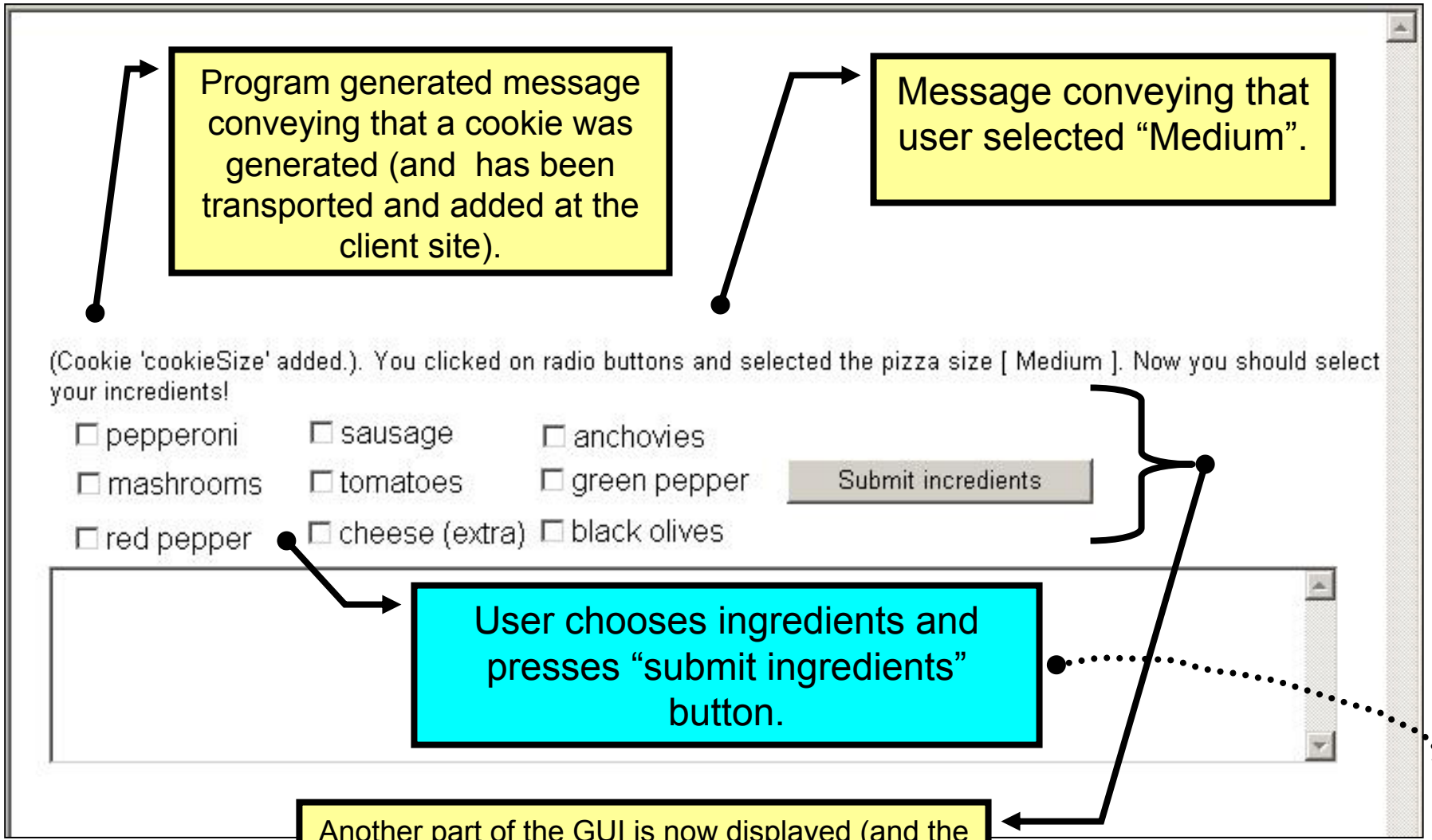
Example


WebForm1.aspx*
Small
Medium
Large
Submit size choice
Order here!
Label3
Displays message upon order placement.
ingredients selected
Displays message upon ingredient selection.
size selected
Displays messages upon size selection.
pepperoni
sausage
anchovies
mashrooms
tomatoes
green pepper
red pepper
cheese (extra)
black olives
Submit incredients
Displays cookie info

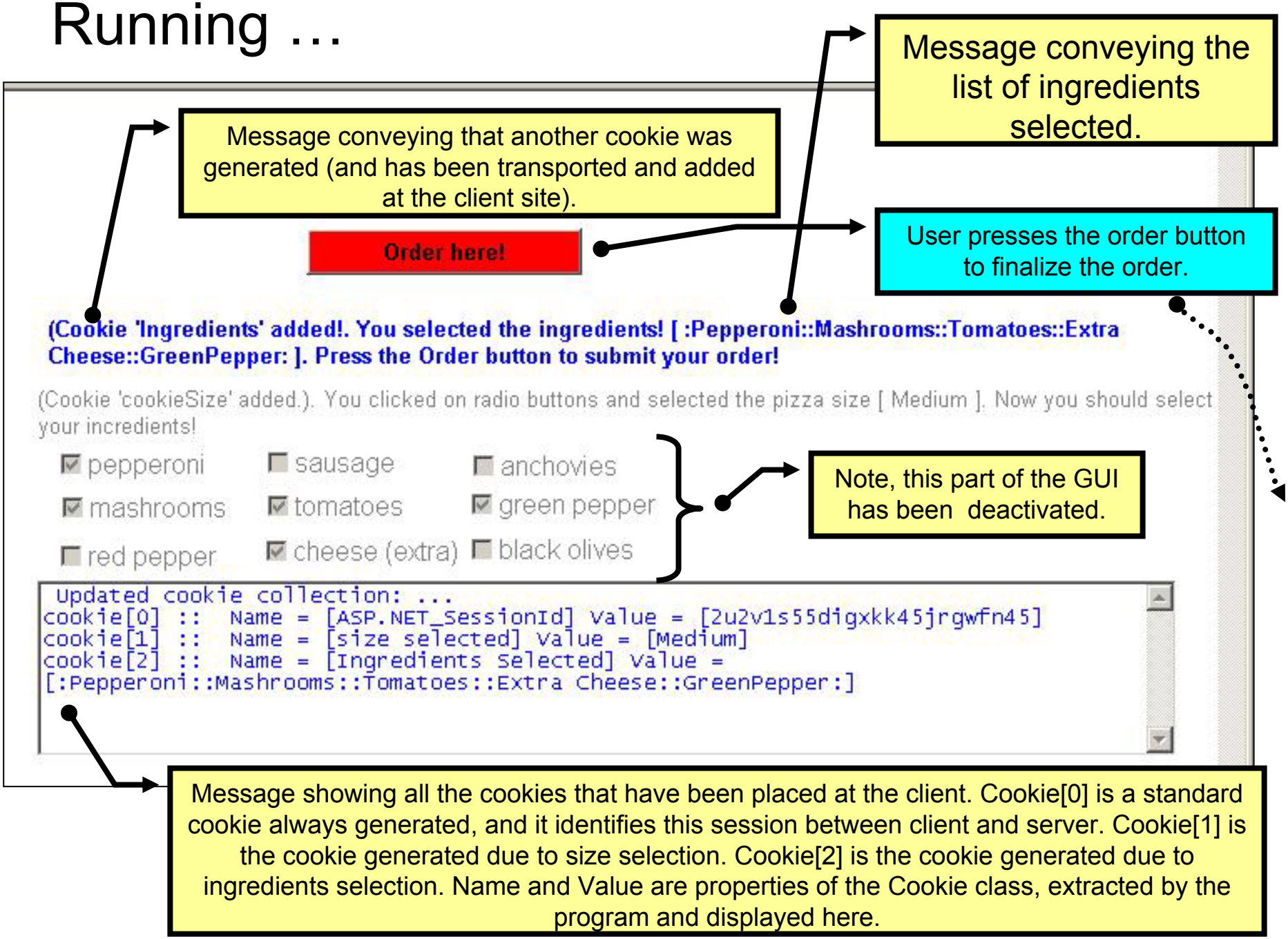
Running …


Small
Medium
Large
Submit size choice
This is what you see upon start running. (Not all GUI components are displayed to the user.)
User selects a size and presses button.

Running …


Program generated message conveying that a cookie was generated (and has been transported and added at the client site).
Message conveying that user selected “Medium”.
(Cookie 'cookieSize' added.). You clicked on radio buttons and selected the pizza size [Medium]. Now you should select your incredients!
pepperoni
sausage
anchovies
mashrooms
tomatoes
green pepper
Submit incredients
red pepper
cheese (extra)
black olives
User chooses ingredients and presses “submit ingredients” button.
Another part of the GUI is now displayed (and the previous part disappeared).

Running …


Message conveying the list of ingredients selected.
Message conveying that another cookie was generated (and has been transported and added at the client site).
Order here!
User presses the order button to finalize the order.
(Cookie 'Ingredients' added!. You selected the ingredients! [:Pepperoni::Mashrooms::Tomatoes::Extra Cheese::GreenPepper:]. Press the Order button to submit your order!
(Cookie 'cookieSize' added.). You clicked on radio buttons and selected the pizza size [Medium]. Now you should select your incredients!
pepperoni
sausage
anchovies
mashrooms
tomatoes
green pepper
red pepper
cheese (extra)
black olives
Note, this part of the GUI has been deactivated.
Updated cookie collection: ...
cookie[0] :: Name = [ASP.NET_SessionId] Value = [2u2v1s55digxkk45jrgwfn45]
cookie[1] :: Name = [size selected] Value = [Medium]
cookie[2] :: Name = [Ingredients Selected] Value =
[:Pepperoni::Mashrooms::Tomatoes::Extra Cheese::GreenPepper:]
Message showing all the cookies that have been placed at the client. Cookie[0] is a standard cookie always generated, and it identifies this session between client and server. Cookie[1] is the cookie generated due to size selection. Cookie[2] is the cookie generated due to ingredients selection. Name and Value are properties of the Cookie class, extracted by the program and displayed here.

Running …/

All these parts of the GUI have been deactivated.

Message conveying that the order has been placed.

The code .. (.cs file)

```
using System;
using System.Collections;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Web;
using System.Web.SessionState;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Web.UI.HtmlControls;

namespace WebApplication2Cookies
{
    public class WebForm1 : System.Web.UI.Page
    {
            protected System.Web.UI.WebControls.Button Button2;
            protected System.Web.UI.WebControls.Label Label1;
            protected System.Web.UI.WebControls.TextBox TextBox1;
            protected System.Web.UI.WebControls.RadioButtonList RadioButtonList1;
            protected System.Web.UI.WebControls.CheckBox CheckBox1pepperoni;
            protected System.Web.UI.WebControls.CheckBox CheckBox2Mashorooms;
            protected System.Web.UI.WebControls.CheckBox CheckBox5Tomatoes;
            protected System.Web.UI.WebControls.CheckBox CheckBox6Cheese;
            protected System.Web.UI.WebControls.CheckBox CheckBox7Anchovies;
            protected System.Web.UI.WebControls.CheckBox CheckBox8GreenPepper;
            protected System.Web.UI.WebControls.CheckBox CheckBox9BlackOlives;
            protected System.Web.UI.WebControls.CheckBox CheckBox3RedPepper;
            protected System.Web.UI.WebControls.CheckBox CheckBox4Sausage;
            protected System.Web.UI.WebControls.Label Label2;
            protected System.Web.UI.WebControls.Button Button3;
            protected System.Web.UI.WebControls.Button Button1;
            protected System.Web.UI.WebControls.Label Label3;
```

```
private void Page_Load(object sender, System.EventArgs e)
{
      // Put user code to initialize the page here
      if (IsPostBack)
      {
            RadioButtonList1.Visible = false; // hide size choices
            Button1.Visible = false; // hide size choice submit button
            Button2.Visible = true;
            CheckBox1pepperoni.Visible = true;
            CheckBox2Mashorooms.Visible = true;
            CheckBox3RedPepper.Visible = true;
            CheckBox4Sausage.Visible = true;
            CheckBox5Tomatoes.Visible = true;
            CheckBox6Cheese.Visible = true;
            CheckBox7Anchovies.Visible = true;
            CheckBox8GreenPepper.Visible = true;
            CheckBox9BlackOlives.Visible = true;
      }
}

      #region Web Form Designer generated code
override protected void OnInit(EventArgs e)
{
      InitializeComponent();
      base.OnInit(e);
}

      /// <summary>
      /// Required method for Designer support - do not modify
      /// the contents of this method with the code editor.
      /// </summary>
```

. . .

"IsPostBack" occurs when the server responds to the client after the initial page loading.

Show GUI parts, selectively.

```
private void InitializeComponent()
{
      this.Button1.Click += new System.EventHandler(this.Button1_Click);
      this.Button2.Click += new System.EventHandler(this.Button2_Click);
      this.Button3.Click += new System.EventHandler(this.Button3_Click);
      this.Load += new System.EventHandler(this.Page_Load);
}
      #endregion
private void Button1_Click(object sender, System.EventArgs e)
{
      string cookieName = "size selected";
      string cookieValue = "xxx";
      switch (RadioButtonList1.SelectedIndex)
      {
            case (0):
                  cookieValue = "Small";
                  break;
            case (1):
                  cookieValue = "Medium";
                  break;
            case (2):
                  cookieValue = "Large";
                  break;
            default:
                  cookieValue = "NO selection";
                  break;
      }
      HttpCookie cookieSize = new HttpCookie( cookieName, cookieValue);
      Response.Cookies.Add( cookieSize);
      Label1.Text = "(Cookie 'cookieSize' added.). You clicked on radio buttons and
selected the pizza size [ ";
      Label1.Text += cookieValue ;
      Label1.Text += " ]. Now you should select your incredients!";
      Label1.Visible = true;
}
```

. . .

Depending on pizza size selected, set the Value property of the cookie.

Server generates a cookie.

Server transports the cookie to the client.

Server generates a cookie.

...

```
private void Button2_Click(object sender, System.EventArgs e)
{
   string cookieName = "Ingredients Selected";
   string cookieValue = "";
   if (CheckBox1pepperoni.Checked) cookieValue += ":Pepperoni:";
   if (CheckBox2Mashorooms.Checked) cookieValue += ":Mashrooms:";
   if (CheckBox3RedPepper.Checked) cookieValue += ":Red Pepper:";
   if (CheckBox4Sausage.Checked) cookieValue += ":Sausage:";
   if (CheckBox5Tomatoes.Checked) cookieValue += ":Tomatoes:";
   if (CheckBox6Cheese.Checked) cookieValue += ":Extra Cheese:";
   if (CheckBox7Anchovies.Checked) cookieValue += ":Anchovies:";
   if (CheckBox8GreenPepper.Checked) cookieValue += ":GreenPepper:";
   if (CheckBox9BlackOlives.Checked) cookieValue += ":BlackOlives:";
                  // generate and install 'ingredients' cookie
   HttpCookie cookieIngredients = new HttpCookie( cookieName,
   cookieValue);
   Response.Cookies.Add( cookieIngredients);
   Label2.Text = "(Cookie 'Ingredients' added!. You selected the
   ingredients! [ ";
   Label2.Text += cookieValue ;
   Label2.Text += " ]. Press the Order button to submit your order!";
```

Depending on pizza ingredients selected, set the Value property of the cookie.

Server transports the cookie to the client.

Get from the client, all the cookies that have been previously transported and reside there.

...

```
HttpCookieCollection cookiesRetrieved = Request.Cookies;

TextBox1.ForeColor = Color.Blue;
if (cookiesRetrieved != null )
{    // refresh the TextBox with cookie info

     TextBox1.Text += "\n Updated cookie collection: ...\n";
     for (int i=0; i< cookiesRetrieved.Count; i++)
     {
             TextBox1.Text += "cookie["+ i + "] :: "
                     + " Name = ["
                     + cookiesRetrieved[i].Name
                     + "]"
                     + " Value = ["
                     + cookiesRetrieved[i].Value
                     + "]"
                     + "\r\n";
     }
}
```

Extract cookie info.

Configure visibility of GUI components, selectively.

```
    Label1.Enabled = false;
    Label2.Font.Bold = true;
    Label2.Visible = true; // display info about ingredients
    ordered
    Button3.Visible = true; // display order button
    Button2.Visible = false; // hide submit ingredients button
    CheckBox1pepperoni.Enabled = false;
    CheckBox2Mashorooms.Enabled = false;
    CheckBox3RedPepper.Enabled = false;
    CheckBox4Sausage.Enabled = false;
    CheckBox5Tomatoes.Enabled = false;
    CheckBox6Cheese.Enabled = false;
    CheckBox7Anchovies.Enabled = false;
    CheckBox8GreenPepper.Enabled = false;
    CheckBox9BlackOlives.Enabled = false;

} // end Button2_Click
```

```
private void Button3_Click(object sender, System.EventArgs e)
{
        // get from client all cookie(s) that have been transmitted
        // by this server.
    HttpCookieCollection cookies = Request.Cookies;
    TextBox1.Text += "\n\n Updated cookie collection: ...\n"; //clear TextBox1
    if (cookies != null )
    {
        for (int i=0; i<cookies.Count; i++)
        {
                TextBox1.Text += "cookie["+ i + "] :: "
                        + " Name = ["
                        + cookies[i].Name
                        + "]"
                        + " Value = ["
                        + cookies[i].Value
                        + "]"
                        + "\r\n";
        }
    }
    TextBox1.Enabled = false;
    Label3.Visible = true;
    Label3.Text = "ORDER PLACED successfully!!!!";
    Button2.Visible = false;
    CheckBox1pepperoni.Visible = false;
    CheckBox2Mashorooms.Visible = false;
    CheckBox3RedPepper.Visible = false;
    CheckBox4Sausage.Visible = false;
    CheckBox5Tomatoes.Visible = false;
    CheckBox6Cheese.Visible = false;
    CheckBox7Anchovies.Visible = false;
    CheckBox8GreenPepper.Visible = false;
    CheckBox9BlackOlives.Visible = false;
    Label2.Enabled = false;
}}}
```

. . .

Get from the client, all the cookies that have been previously transported and reside there.

Extract cookie info.

Configure visibility of GUI components, selectively.

The end