

# ASP.NET Web Web Controls

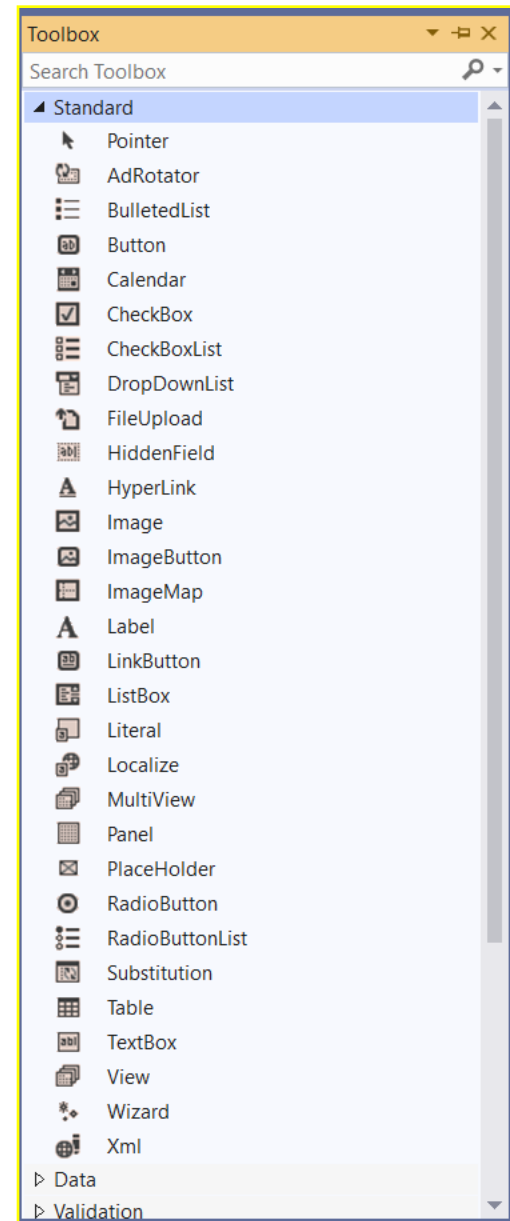
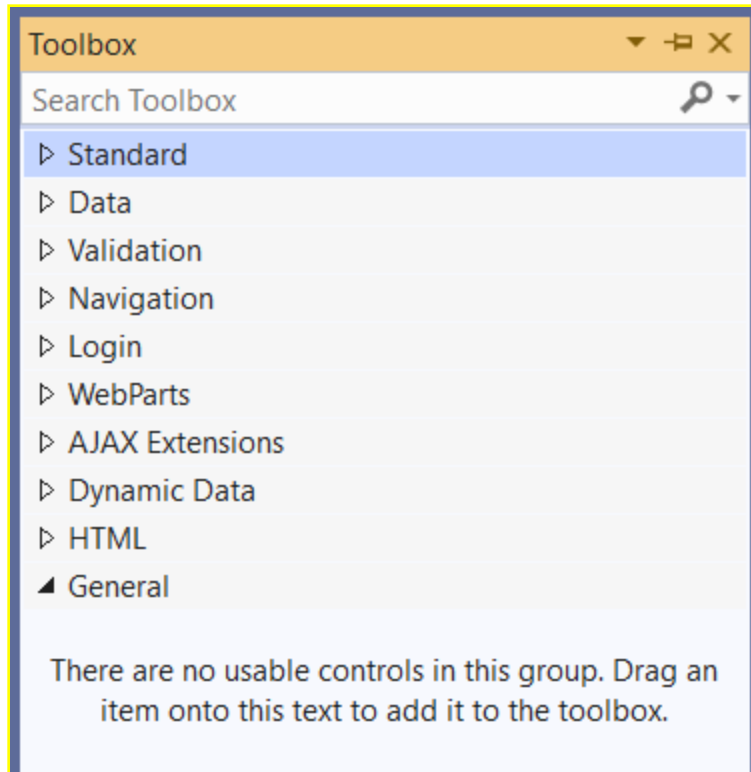
Prepared for V<sup>th</sup> semester DDU-CE students  
2022-23 WAD

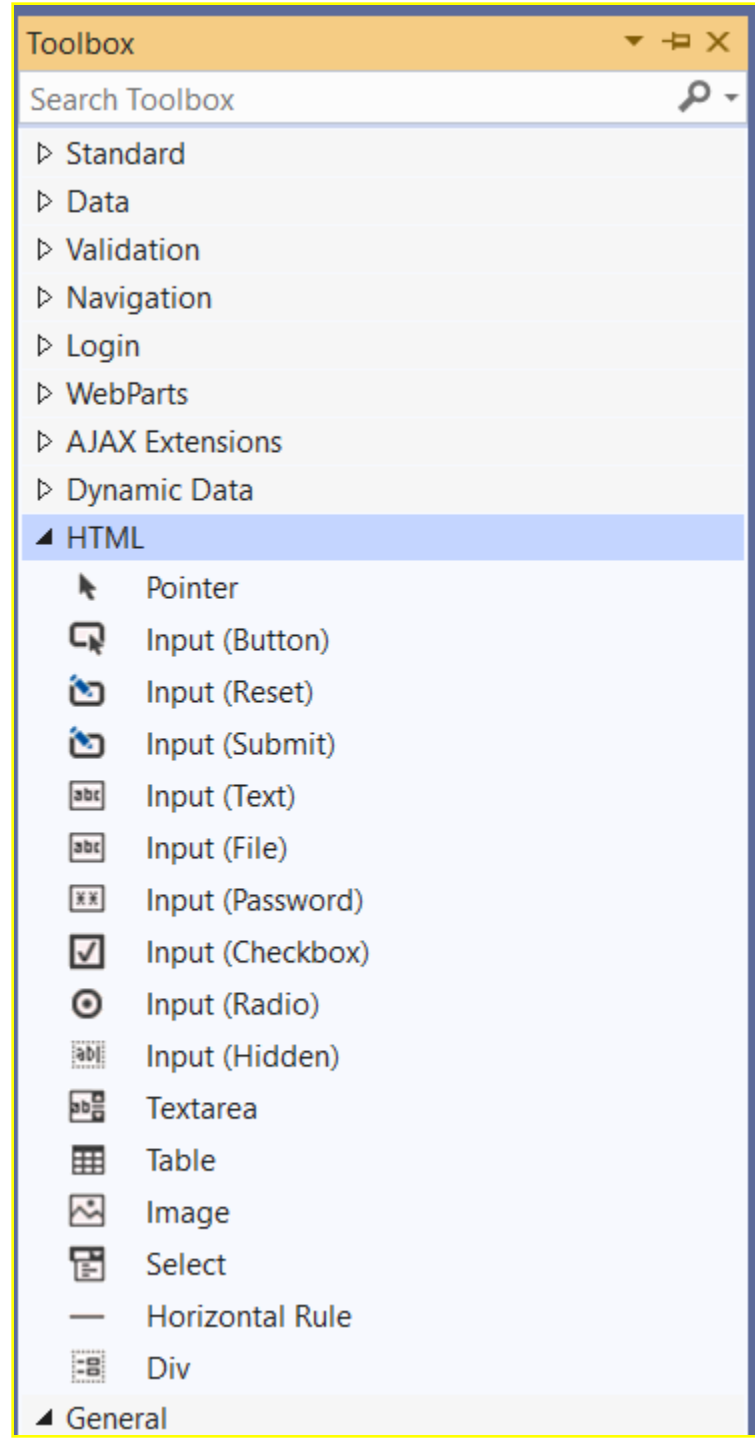
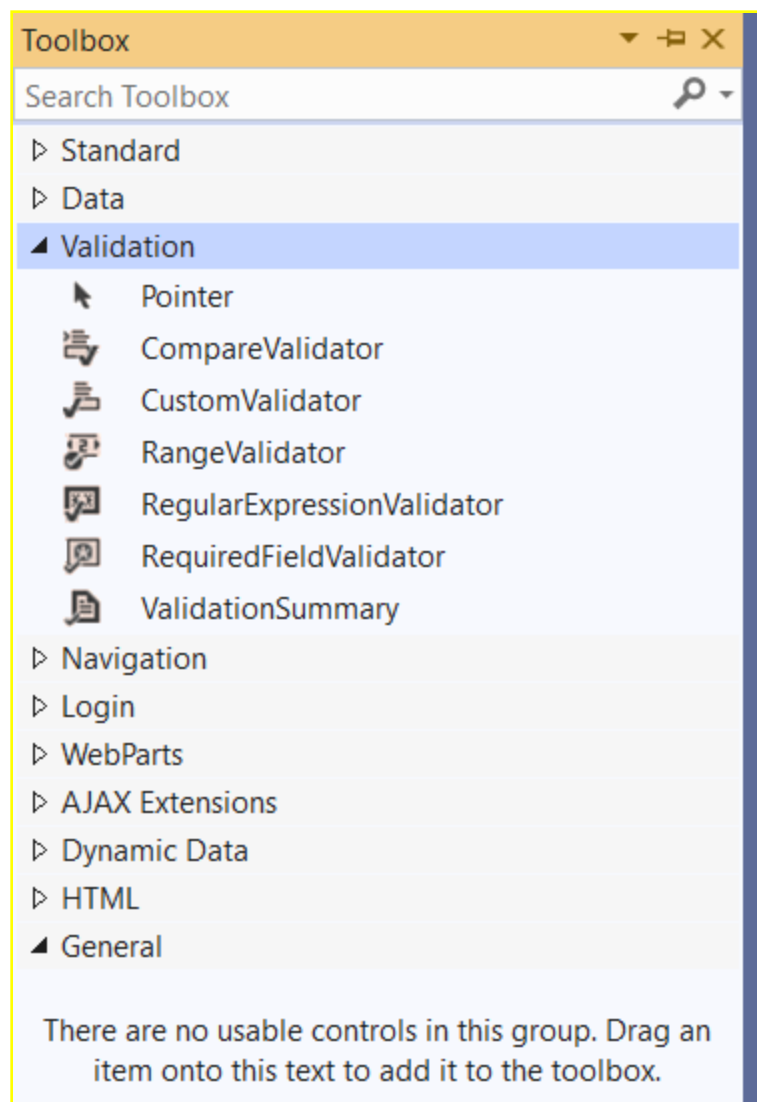
Apurva A Mehta



# ASP.NET Web Controls

- HTML controls
- HTML server controls
  - Traditional HTML tags
- ASP.NET server controls
  - Validation controls
  - Data source and Data view controls
  - Login and Security controls
  - Navigation controls
  - Rich controls, Etc...
- ASP.NET Ajax server controls
- User controls and custom controls





# HTML Server Controls

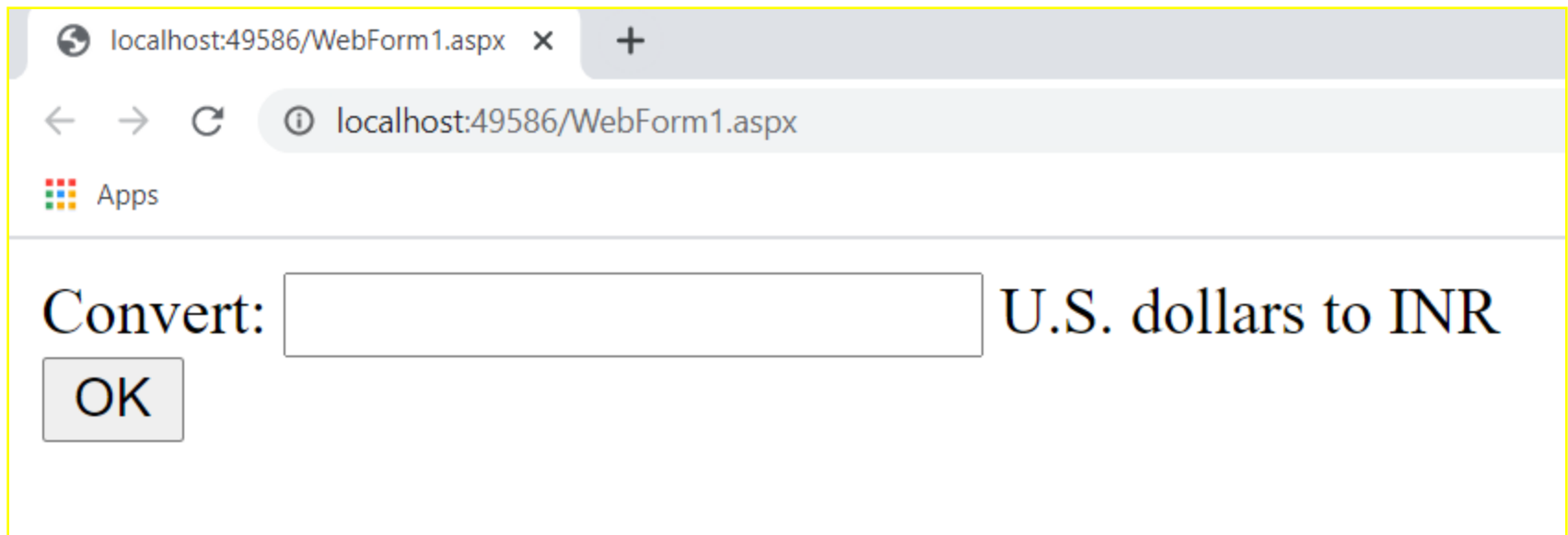
- HTML tags understood by the server.
- HTML elements in ASP.NET
  - treated as text
- To make these elements programmable
  - `runat="server"` attribute to the HTML element
  - element is treated as a server control.
- The `id` attribute is added to identify the server control.
- The `id` reference can be used to manipulate the server control at run time.

```
<a id="link1" runat="server">Visit your dream!</a>
```

# Cont.

- They generate their own interface
- They retain their state
- They fire server side events
- HTML Server controls are ideal
  - For performing quick translation to add server side code to an existing html page

```
<form id="form1" runat="server">
<div>
  Convert:
  <input id="Text1" type="text" runat="server" /> U.S. dollars to INR<br />
  <input id="Button1" type="button" value="OK" runat="server" onclick="Convert" /></div>
  <p id="Result1" runat="server"></p>
</form>
```



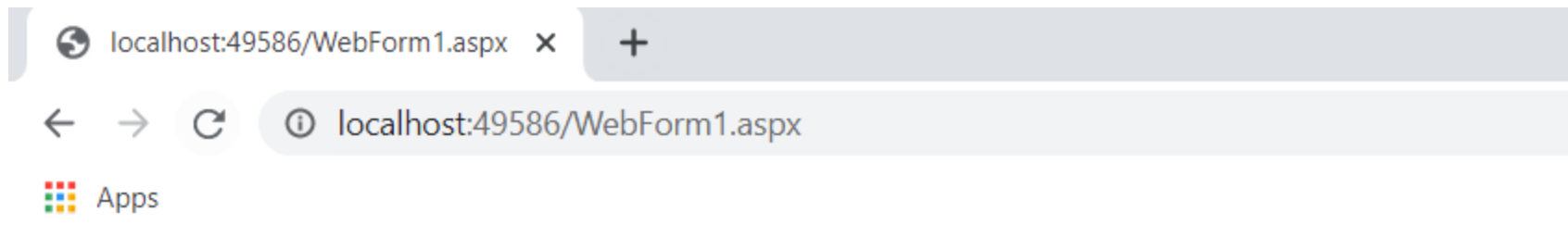
The screenshot shows a web browser window with the address bar displaying 'localhost:49586/WebForm1.aspx'. The page content includes a label 'Convert:' followed by a text input field, the text 'U.S. dollars to INR', and a button labeled 'OK'.



```
public partial class WebForm1 : System.Web.UI.Page
{
    protected void Page_Load(object sender, EventArgs e)
    {
    }

    protected void Convert(object sender, EventArgs e)
    {
        int USAmount = Int32.Parse(Text1.Value);
        int INRAmount = USAmount * 70;
        Result1.InnerText = USAmount.ToString() + " US Dollars=";
        Result1.InnerText += INRAmount.ToString() + " INR.";
    }
}
```

---



Convert:  U.S. dollars to INR

OK

100 US Dollars= 7000 INR.

# Web Server Control

- Web server controls are special ASP.NET tags understood by the server.
- Like HTML server controls, Web server controls are also created on the server and they require a `runat="server"` attribute to work.
- However, Web server controls do not necessarily map to any existing HTML elements and they may represent more complex elements.

```
<asp:Button id="button1" Text="Click me!" runat="server"  
OnClick="submit"/>
```

# Cont.

- They provide a rich user interface
- They provide a consistent object model
- They tailor their output automatically
  - Adaptive rendering
- They provide higher level features

or first application and extend it to the cloud.



Connect To The Cloud

Publish your app to  
Azure

Get started with ASP.NET  
on Azure



Learn Your IDE

See our productivity  
guide

Write code faster

## Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'WebServerControl' (16 of 16 projects)

- ▶ BookSh...
- ▶ Button\_...
- ▶ CheckBo...
- ▶ **Demo1**
  - ▶ Conr...
  - ▶ Prop...
  - ▶ Refe...
  - ▶ pack...
  - ▶ Web...
  - ▶ Web...
- ▶ DropDo...
- ▶ HyperLi...
- ▶ Image\_I...
- ▶ Label\_D...
- ▶ MCQExa...
- ▶ PanelCo...
- ▶ PanelCo...
- Solution Explore...

## Properties

**Demo1** Project

## Development

Always Start V...

Anonymous A...

Managed Pipe...

SSL Enabled

SSL URL

URL

Windows Auth...

## Misc

Development S...

- Build
- Rebuild
- Clean
- View
- Analyze and Code Cleanup
- Publish...
- Configure Application Insights...
- Overview
- Scope to This
- New Solution Explorer View
- Build Dependencies
- Add
- Manage NuGet Packages...
- Manage Client-Side Libraries...
- Set as Startup Project**
- Debug
- Initialize Interactive with Project
- Source Control
- Cut Ctrl+X
- Paste Ctrl+V
- Remove Del
- Rename F2
- Unload Project
- Load Direct Dependencies of Project
- Load Entire Dependency Tree of Project
- Open Folder in File Explorer
- Properties Alt+Enter



11:19 AM  
10-07-2020



```
<form id="form1" runat="server">
<div>
    Display name:<asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
    &nbsp;&nbsp;&nbsp;in bold.<br />
    <asp:Button ID="Button1" runat="server" Text="OK" OnClick="Button1_Click" />
</div>
</form>
```

```
public partial class WebForm1 : System.Web.UI.Page
{
    protected void Page_Load(object sender, EventArgs e)
    {
    }

    – references
    protected void Button1_Click(object sender, EventArgs e)
    {
        Response.Write("<b>" + TextBox1.Text + "</b>");
    }
}
```

localhost:50006/WebForm1.aspx

← → ↻ ⓘ localhost:50006/WebForm1.aspx

Apps

**DDU**

Display name:  in bold.

OK

# Common Web Server Control Properties

- ID
- Height,Width
- Font
- ToolTip
- Visible
- Enabled
- Style
- AccessKey, ...



# Properties and Methods

- Properties relate to characteristics of control such as Id, Color, Height, Width etc.
- Methods are used to react to specific event for example button click or text change in a text box.

# Web Server Control: Label

- Displays text at a specific locations on a webpage with properties specified.
- Use when you need to use server side code to change the text or properties.
- Do not use if need to display static text.
  - Use standard HTML
- Used as captions for user input control.
- Link keyboard shortcuts assigned to label controls to user input controls.
- Text property can be set from HTML code and C# code .

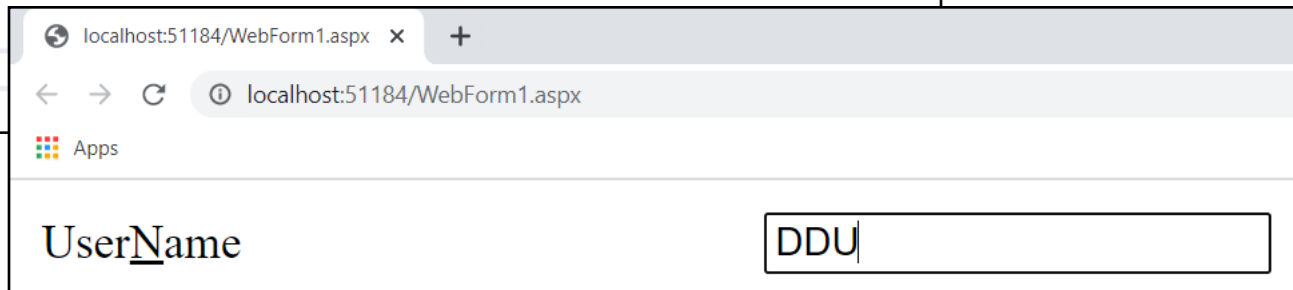
```

<form id="form1" runat="server">
<div>

    <table class="auto-style1">
        <tr>
            <td>
                <asp:Label ID="Label1" runat="server" AccessKey="N" Text="<u>N</u>ame"
                    AssociatedControlID="TextBox1"></asp:Label>
            </td>
            <td>
                <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
            </td>
        </tr>
    </table>

</div>
</form>

```



The screenshot shows a web browser window with the address bar displaying 'localhost:51184/WebForm1.aspx'. The page content includes a label 'UserName' and a text box containing the text 'DDU'.

```

public partial class WebForm1 : System.Web.UI.Page
{
    0 references
    protected void Page_Load(object sender, EventArgs e)
    {
        Label1.Text = "User<u>N</u>ame";
    }
}

```

# Web Server Control: Button

- A user can click to trigger a postback to the web server.
- Rendered as
  - Submit button (default)
    - Simply performs postback to server
  - Command button
    - Has command name
      - Multiple button controls on a single page

```
<div>
    <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>+
    <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>=
    <asp:Button ID="Button1" runat="server" Text="Sum" OnClick="Button1_Click" />
    <asp:Label ID="Label1" runat="server"></asp:Label>
</div>
```

```
protected void Button1_Click(object sender, EventArgs e)
{
    int x = Int32.Parse(TextBox1.Text);
    int y = Int32.Parse(TextBox2.Text);
    int sum = x + y;
    Label1.BackColor = System.Drawing.Color.Yellow;
    Label1.Text = sum.ToString();
}
```

localhost:51490/WebForm1.aspx x +

← → ↻ ⓘ localhost:51490/WebForm1.aspx

Apps

10 + 8 = Sum 18

Properties

Button1

System.Web.UI.WebControls.Button

(Expressions)	
(ID)	Button1
AccessKey	
BackColor	
BorderColor	
BorderStyle	NotSet
BorderWidth	
CausesValidation	True
ClientIDMode	Inherit
CommandArgument	
CommandName	
CssClass	
Enabled	True
EnableTheming	True
EnableViewState	True
Font	
ForeColor	
Height	
OnClientClick	
PostBackUrl	
SkinID	
TabIndex	0
Text	Sum
ToolTip	
UseSubmitBehavior	True
ValidateRequestMode	Inherit
ValidationGroup	
ViewStateMode	Inherit
Visible	True
Width	

Text

The text to be shown on the button.

Properties

Button1

System.Web.UI.WebControls.Button

Click	Button1_Click
Command	
DataBinding	
Disposed	
Init	
Load	
PreRender	
Unload	

```

<div>
  <asp:Button ID="Button1" runat="server" Text="&lt;" OnCommand="Button_Command" CommandName="Left"/>
  <asp:Button ID="Button2" runat="server" Text="^" OnCommand="Button_Command" CommandName="Up"/>
  <asp:Button ID="Button3" runat="server" Text="&gt;" OnCommand="Button_Command" CommandName="Right"/>
  <asp:Label ID="Label1" runat="server" Text="Label"></asp:Label>
</div>

```

Properties

**Button3** System.Web.UI.WebControls.Button

(Expressions)

(ID) **Button3**

AccessKey

BackColor

BorderColor

BorderStyle NotSet

BorderWidth

CausesValidation True

ClientIDMode Inherit

CommandArgument

CommandName **Right**

CssClass

Enabled True

Properties

**Button3** System.Web.UI.WebControls.Button

Click

Command **Button\_Command**

DataBinding

Disposed

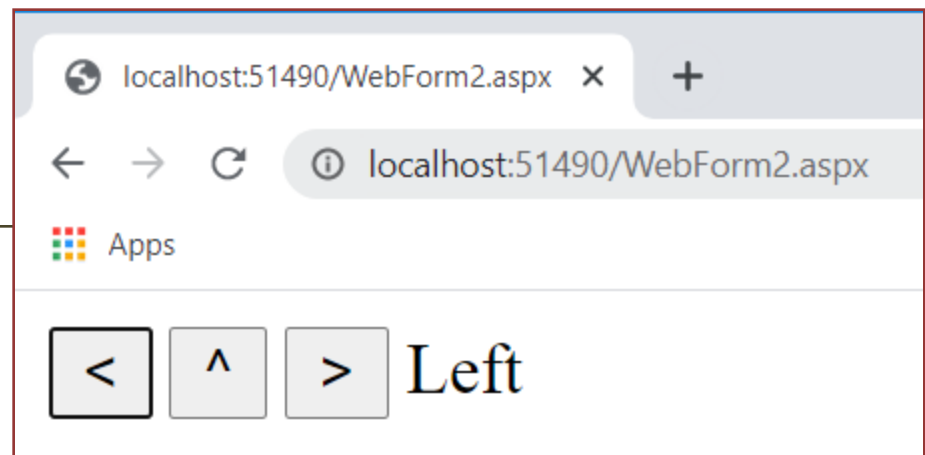
Init

Load

PreRender

Unload

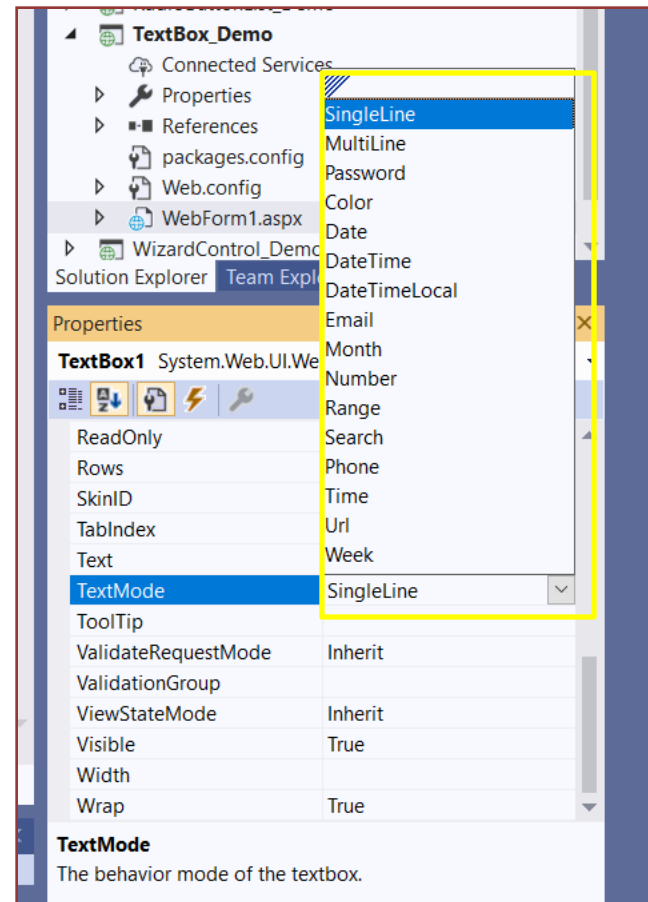
```
protected void Button_Command(object sender, CommandEventArgs e)
{
    switch (e.CommandName)
    {
        case "Left":
            Label1.Text = "Left";
            break;
        case "Up":
            Label1.Text = "Up";
            break;
        case "Right":
            Label1.Text = "Right";
            break;
        default:
            break;
    }
}
```





# Web Server Control: TextBox

- To collect information from user
- Properties
  - TextMode
    - SingleLine (Default)
    - MultiLine
    - Password
    - Number, ...
  - MaxLength
  - Wrap, etc...








# Cont.

- Event
  - TextChange
    - Trapped by server to respond when the user has changed the text of a TextBox
    - Does not trigger postback automatically
      - Handle TextBox.TextChange in Button
      - Set AutoPostBack
    - The event is only raised if the text is changed by the user; the event is not raised if the text is changed programmatically.

```
tr>
  <td>Name:</td>
  <td><asp:TextBox ID="TextBox1" runat="server"></asp:TextBox></td>
/tr>
tr>
  <td>Address:</td>
  <td><asp:TextBox ID="TextBox2" runat="server" TextMode="MultiLine"></asp:TextBox></td>
/tr>
tr>
  <td>Password:</td>
  <td><asp:TextBox ID="TextBox3" runat="server" TextMode="Password"></asp:TextBox></td>
/tr>
tr>
  <td>Age:</td>
  <td><asp:TextBox ID="TextBox4" runat="server" TextMode="Number"></asp:TextBox></td>
/tr>
tr>
  <td>TextChange</td>
  <td><asp:TextBox ID="TextBox5" runat="server" AutoPostBack="True" OnTextChanged="TextBox5_TextChanged"></asp:TextBox></td>
/tr>
tr>
  <td>&nbsp;</td>
  <td><asp:Button ID="Button1" runat="server" OnClick="Button1_Click" Text="Button" /></td>
/tr>
```

Properties

**TextBox5** System.Web.UI.WebControls.TextBox

DataBinding	
Disposed	
Init	
Load	
PreRender	
<b>TextChanged</b>	<b>TextBox5_TextChanged</b>
Unload	

```
public partial class WebForm1 : System.Web.UI.Page
{
    0 references
    protected void Page_Load(object sender, EventArgs e)
    {
        TextBox5.Focus();
    }

    0 references
    protected void TextBox5_TextChanged(object sender, EventArgs e)
    {
        Response.Write("Text Changed");
    }

    0 references
    protected void Button1_Click(object sender, EventArgs e)
    {
        Response.Write("Password:" + TextBox3.Text);
    }
}
```

localhost:51782/WebForm1.aspx x +

localhost:51782/WebForm1.aspx


Apps

Name:


Address:

Password:

Age:

TextChange 

Button

Text Changed 

Name:

Address:

Password:

Age:

TextChange

Button

# Web Server Control: RadioButton

- To select one option form multiple choices
- Properties
  - Text
  - Checked
  - TextAlign
  - AutoPostBack
  - GroupName
- Events
  - CheckedChanged
    - Fired when the checked status of the radio button control is changed
    - Default: Cached in ViewState of control

```
<div>
<fieldset style="width:300px">
    <legend><b>Gender</b></legend>
    <asp:RadioButton ID="RadioButton1" Text="Female" TextAlign="Left" runat="server"
        OnCheckedChanged="RadioButton1_CheckedChanged" AutoPostBack="true" GroupName="Gender"/>
    <asp:RadioButton ID="RadioButton2" Text="Male" runat="server"
        OnCheckedChanged="RadioButton2_CheckedChanged" GroupName="Gender"/>
    <asp:RadioButton ID="RadioButton3" Text="Unknown" runat="server" GroupName="Gender"/>
</fieldset>
    <asp:Button ID="Button1" runat="server" OnClick="Button1_Click" Text="Button" />
</div>
```

```
protected void RadioButton1_CheckedChanged(object sender, EventArgs e)
{
    Response.Write("Female RadioButton Selection Changed <br/>");
}
```

0 references

```
protected void RadioButton2_CheckedChanged(object sender, EventArgs e)
{
    Response.Write("Male RadioButton Selection Changed <br/>");
}
```

```
protected void Button1_Click(object sender, EventArgs e)
{
    if(RadioButton1.Checked)
    {
        Response.Write("Your gender is " + RadioButton1.Text + "<br/>");
    }

    else if (RadioButton2.Checked)
    {
        Response.Write("Your gender is " + RadioButton2.Text + "<br/>");
    }

    else if (RadioButton3.Checked)
    {
        Response.Write("Your gender is " + RadioButton3.Text + "<br/>");
    }
}
```





localhost:52027/WebForm1.aspx



localhost:52027/WebForm1.aspx



Apps

**Gender**

Female ☐ ☐ Male ☐ Unknown

Button



localhost:52027/WebForm1.aspx



localhost:52027/WebForm1.aspx



Apps

Female RadioButton Selection Changed

**Gender**

Female ☒ ☐ Male ☐ Unknown

Button



localhost:52027/WebForm1.aspx x



localhost:52027/WebForm1.aspx



Apps

Your gender is Unknown

**Gender**

Female ☐ Male ☒ Unknown

Button

# Web Server Control: RadioButtonList

- Collection of ListItem objects
- Supports data binding
- Items can be added in the HTML or in the code behind file
- Properties
  - RepeatDirection
  - RepeatColumns
  - RepeatLayout
  - SelectedItem
  - SelectedIndex

```

<asp:RadioButtonList ID="RadioButtonList1" runat="server" RepeatColumns="1"
    RepeatDirection="Horizontal" RepeatLayout="Flow"
    OnSelectedIndexChanged="RadioButtonList1_SelectedIndexChanged"
    OnTextChanged="RadioButtonList1_SelectedIndexChanged" AutoPostBack="True">
    <asp:ListItem>Red</asp:ListItem>
    <asp:ListItem>Green</asp:ListItem>
    <asp:ListItem>Blue</asp:ListItem>
    <asp:ListItem>Orange</asp:ListItem>
</asp:RadioButtonList>
<br />
<asp:Button ID="Button1" runat="server" OnClick="Button1_Click" Text="OK" />
<asp:Button ID="Button2" runat="server" Text="Clear" OnClick="Button2_Click" />

```

0 references

```

protected void Button1_Click(object sender, EventArgs e)
{
    if(RadioButtonList1.SelectedValue!=null)
    {
        Response.Write("Text: " + RadioButtonList1.SelectedItem.Text + "<br/>");
        Response.Write("Value: " + RadioButtonList1.SelectedItem.Value + "<br/>");
        Response.Write("Index: " + RadioButtonList1.SelectedIndex.ToString() + "<br/>");
    }
}

```

0 references

```

protected void Button2_Click(object sender, EventArgs e)
{
    RadioButtonList1.SelectedIndex = -1;
}

```

0 references

```

protected void RadioButtonList1_SelectedIndexChanged(object sender, EventArgs e)
{
    Response.Write("Hello");
}

```

localhost:52195/WebForm1.aspx x +

← → ↻ ⓘ localhost:52195/WebForm1.aspx

Apps

☐ Red

☐ Green

☐ Blue

☐ Orange

OK Clear

localhost:52195/WebForm1.aspx x +

← → ↻ ⓘ localhost:52195/WebForm1.aspx

Apps

HelloHello

☐ Red

☐ Green

☒ Blue

☐ Orange

OK Clear

localhost:52195/WebForm1.aspx x +

← → ↻ ⓘ localhost:52195/WebForm1.aspx

Apps

Text: Orange  
Value: Orange  
Index: 3

☐ Red  
☐ Green  
☐ Blue  
☒ Orange

OK Clear

# Web Server Control: CheckBox

- User to select multiple items from choices available
- Properties
  - Checked
  - Text
  - TextAlign
  - AutoPostBack
- Methods
  - Focus
  - CheckedChanged

```
</div>
<fieldset style="width:350px">
    <legend><b>Education</b></legend>
    <asp:CheckBox ID="CheckBox1" runat="server" Text="Graduate"
        OnCheckedChanged="CheckBox1_CheckedChanged" TextAlign="Left" AutoPostBack="true" />
    <br />
    <asp:CheckBox ID="CheckBox2" runat="server" Text="PostGraduate"
        OnCheckedChanged="CheckBox2_CheckedChanged" Checked="true"/>
    <br />
    <asp:CheckBox ID="CheckBox3" runat="server" Text="Doctorate" />
</fieldset>
    <asp:Button ID="Button1" runat="server" OnClick="Button1_Click" Text="OK" />
</div>
```

```
protected void Button1_Click(object sender, EventArgs e)
{
    StringBuilder sbUserChoices = new StringBuilder();
    if(CheckBox1.Checked)
    {
        sbUserChoices.Append(CheckBox1.Text);
    }
    if (CheckBox2.Checked)
    {
        sbUserChoices.Append(" ," + CheckBox2.Text);
    }
    if (CheckBox3.Checked)
    {
        sbUserChoices.Append(" ," + CheckBox3.Text);
    }
    Response.Write("Your Selections: " + sbUserChoices.ToString());
}
```



```
protected void Page_Load(object sender, EventArgs e)
{
    if(!IsPostBack)
    {
        CheckBox3.Focus();
    }
}
```

0 references

```
protected void CheckBox1_CheckedChanged(object sender, EventArgs e)
{
    Response.Write("Graduate checkbox selection is changed");
}
```

0 references

```
protected void CheckBox2_CheckedChanged(object sender, EventArgs e)
{
    Response.Write("PostGraduate checkbox selection is changed");
}
```

localhost:53234/WebForm1.aspx × +

← → ↻ ⓘ localhost:53234/WebForm1.aspx

Apps

**Education**

Graduate ☐

☒ PostGraduate

☐ Doctorate

OK

localhost:53234/WebForm1.aspx × +

← → ↻ ⓘ localhost:53234/WebForm1.aspx

Apps

Graduate checkbox selection is changed

**Education**

Graduate ☒

☒ PostGraduate

☐ Doctorate

OK

localhost:53234/WebForm1.aspx

← → ↻ ⓘ localhost:53234/WebForm1.aspx

Apps

Your Selections: Graduate ,PostGraduate

**Education**

Graduate ☒

☒ PostGraduate

☐ Doctorate

OK

1. What are the two types of web server Button controls that can be created?
2. How do you create a TextBox for retrieving a password from a user?
3. How do you make a CheckBox cause immediate postback to the server?
4. If you are migrating classic ASP pages to ASP.NET, what type of server controls might you use?

# Web Server Control: DropDownList

- Collection of **Listltem** objects
- Items can be added at design time or run time
  - Be careful when you add at run time from Page\_Load
- Properties
  - Selected
  - Enabled
- Methods
  - SelectedItem
  - SelectedIndex
- Similar Controls
  - CheckBoxList, RadioButtonList, BulletedList, ListBox

```

<div>
    <asp:DropDownList ID="DropDownList1" runat="server">
        <asp:ListItem Value="1">Male</asp:ListItem>
        <asp:ListItem Value="2" Selected="True">Female</asp:ListItem>
        <asp:ListItem Value="3" Text="Other" Enabled="false"></asp:ListItem>
    </asp:DropDownList>
    <asp:DropDownList ID="DropDownList2" runat="server"></asp:DropDownList>
    <asp:Button ID="Button2" runat="server" Text="OK" OnClick="Button2_Click" />
</div>

```

```
protected void Page_Load(object sender, EventArgs e)
```

```
{
```

```
    ListItem engListItem = new ListItem("English", "1");
```

```
    ListItem gujListItem = new ListItem("Gujarati", "2");
```

```
    DropDownList2.Items.Add(engListItem);
```

```
    DropDownList2.Items.Add(gujListItem);
```

```
}
```

0 references

```
protected void Button2_Click(object sender, EventArgs e)
```

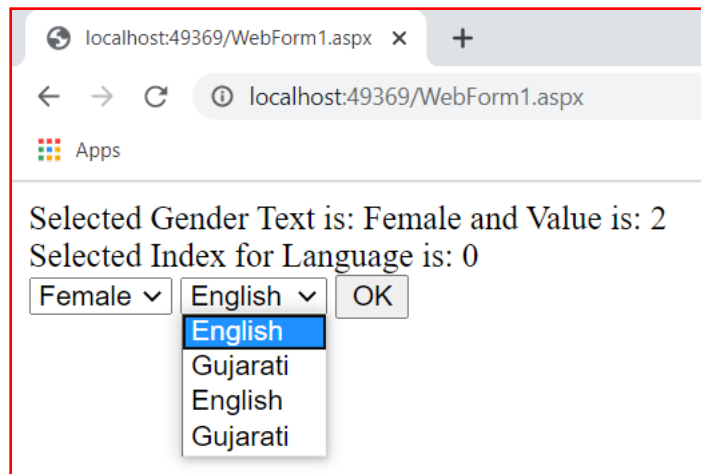
```
{
```

```
    Response.Write("Selected Gender Text is: " + DropDownList1.SelectedItem.Text
```

```
        + " and Value is: " + DropDownList1.SelectedItem.Value );
```

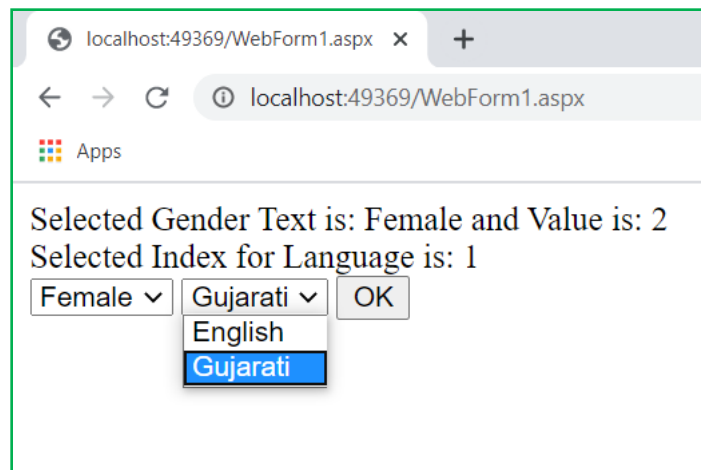
```
    Response.Write("<br/> Selected Index for Language is: " + DropDownList2.SelectedIndex);
```

```
}
```



```
protected void Page_Load(object sender, EventArgs e)
{
    if (!IsPostBack)
    {
        ListItem engListItem = new ListItem("English", "1");
        ListItem gujListItem = new ListItem("Gujarati", "2");

        DropDownList2.Items.Add(engListItem);
        DropDownList2.Items.Add(gujListItem);
    }
}
```



# Web Server Control: HyperLink

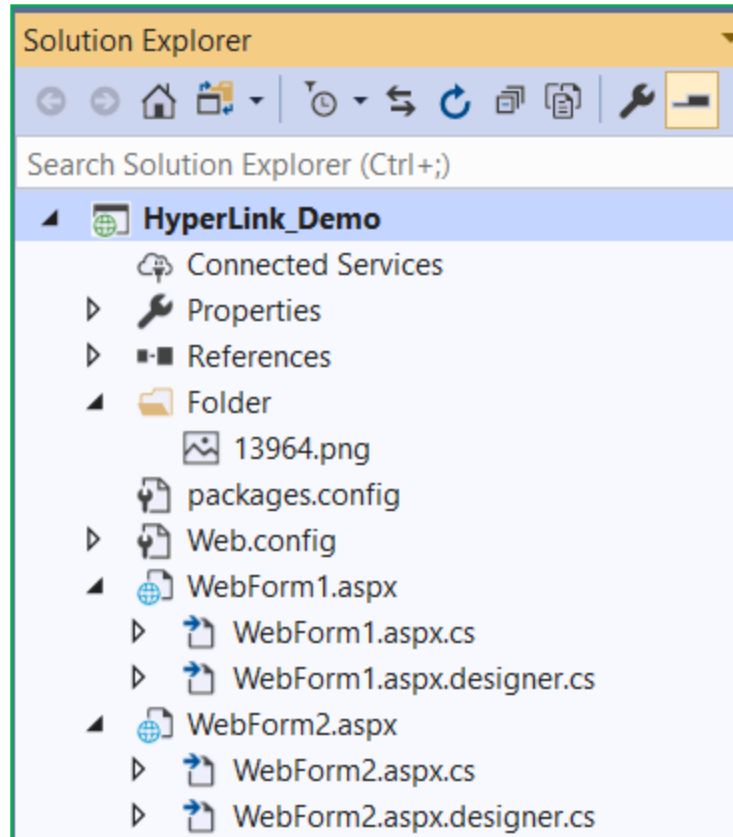
- To create a link to another Web page
- Properties
  - Text
  - NavigateURL
  - Target
- Methods
  - Focus



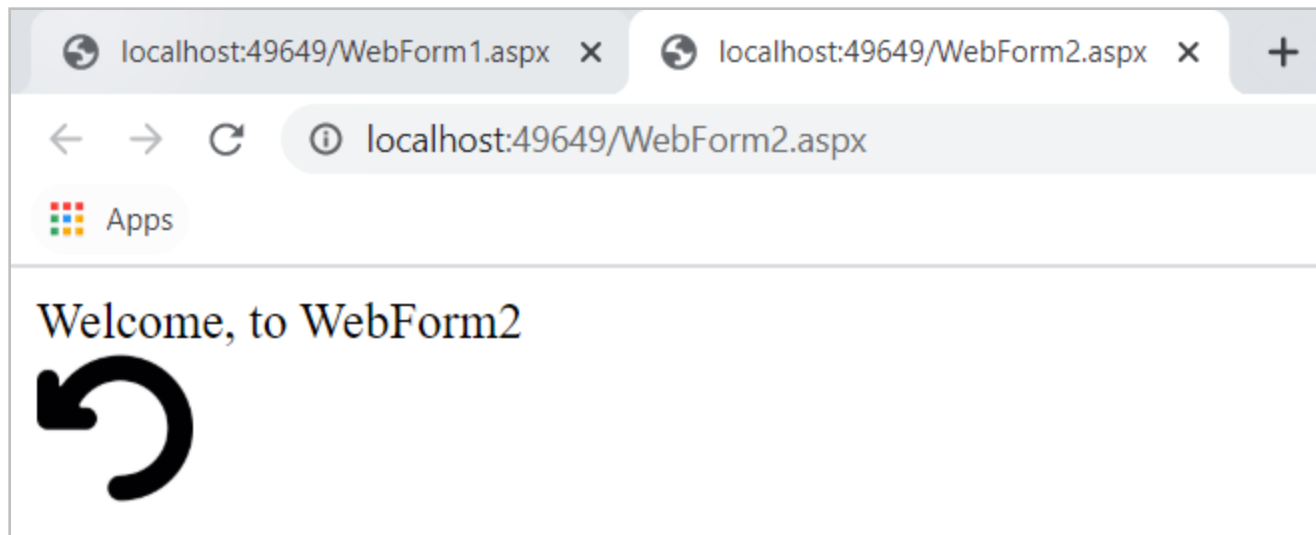
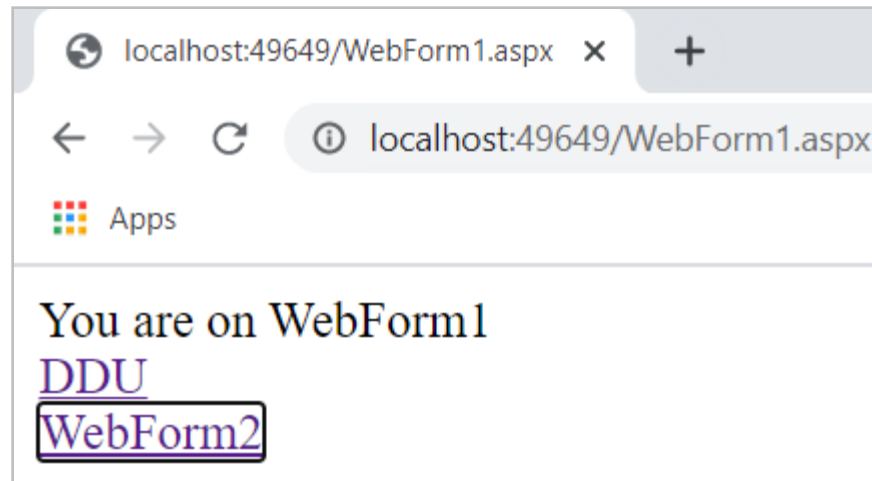
```
<div>
  <asp:HyperLink ID="HyperLink1" runat="server" NavigateUrl="http://ddu.ac.in">DDU</asp:HyperLink>
  <br />
  <asp:HyperLink ID="HyperLink2" runat="server" NavigateUrl="~/WebForm2.aspx"
    Target="_blank">WebForm2</asp:HyperLink>
</div>
```

```
public partial class WebForm1 : System.Web.UI.Page
{
    0 references
    protected void Page_Load(object sender, EventArgs e)
    {
        HyperLink2.Focus();
        Response.Write("You are on WebForm1");
    }
}
```

```
<div>
    <asp:HyperLink ID="HyperLink1" runat="server" ImageUrl="~/Folder/13964.png"
        NavigateUrl="~/WebForm1.aspx" ImageHeight="50" ImageWidth="50">WebForm1</asp:HyperLink>
</div>
```



```
protected void Page_Load(object sender, EventArgs e)
{
    Response.Write("Welcome, to WebForm2");
}
```



# Web Server Control:Image

- To display image
- Property
  - ImageURL

# Web Server Control:ImageButton LinkButton

- To post server
- Properties
  - ImageURL
  - PostBackURL

- ☐ Gujarati Books
- ☐ English Books

▲

▼

Add

Your Selection:

▲

▼

Finish

Ordered Items:

Price:

- ☐ Gujarati Books
- ☒ English Books

Parva

The glass palace

Gitanjali: Rabindranath Tagore

▲

▼

Add

Your Selection:

▲

▼

Finish

Ordered Items:

Price:

localhost:50142/WebForm1.aspx x +

localhost:50142/WebForm1.aspx

Apps

☐ Gujarati Books

☒ English Books

The glass palace  
Gitanjali: Rabindranath Tagore

Add

Your Selection:

Parva

Finish

Ordered Items:

Price:

localhost:50142/WebForm1.aspx x +

localhost:50142/WebForm1.aspx

Apps

☒ Gujarati Books

☐ English Books

Malela Jiv  
Manvi ni bhavai

Add

Your Selection:

Parva  
Tatvamasi

Finish

Ordered Items:

Price:

localhost:50142/WebForm1.aspx x +

localhost:50142/WebForm1.aspx

Apps

☐ Gujarati Books

☒ English Books

Parva  
The glass palace  
Gitanjali: Rabindranath Tagore

Add

Your Selection:

Parva  
Tatvamasi

Finish

Ordered Items:

Price:

localhost:50142/WebForm1.aspx

localhost:50142/WebForm1.aspx

Apps

☐ Gujarati Books

☒ English Books

Parva

The glass palace

Gitanjali: Rabindranath Tagore

Add

Your Selection:

Parva

Tatvamasi

Finish

Ordered Items:Parva ,Tatvamasi ,

Price:950