# Web Controls

The mainstay of ASP.NET

# Categories

- Simple (HTML equivalent)
- Buttons
- List Controls
- Data-Bound Controls
- Calendar Controls
- Validation Controls

# TextBox Controls

- Use the Text property to move text back and forth.
- Set the type to password to mask entries.
- Usually don’t use with events although an event can be generated if the text changes. This does NOT cause a postback. The event is issued on the next postback.
- AutoPostBack can be set to cause a post back when the text changes. The postback does not actually take place until the control loses the input focus, e.g., the user selects another control.

# TextBox Controls – contd.

- TextMode can be set to MultiLine to allow more than one line of text to be entered.
- The number of lines displayed is controlled by the Rows property.
- ToolTip is another neat property. You can set a text string to be displayed as a tiny flyout as the mouse is moved over the text.
- How is this done?

# Flyout Implementation

- This is actually an HTML feature and not something out of the .NET world.
- The title="…" property of the tag is used to set the flyout (tooltip) text.
- Remember – ASP.NET has to serve up pages that have only HTML (static and dynamic) along with Javascript.
- Be sure to check out the other properties of the TextBox control.

# General Features

- Visible – used to dynamically hide or show a control.
- ReadOnly – used to prevent data from being entered into a control by the user. Good for output that you want to have the appearance of a control. Use a Label otherwise.
- Font and Colors – Set to what you want.
- Dimensions – can change dynamically as well as setting up using the designer.

# Data Conversion

- TextBox controls only handle text.
- Conversion to/from numerical values can be accomplished using the Convert class and the ToString method.
- Example:
  string s = “123”;
  int i = Convert.ToInt32(s);
  s = i.ToString();
- Careful! Convert throws an exception if the string is not in the proper format for the conversion.

# Handling Exceptions

```
try
{
        i = Convert.ToInt32(myBox.Text);
}
catch
{
        //failed to convert, use default
        i = 0;
}
```

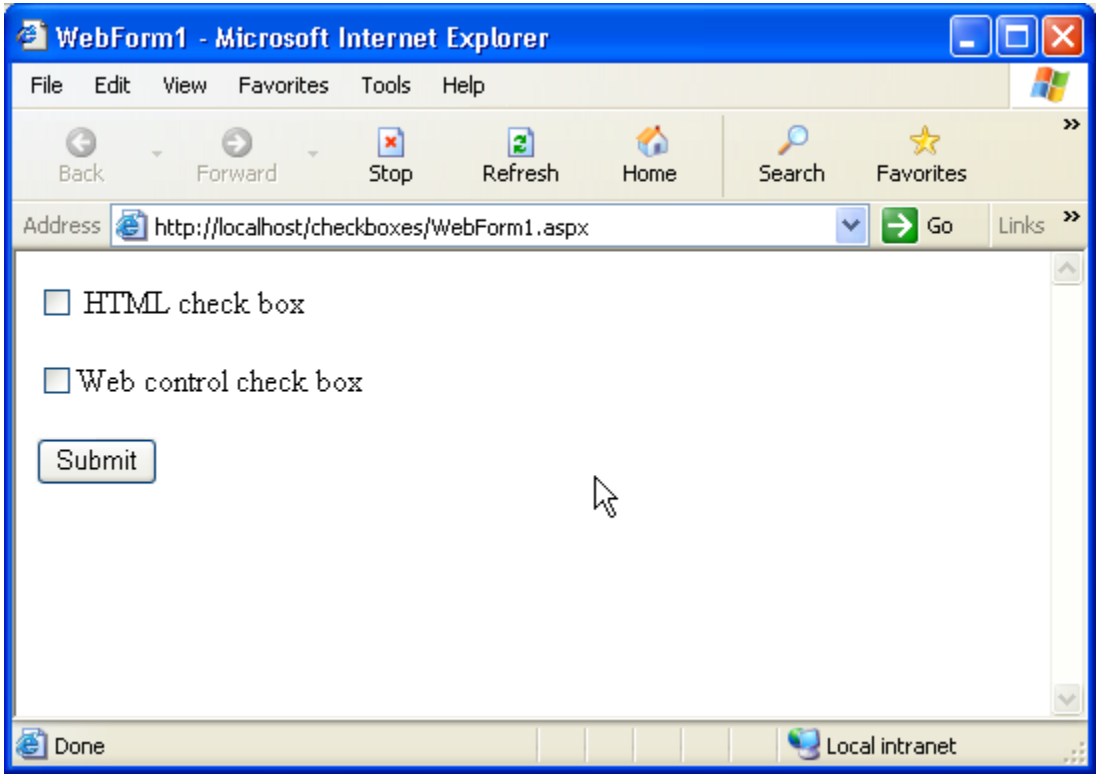
- Do something reasonable from the user's perspective.

# Label Controls

- These make great placeholders for text to be output from the server side without embedding Response.Write in the HTML.
- Use foreground/background colors, font, and border styles to display alerts etc.
- Hide using the Visible property.
- Label controls emit … tags.
- There is no reason to use a Label control unless you wish to change the text from the server side.

# CheckBox Controls

- The major difference between a regular checkbox and this control is that we can use a simple property, Checked, to determine if the box is checked.
- A regular HTML checkbox would only return its state as form data.
- The following example shows the difference and the advantage of web controls in general.


WebForm1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites
Address http://localhost/checkboxes/WebForm1.aspx
Go
Links
HTML check box
Web control check box
Submit
Done
Local intranet

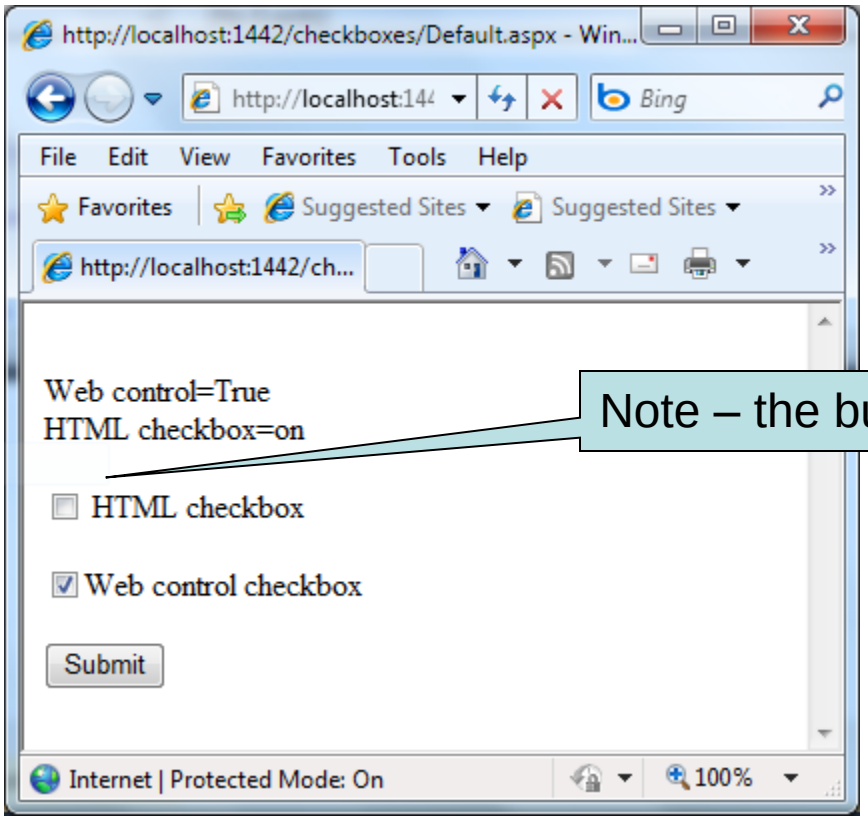
```
. <%@ Page Language="C#" AutoEventWireup="true" CodeFile="Default.aspx.cs"
Inherits="_Default" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title></title>
</head>
<body>
    <form id="form1" runat="server">
    <input id="Checkbox1" type="checkbox" name="Checkbox1" /> HTML checkbox<br />
    <br />
    <asp:CheckBox ID="CheckBox2" runat="server" Text="Web control checkbox" />
    <br />
    <br />
    <asp:Button ID="Button1" runat="server" Text="Submit" />
    </form>
</body>
</html>
```

```
private void Page_Load(object sender, System.EventArgs e)
{
      if(this.IsPostBack)
            {Response.Write("<br>Web control="
            + CheckBox2.Checked.ToString());
            string s = Request["Checkbox1"];
            Response.Write("<br>HTML checkbox="+s);
      }
}
```

• The Request collection contains the key/value pairs for the form fields.




Note – the button state is NOT preserved.

# List Controls

- ListBox
- DropDownList
- CheckBoxList
- RadioButtonList
- All list controls can use data binding. We will discuss data binding shortly.

# List Control Properties

- The Items collection contains the ListItem's to be displayed in the control.
- Each ListItem has a Text and Value property as well as a Selected boolean flag.
- A static list can be created with the VS 2015 collection editor.
- Optionally, the list can be created dynamically.

```
MyListBox.Items.Add("Itemtext");
```

or

```
MyListBox.Items.Add(new
        ListItem("Itemtext", "ItemValue"));
```

# Getting the Selected Index

- MyListBox.SelectedIndex is the index of the item.
- We can use this to access the item:

  MyListBox.Items[index].Text

  or

  MyListBox.Items[index].Value
- MyListBox.SelectedValue can also be used.

# HyperLink Controls

- Used like an HTML “href” tag.
- The advantage is that the link can be changed dynamically.
- Either text or an image can be used as the control.
- Set the Text property to display text.
- Set the ImageUrl property to display and image.
- The NavigateUrl property specifies the actual URL of the hyperlink.

# Image Controls

- Similar to the standard image tag in HTML but allow dynamic control.
- The ImageUrl property specifies the location of the image.
- This is a useful control for displaying images in response to some user input.
- Don’t try to use this control in lieu of Javascript image flipping using the mouseover event. The response will be too slow.

# RadioButton Controls

- Much as one would suspect.
- Must specify a group name for the radio buttons. This controls the *single* selection feature of the radio buttons.
- Must check each button individually.
- Radio button use is similar to check box controls.
- Can use RadioButtonList to get around this problem. (discussed later)

# Table Controls

- Tables are a mainstay of HTML page design.
- The Table Control allows changing the cells dynamically.
- Tables can be created either statically or on-the-fly.
- See my online grade reporting system for an example of on-the-fly creation.

# Panel Controls

- They don’t display anything.
- Are used to group other controls so you can turn their visibility on and off at will.
- One guess as to what HTML element is used for panels?

** **

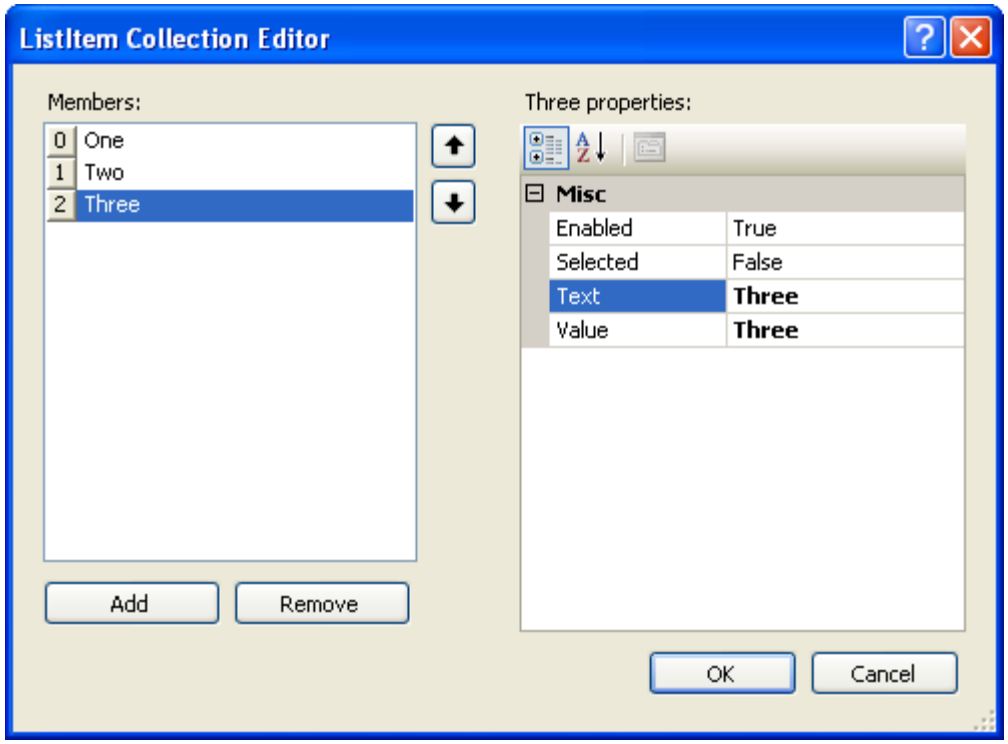
# Button Controls

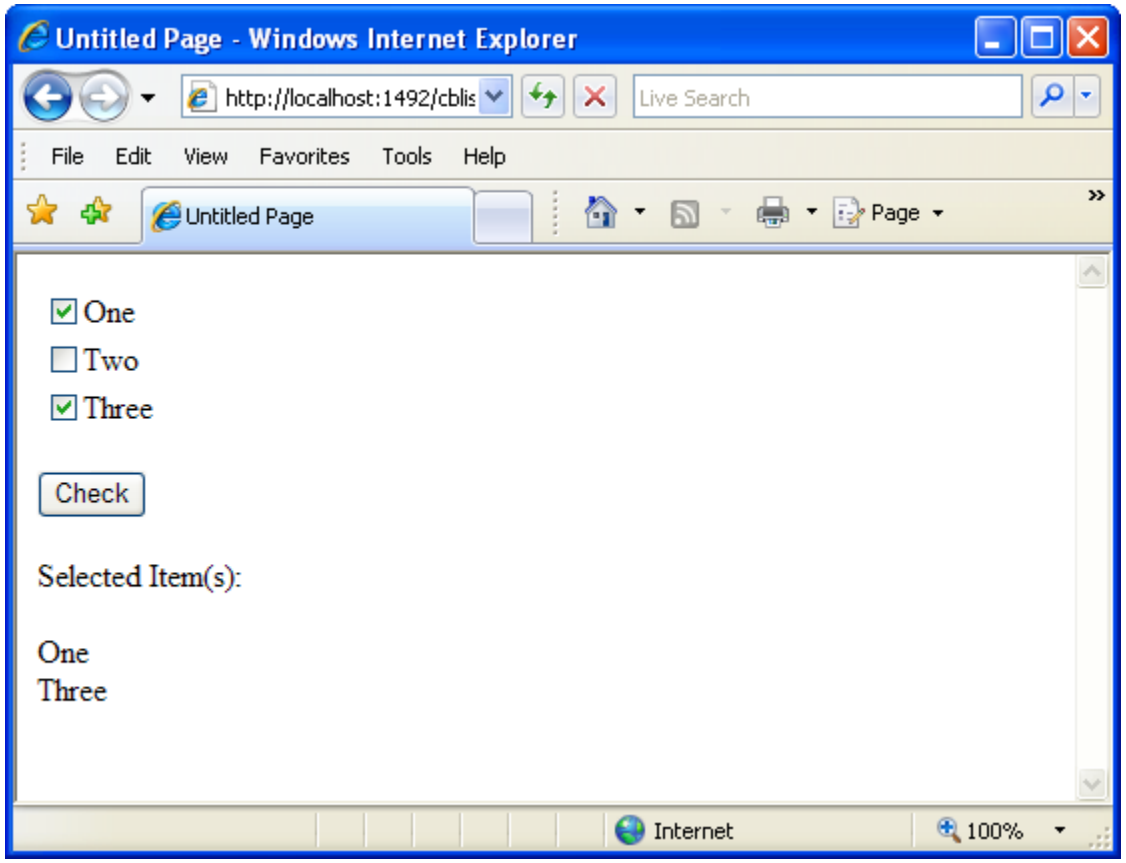
- Main use is to fire an event.
- Page_Load is invoked first and then the event handler for the button is called.
- The page is not posted back to the browser until both page load and the button event methods have been called.

# Button Types

1. Button(plain)
   Like an HTML button.
2. Link button
   Looks like a link.
3. Image button
   Uses an image to render the button.

# CheckBoxList Example




Untitled Page - Windows Internet Explorer
http://localhost:1492/cblis
Live Search
File Edit View Favorites Tools Help
Untitled Page
Page
One
Two
Three
Check
Selected Item(s):
One
Three
Internet
100%

# Code

```
protected void Button1_Click(object sender, EventArgs e)
    {
        Message.Text = "Selected Item(s):" + "<br />" + "<br />";
        for (int i = 0; i < checkboxlist1.Items.Count; i++)
        {
            if (checkboxlist1.Items[i].Selected)
                Message.Text = Message.Text +
                       checkboxlist1.Items[i].Text + "<br />";
        }

    }
```

# Data Binding

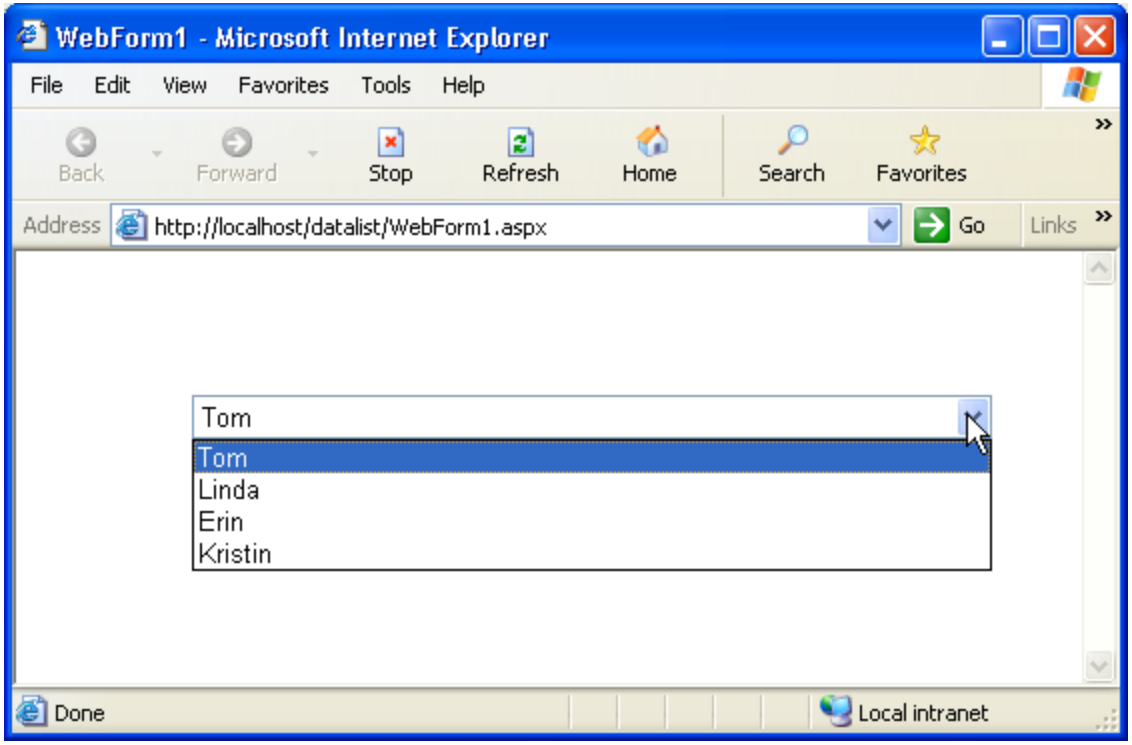
- Can bind data from a database or an XML file.
- In fact data can be bound from any type that supports IEnumerable or IListSource.
- You can implement these interfaces in your own classes.
- See example (converter2.aspx) from the Prosise book in the MELL collection.

# Data Binding From an Array

```
        protected string[] names = {"Tom", "Linda", "Erin",
                                    "Kristin"};
------------------------
    private void Page_Load(object sender, System.EventArgs e)
    {
        dlist.DataSource=names;
        dlist.DataBind();
    }
```

- The DataSource property of the list control must be set to the string array, *names*.

# The Result


WebForm1 - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites
Address http://localhost/datalist/WebForm1.aspx
Go
Links
Tom
Tom
Linda
Erin
Kristin
Done
Local intranet

# Data-Bound Controls

- Repeater
  - Simple, but not robust
- DataList
  - Support for multi-column formatting etc.
- DataGrid
  - Everything including the kitchen sink
- We will discuss these later

# Calendar Controls

- Not just a static calendar display
- Allows the user to interact with the calendar to select dates.
- Relatively easy to use.

# Validation Controls

- Allow validation of entries based on
  - Required entry
  - Range of values
  - Matches a regular expression
  - Custom
- Script code is generated to run on the client for performance.
- Backup checking is also done on the server if a client browser does not run scripts.
  - This also prevents hacking.
- Demo

# HTML Controls

- Many standard HTML elements have an equivalent HTML control class in .NET.
- You can convert a regular HTML element to an HTML control by adding runat="server" to the elements tag.
- You can also do this from the VS 2011 designer by right clicking the control and selecting "Run As Server Control" menu.

# HTML Controls

- There are some differences in the use of HTML controls vs. Web Controls.
- OnServerClick is used rather than OnClick as the click handler.
- The property Value is used rather than Text to access the control's text.
- Numerous other differences in properies and events.
- HTML controls are most useful for adapting legacy pages for use with ASP.NET.