

2022/2023(2)
IF184504 Web Programming
Lecture #11a

ASP.NET: Validation

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ASP.NET Validation: What is it?

- ASP.NET validation controls *validate the user input data* to ensure that these following don't get stored.
 - Useless,
 - Unauthenticated, or
 - Contradictory data
- Validation can be done on:
 - Client/browser side: by utilise some *JavaScript*
 - Server side: this lecture is all about

MyValidator: 01FirstNameFilling.aspx

```
01FirstNameFilling.aspx -> X
1  <!DOCTYPE html>
2
3  <html xmlns="http://www.w3.org/1999/xhtml">
4  <head>
5      <title>First name filling</title>
6      <script>
7          function checkForm() {
8              var x = document.forms["myForm"]["fname"].value;
9              if (x == "") {
10                  alert("First name has to be filled!");
11                  return false;
12              }
13              return true;
14          }
15      </script>
16  </head>
17  <body>
18      <form id="myForm" runat="server"
19          action="01Done.html" onsubmit="return checkForm()"
20          method="get">
21          <div>
22              <asp:Label ID="lblFN" runat="server" Text="First name:"></asp:Label>
23              <asp:TextBox ID="fname" runat="server"></asp:TextBox>
24              <br />
25              <asp:Label ID="lblLN" runat="server" Text="Last name:"></asp:Label>
26              <asp:TextBox ID="lname" runat="server"></asp:TextBox>
27              <br />
28              <asp:Label ID="lblPhone" runat="server" Text="Phone number:"></asp:Label>
29              <asp:TextBox ID="phone" runat="server"></asp:TextBox>
30              <br />
31              <asp:Button ID="Button1" runat="server" Text="Submit" />
32          </div>
33      </form>
34  </body>
35  </html>
```

01Done.html

```
01Done.html  + x
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <meta charset="utf-8" />
5      <title>Filling out data success!</title>
6  </head>
7  <body>
8      <b>Thank you!</b>
9      <br>
10     Your data has been saved!
11 </body>
12 </html>
```

First name filling

localhost:64321/01FirstNameFilling.aspx

First name:

Last name:

Phone number:

First name filling

localhost:64321/01FirstNameFilling.aspx

First name:

Last name:

Phone number:

localhost:64321 says

First name has to be filled!

Filling out data success!

localhost:64321/01Done.html?_VIEWSTAT...

Thank you!

Your data has been saved!

First name filling

localhost:64321/01FirstNameFilling.aspx

First name:

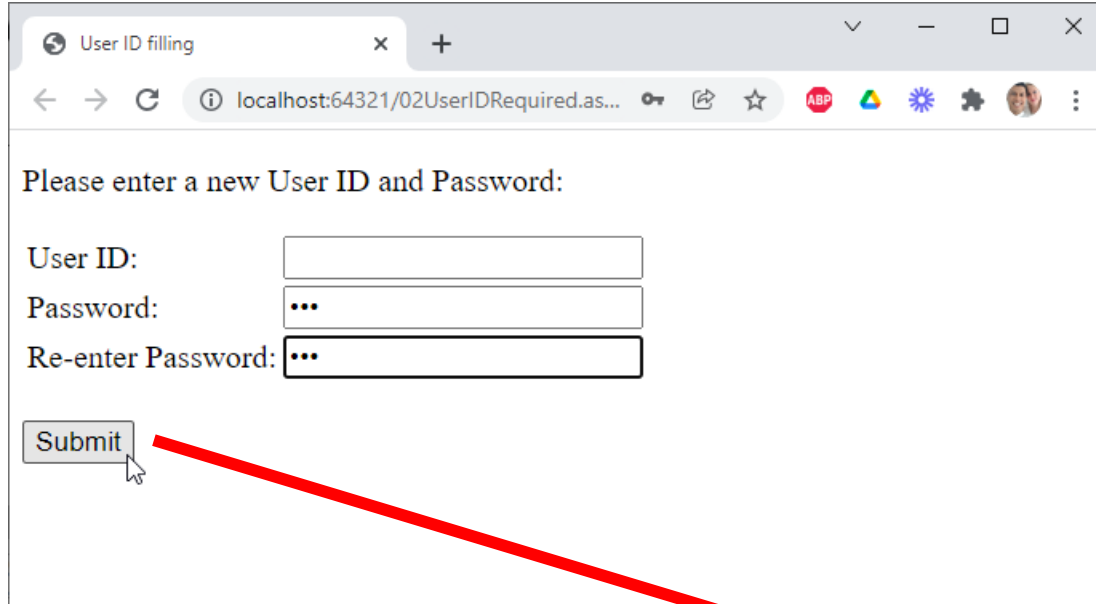
Last name:

Phone number:

02UserIDRequired.aspx

```
02UserIDRequired.aspx
1 <!DOCTYPE html>
2 <html>
3 <head>
4     <meta charset="utf-8" />
5     <title>User ID filling</title>
6 </head>
7 <body>
8     <form id="Form1" runat="server">
9         <p>Please enter a new User ID and Password:</p>
10        <table>
11            <tr>
12                <td>User ID:</td>
13                <td><input type="text" runat="server" id="txtID" />
14                    <asp:RequiredFieldValidator ID="RequiredFieldValidator1"
15                                            runat="server"
16                                            ControlToValidate=txtID
17                                            ErrorMessage="User ID is required.">
18                        *
19                    </asp:RequiredFieldValidator>
20                </td>
21            </tr>
22            <tr>
23                <td>Password:</td>
24                <td><input type="password" runat="server" id="txtPWord" /></td>
25            </tr>
26            <tr>
27                <td>Re-enter Password:</td>
28                <td><input type="password" runat="server" id="txtRePWord" /></td>
29            </tr>
30        </table><br>
31        <input type="submit" runat="server" id="cmdSubmit" value="Submit" />
32        <asp:ValidationSummary ID="ValidationSummary1" runat="server"
33                                HeaderText="There were errors on the page:" />
34    </form>
35 </body>
36 </html>
```

02UserIDRequired (Output)



User ID filling

Please enter a new User ID and Password:

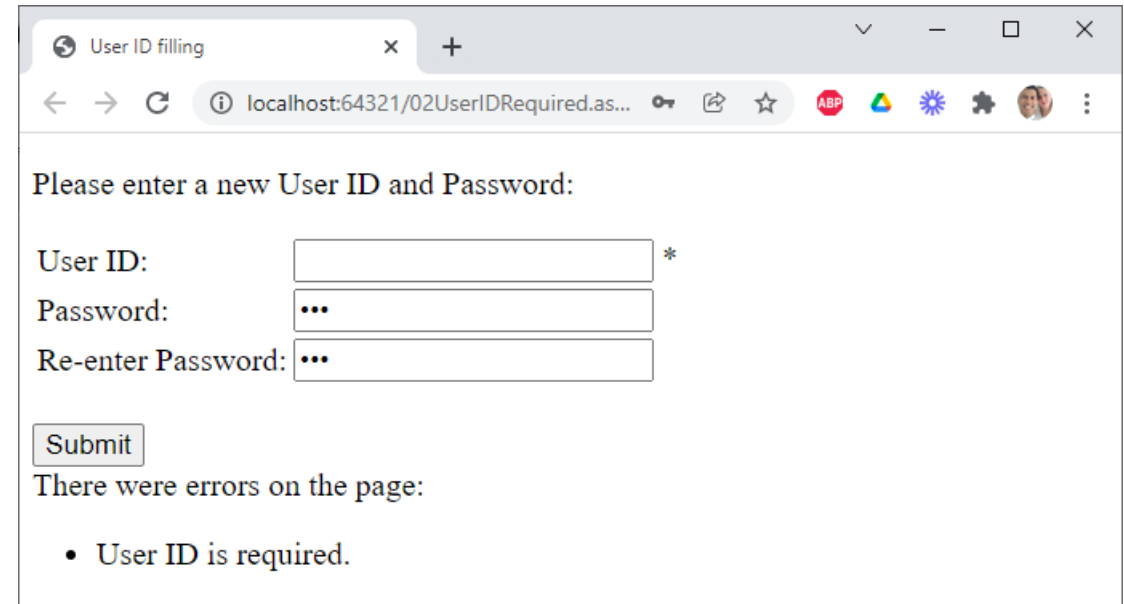
User ID:

Password:

Re-enter Password:

Submit

A red arrow points from the Submit button to the right-hand screenshot.



User ID filling

Please enter a new User ID and Password:

User ID: *

Password:

Re-enter Password:

Submit

There were errors on the page:

- User ID is required.

03PasswordsNotMatch.aspx

```
1 <!DOCTYPE html>
2
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5   <title>Password not match</title>
6 </head>
7 <body>
8   <form id="form1" runat="server">
9     <div>
10      <asp:Label ID="Label1" runat="server"
11        Text="Please enter a new User ID and Password"></asp:Label>
12      <br />
13      <asp:Label ID="Label2" runat="server" Text="User ID:"></asp:Label>
14      <asp:TextBox ID="txtID" runat="server"></asp:TextBox>
15      <br />
16      <asp:Label ID="Label3" runat="server" Text="Password"></asp:Label>
17      <asp:TextBox type="password" ID="txtPassword" runat="server"></asp:TextBox>
18      <br />
19      <asp:Label ID="Label4" runat="server" Text="Re-enter Password"></asp:Label>
20      <asp:TextBox type="password" ID="txtRePassword" runat="server"></asp:TextBox>
21      <br />
22      <br />
23      <asp:Button type="submit" ID="cmdSubmit" runat="server" Text="Submit" />
24    </div>
25    <asp:CompareValidator ID="CompareValidator1" runat="server"
26      ControlToValidate="txtRePassword"
27      ControlToCompare="txtPassword"
28      ErrorMessage="Passwords do not match." />
29  </form>
30 </body>
31 </html>
```

03PasswordsNotMatch.aspx

Password not match

Please enter a new User ID and Password

User ID:

Password

Re-enter Password

Passwords do not match.

04NumberMustEntered.aspx

```
04NumberMustEntered.aspx X  
1 <!DOCTYPE html>  
2  
3 <html xmlns="http://www.w3.org/1999/xhtml">  
4 <head>  
5     <title>Number input only</title>  
6 </head>  
7 <body>  
8     <form id="form1" runat="server">  
9         <div>  
10             <asp:Label ID="Label1" runat="server"  
11                 Text="Age (integer)"></asp:Label>  
12             &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&~  
13             <asp:TextBox ID="TextBox1" runat="server">  
14                 MaxLength="3"></asp:TextBox>  
15             <asp:CompareValidator id="CompareValidator1" runat="server">  
16                 ErrorMessage="You must enter a number (integer):"  
17                 ControlToValidate="TextBox1" Type="Integer"  
18                 Operator="DataTypeCheck"></asp:CompareValidator>  
19             <br />  
20             <asp:Button ID="Button1" runat="server" Text="Submit" />  
21         </div>  
22     </form>  
23 </body>  
24 </html>
```

Number input only

localhost:64321/04NumberMustEntered.aspx

Age (integer) You must enter a number (integer):

05GreaterThan18.aspx

```
05GreaterThan18.aspx - [X]
1  <!DOCTYPE html>
2
3  <html xmlns="http://www.w3.org/1999/xhtml">
4  <head>
5      <title>Older than 18</title>
6  </head>
7  <body>
8      <form id="form1" runat="server">
9          <div>
10             <asp:Label ID="Label1" runat="server"
11                 Text="Age (integer)"></asp:Label>
12             <asp:TextBox ID="TextBox1" runat="server"
13                 MaxLength="3"></asp:TextBox>
14             <asp:CompareValidator id="CompareValidator1" runat="server"
15                 Operator="GreaterThan" ValueToCompare="18"
16                 ControlToValidate="TextBox1"
17                 ErrorMessage="You must be older than 18"
18                 Type="Integer">
19             </asp:CompareValidator>
20             <br />
21             <asp:Button ID="Button1" runat="server" Text="Submit"/>
22         </div>
23     </form>
24 </body>
25 </html>
```

Older than 18

localhost:64321/05GreaterThan18.aspx

Age (integer) You must be older than 18

06Range30to40.aspx

```
06Range30to40.aspx - X
1 <!DOCTYPE html>
2
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5   <title>30 to 40 range</title>
6 </head>
7 <body>
8   <form id="form1" runat="server">
9     <div>
10      <asp:Label ID="Label1" runat="server"
11        Text="Age (integer)"></asp:Label>
12      <asp:TextBox ID="TextBox1" runat="server"
13        MaxLength="3"></asp:TextBox>
14      <asp:RangeValidator id="RangeValidator1" runat="server"
15        ControlToValidate="TextBox1" Type="Integer"
16        ErrorMessage="You must be between 30 and 40"
17        MaximumValue="40" MinimumValue="30">
18      </asp:RangeValidator>
19      <br />
20      <asp:Button ID="Button1" runat="server" Text="Submit"/>
21    </div>
22  </form>
23 </body>
24 </html>
```

30 to 40 range

localhost:64321/06Range30to40.aspx

Age (integer) You must be between 30 and 40

07CodeRange.aspx

```
07CodeRange.aspx
1 <!DOCTYPE html>
2
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5     <title>Code filling</title>
6 </head>
7 <body>
8     <form id="form1" runat="server">
9         <div>
10             <asp:Label ID="Label1" runat="server" Text="Your code (A-Z):"></asp:Label>
11             <asp:TextBox ID="TextBox1" Width="15" runat="server"
12                 MaxLength="1"></asp:TextBox>
13             <asp:RangeValidator id="RangeValidator1" runat="server"
14                 ControlToValidate="TextBox1"
15                 ErrorMessage="Your code needs to be between A and D"
16                 MaximumValue="D" MinimumValue="A">
17             </asp:RangeValidator>
18             <br />
19             <asp:Button ID="Button1" runat="server" Text="Submit"/>
20         </div>
21     </form>
22 </body>
23 </html>
```

Code filling

localhost:64321/07CodeRange.aspx

Your code (A-Z): Your code needs to be between A and D

08PasswordsRegEx.aspx

```
08PasswordsRegEx.aspx
1 <!DOCTYPE html>
2
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5   <title>RegEx for password</title>
6 </head>
7 <body>
8   <form id="form1" runat="server">
9     <div>
10       <asp:Label ID="Label1" runat="server"
11         Text="Please enter a new User ID and Password"></asp:Label>
12       <br />
13       <br />
14       <asp:Label ID="Label2" runat="server" Text="User ID:"></asp:Label>
15       <asp:TextBox ID="txtID" runat="server"></asp:TextBox>
16       <asp:RegularExpressionValidator ID="RegularExpressionValidator1"
17         runat="server"
18         ControlToValidate="txtID"
19         ErrorMessage="ID must be 6-10 letters."
20         ValidationExpression="[a-zA-Z]{6,10}" />
21     <br />
22     <asp:Label ID="Label3" runat="server" Text="Password:"></asp:Label>
23     <asp:TextBox type="password" ID="txtPassword" runat="server"></asp:TextBox>
24     <asp:RegularExpressionValidator ID="RegularExpressionValidator3"
25       runat="server"
26       display="Dynamic"
27       ControlToValidate="txtPassword"
28       ErrorMessage="Password must be 4-12 nonblank characters."
29       ValidationExpression="[^\s]{4,12}" />
```

RegEx for password

Please enter a new User ID and Password

User ID:

Password: Password must contain one of @#%&*./.

Password must be 4-12 nonblank characters.

Re-enter Password:

```
30 <asp:RegularExpressionValidator ID="RegularExpressionValidator2"
31   runat="server"
32   display="Dynamic"
33   ControlToValidate="txtPassword"
34   ErrorMessage="Password must contain one of @#%&*./."
35   ValidationExpression=".*[@#%&*./].*" />
36 <!-- If TextBox is empty the RegularExpressionValidator doesn't works.
37   So, we need to use the RequiredFieldValidator, too. -->
38 <asp:RequiredFieldValidator ID="RequiredFieldValidator1"
39   runat="server" ControlToValidate="txtPassword"
40   Display="Dynamic" ErrorMessage="Password should not be blank." />
41 <br />
42 <asp:Label ID="Label4" runat="server" Text="Re-enter Password:"></asp:Label>
43 <asp:TextBox type="password" ID="txtRePassword" runat="server"></asp:TextBox>
44 <br />
45 <br />
46 <asp:Button type="submit" ID="cmdSubmit" runat="server" Text="Submit" />
47 </div>
48 </form>
49 </body>
50 </html>
```

09EmailRegEx.aspx

```
1 <!DOCTYPE html>
2
3 <html xmlns="http://www.w3.org/1999/xhtml">
4 <head>
5   <title>RegEx for email</title>
6 </head>
7 <body>
8   <form id="form1" runat="server">
9     <div>
10      <asp:Label ID="Label1" runat="server" Text="Email:"></asp:Label>
11      <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
12      <asp:RegularExpressionValidator
13        id="RegularExpressionValidator1" runat="server"
14        ControlToValidate="TextBox1"
15        ErrorMessage="You must enter an email address"
16        ValidationExpression="\w+([-+.]\w+)*@\w+([-.]\w+)*\.\w+([-+.\w+)*">
17    </asp:RegularExpressionValidator>
18    <!-- If TextBox is empty the RegularExpressionValidator doesn't works.
19         So, we need to use the RequiredFieldValidator, too. -->
20    <asp:RequiredFieldValidator ID="RequiredFieldValidator1"
21      runat="server" ControlToValidate="TextBox1"
22      Display="Dynamic" ErrorMessage="Email address should not be blank" />
23    <br />
24    <asp:Button ID="Button1" runat="server" Text="Submit" />
25    </div>
26  </form>
27 </body>
28 </html>
```

24.05.2023

RegEx for email

localhost:64321/09EmailRegEx.aspx

Email: 1234 You must enter an email address

Submit

RegEx for email

localhost:64321/09EmailRegEx.aspx

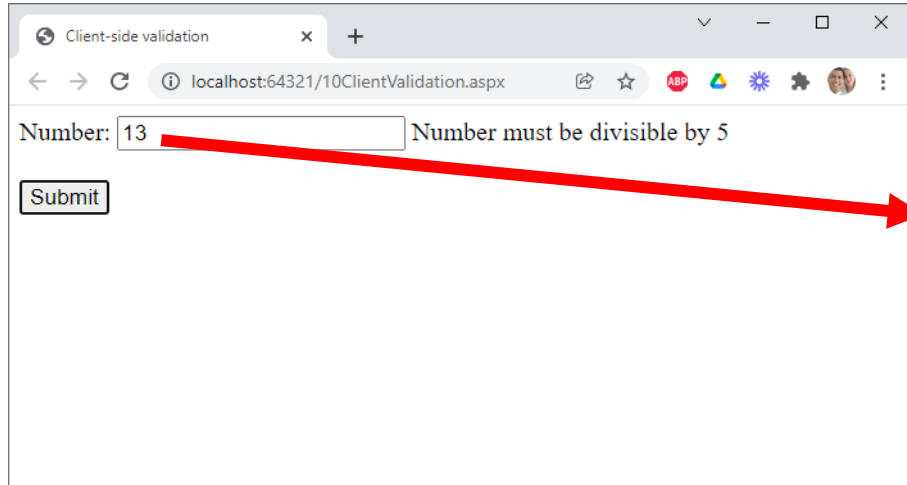
Email: 1234@1234.com

Submit

10ClientValidation.aspx

```
10ClientValidation.aspx
1 <%@ Page Language="C#" %>
2 <!DOCTYPE html>
3
4 <html xmlns="http://www.w3.org/1999/xhtml">
5 <head>
6     <title>Client-side validation</title>
7     <script runat="server">
8         void Button1_Click(Object sender, EventArgs e) {
9             if (Page.IsValid) {
10                 Label2.Text = "Valid number!";
11             } else {
12                 Label2.Text = "Invalid number!";
13             }
14         }
15     </script>
16     <script type="text/JavaScript">
17         function validateNumber(oSrc, args) {
18             args.IsValid = (args.Value % 5 == 0);
19         }
20     </script>
21 </head>
22 <body>
23     <form id="form1" runat="server">
24         <div>
25             <asp:Label ID="Label1" runat="server" Text="Number:"></asp:Label>
26             <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
27             <asp:CustomValidator id="CustomValidator1"
28                 runat="server" ControlToValidate="TextBox1"
29                 ErrorMessage="Number must be divisible by 5"
30                 ClientValidationFunction="validateNumber">
31             </asp:CustomValidator>
32             <br />
33             <asp:Label ID="Label2" runat="server"></asp:Label>
34             <br />
35             <asp:Button ID="Button1" runat="server" Text="Submit"
36                 onclick="Button1_Click"/>
37         </div>
38     </form>
39 </body>
40 </html>
```

10ClientValidation (Output)



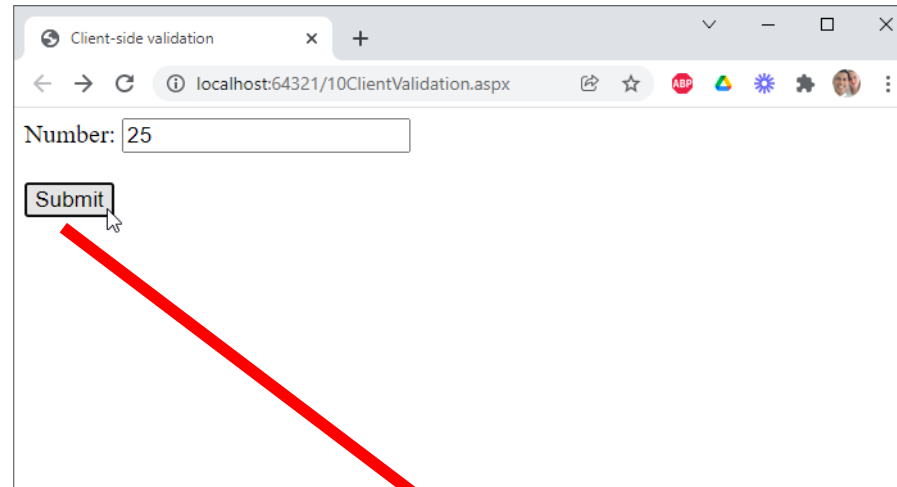
Client-side validation

localhost:64321/10ClientValidation.aspx

Number: 13 Number must be divisible by 5

Submit

A red arrow points from the 'Submit' button to the next screenshot.



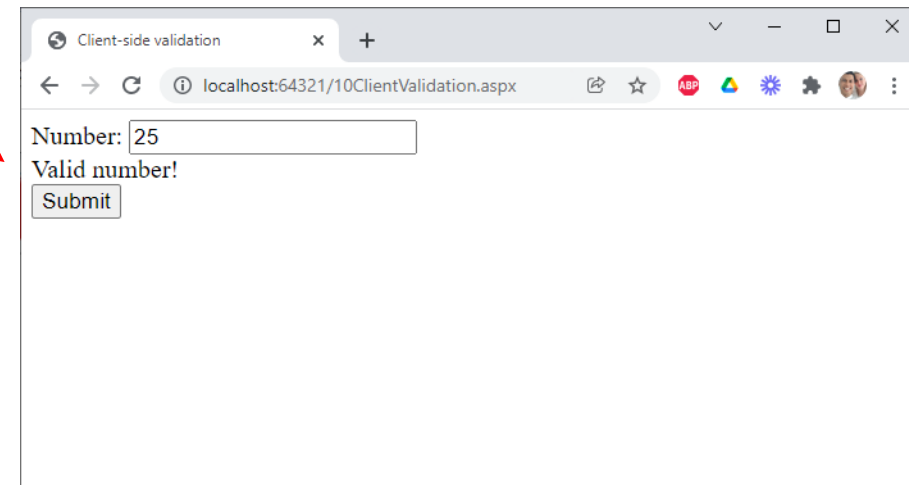
Client-side validation

localhost:64321/10ClientValidation.aspx

Number: 25

Submit

A red arrow points from the 'Submit' button to the next screenshot.



Client-side validation

localhost:64321/10ClientValidation.aspx

Number: 25
Valid number!

Submit

11ServerValidation.aspx

```
11ServerValidation.aspx
1 <%@ Page Language="C#" %>
2 <!DOCTYPE html>
3
4 <html xmlns="http://www.w3.org/1999/xhtml">
5 <head runat="server">
6     <title>Server-side validation</title>
7     <script runat="server">
8         void Button1_Click(Object sender, EventArgs e) {
9             if (Page.IsValid) {
10                 Label2.Text = "Valid entry!";
11             } else {
12                 Label2.Text = "Invalid entry!";
13             }
14         }
15         void ValidateNumber(object source, ServerValidateEventArgs args) {
16             try {
17                 int num = int.Parse(args.Value);
18                 args.IsValid = ((num % 5) == 0);
19             } catch (Exception ex) {
20                 args.IsValid = false;
21             }
22         }
23     </script>
24 </head>
25 <body>
26     <form id="form1" runat="server">
27         <div>
28             <asp:Label ID="Label1" runat="server" Text="Number:"></asp:Label>
29             <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
30             <asp:CustomValidator id="CustomValidator1"
31                 runat="server" ControlToValidate="TextBox1"
32                 ErrorMessage="Number must be divide 5"
33                 OnServerValidate="ValidateNumber">
34             </asp:CustomValidator>
35             <br />
36             <asp:Label ID="Label2" runat="server"></asp:Label>
37             <br />
38             <asp:Button ID="Button1" runat="server" Text="Submit"
39                 onclick="Button1_Click"/>
40         </div>
41     </form>
42 </body>
43 </html>
```


11ServerValidation (Output)

Server-side validation

localhost:64321/11ServerValidation.aspx

Number:

Server-side validation

localhost:64321/11ServerValidation.aspx

Number: Number must be divide 5

Invalid entry!

Server-side validation

localhost:64321/11ServerValidation.aspx

Number: Number must be divide 5

Invalid entry!

Server-side validation

localhost:64321/11ServerValidation.aspx

Number:

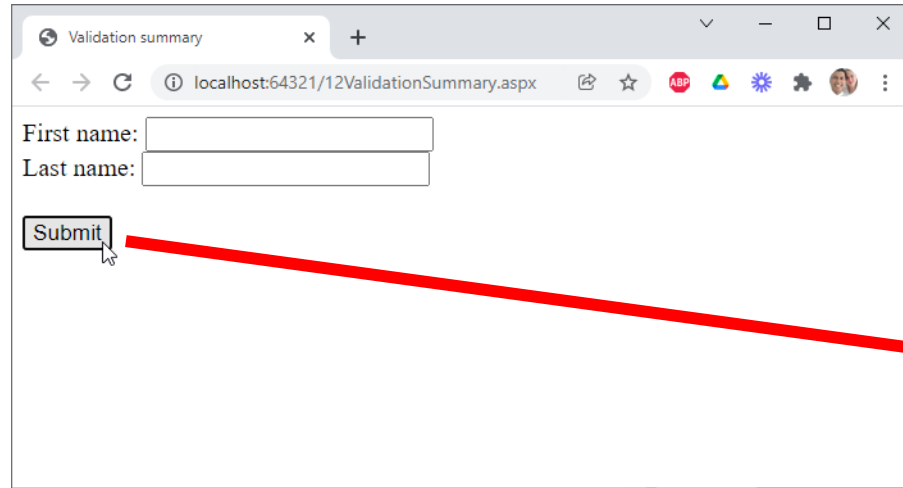
Valid entry!

12ValidationSummary.aspx

```
12ValidationSummary.aspx
1 <%@ Page Language="C#" %>
2 <!DOCTYPE html>
3
4 <html xmlns="http://www.w3.org/1999/xhtml">
5 <head runat="server">
6 <title>Validation summary</title>
7 <script runat="server">
8     void Button1_Click(Object sender, EventArgs e) {
9         if (Page.IsValid) {
10             Label3.Text = "Valid entry!";
11         } else {
12             Label3.Text = "Invalid entry!";
13         }
14     }
15 </script>
16 </head>
```

```
17 <body>
18 <form id="form1" runat="server">
19 <div>
20 <asp:Label ID="Label1" runat="server" Text="First name:"></asp:Label>
21 <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
22 <asp:RequiredFieldValidator id="RequiredFieldValidator1"
23     runat="server"
24     ErrorMessage="You must enter your first name"
25     ControlToValidate="TextBox1">
26 </asp:RequiredFieldValidator>
27 <br />
28 <asp:Label ID="Label2" runat="server" Text="Last name:"></asp:Label>
29 <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>
30 <asp:RequiredFieldValidator id="RequiredFieldValidator2"
31     runat="server"
32     ErrorMessage="You must enter your last name"
33     ControlToValidate="TextBox2">
34 </asp:RequiredFieldValidator>
35 <br />
36 <br />
37 <asp:Button ID="Button1" runat="server" Text="Submit"
38     onclick="Button1_Click"/>
39 <br />
40 <asp:Label ID="Label3" runat="server"></asp:Label>
41 <asp:ValidationSummary id="ValidationSummary1"
42     runat="server"
43     HeaderText="You received the following errors:">
44 </asp:ValidationSummary>
45 </div>
46 </form>
47 </body>
48 </html>
```

12ValidationSummary (Output)

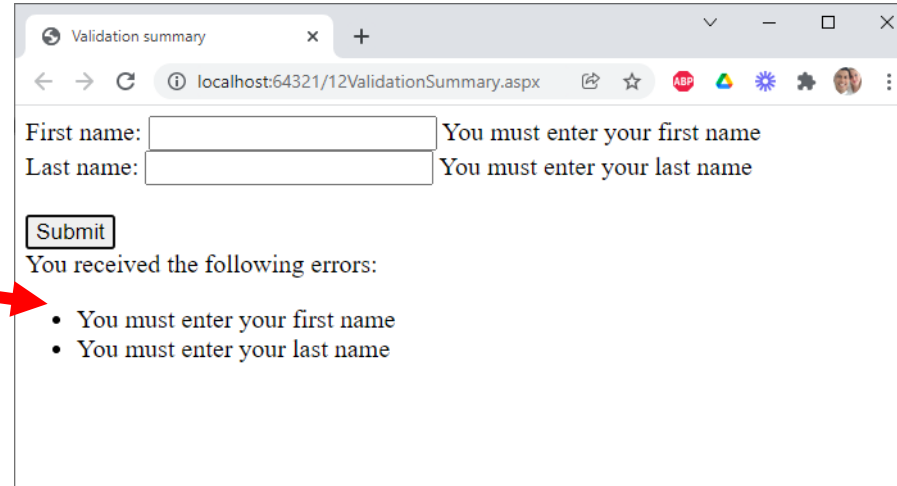


Validation summary

localhost:64321/12ValidationSummary.aspx

First name:

Last name:



Validation summary

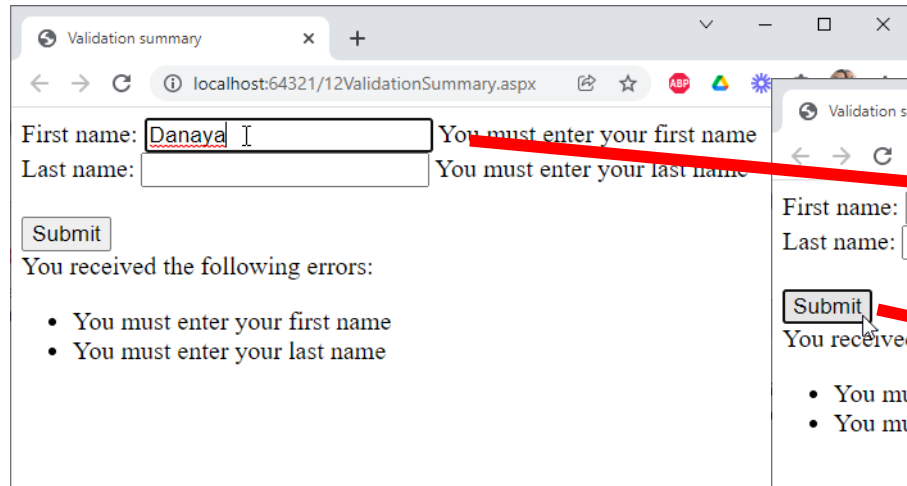
localhost:64321/12ValidationSummary.aspx

First name: You must enter your first name

Last name: You must enter your last name

You received the following errors:

- You must enter your first name
- You must enter your last name



Validation summary

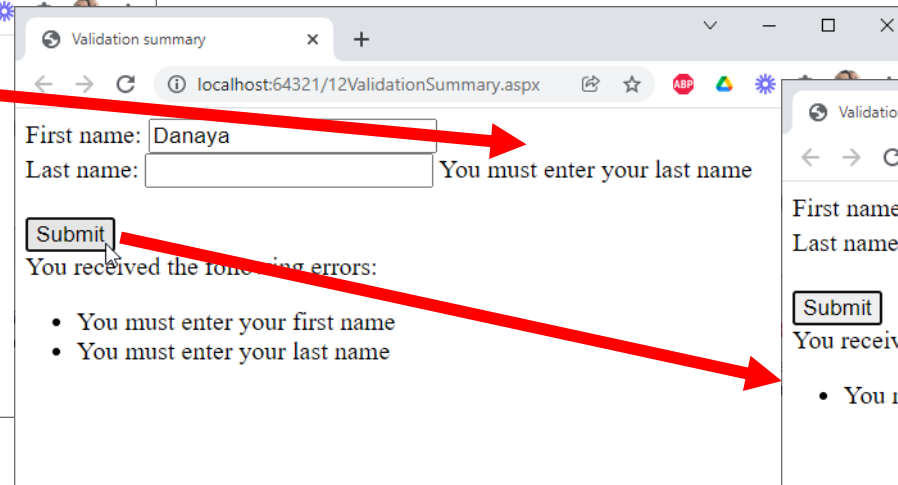
localhost:64321/12ValidationSummary.aspx

First name: You must enter your first name

Last name: You must enter your last name

You received the following errors:

- You must enter your first name
- You must enter your last name



Validation summary

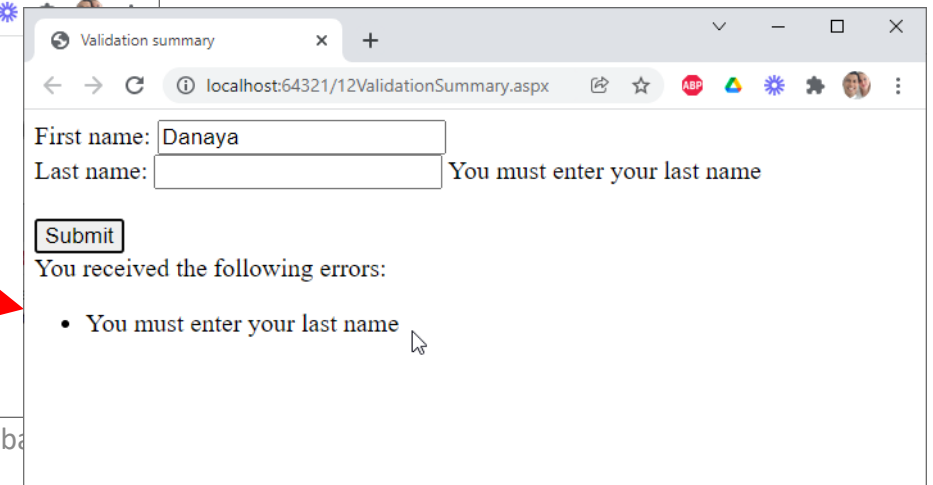
localhost:64321/12ValidationSummary.aspx

First name: You must enter your first name

Last name: You must enter your last name

You received the following errors:

- You must enter your first name
- You must enter your last name



Validation summary

localhost:64321/12ValidationSummary.aspx

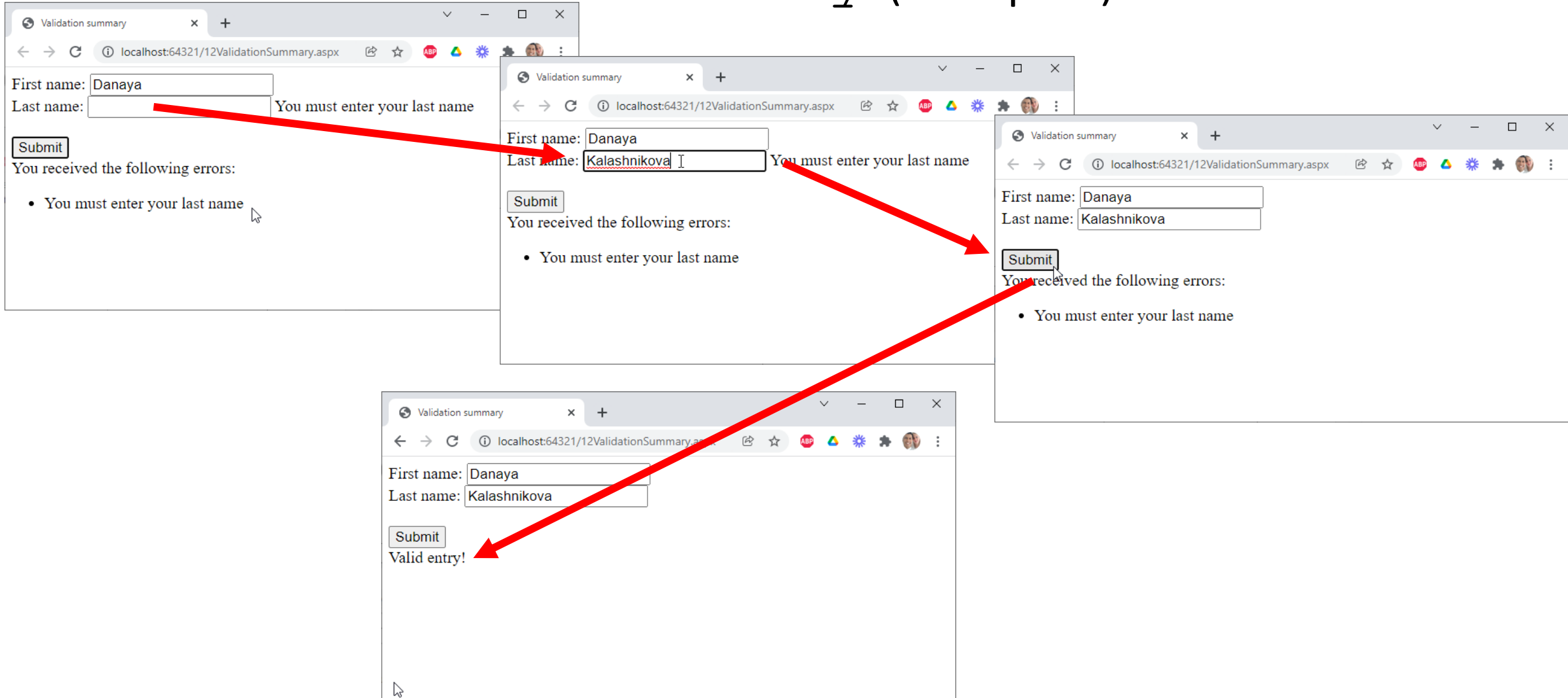
First name: You must enter your first name

Last name: You must enter your last name

You received the following errors:

- You must enter your last name

12ValidationSummary (Output)



User control: Definition

- Aside using Web server control in ASP.NET Web pages, we can build our own control, namely `user control`.
- A user control can be used by similar technique as in building ASP.NET Web pages.
- A user control is composite control works as ASP.NET Web control.
- This control can be embedded in ASP.NET Web pages, used as an unit.

User control: Building

- How to build a user control?
 - Rename the control's name so that its extension become `.ascx`
 - Delete all element codes: `HTML`, `body` and `form`
 - Rename `page` directive (`@Page`) to `control` directive (`@Control`)
 - Delete all attributes in `@Control` directive except: `Language`, `AutoEventWireup` (if exists), `CodeFile` and `Inherits`
 - Insert the attribute `className` in `@Control` directive, so that a user control follows typing guidance of its respective class

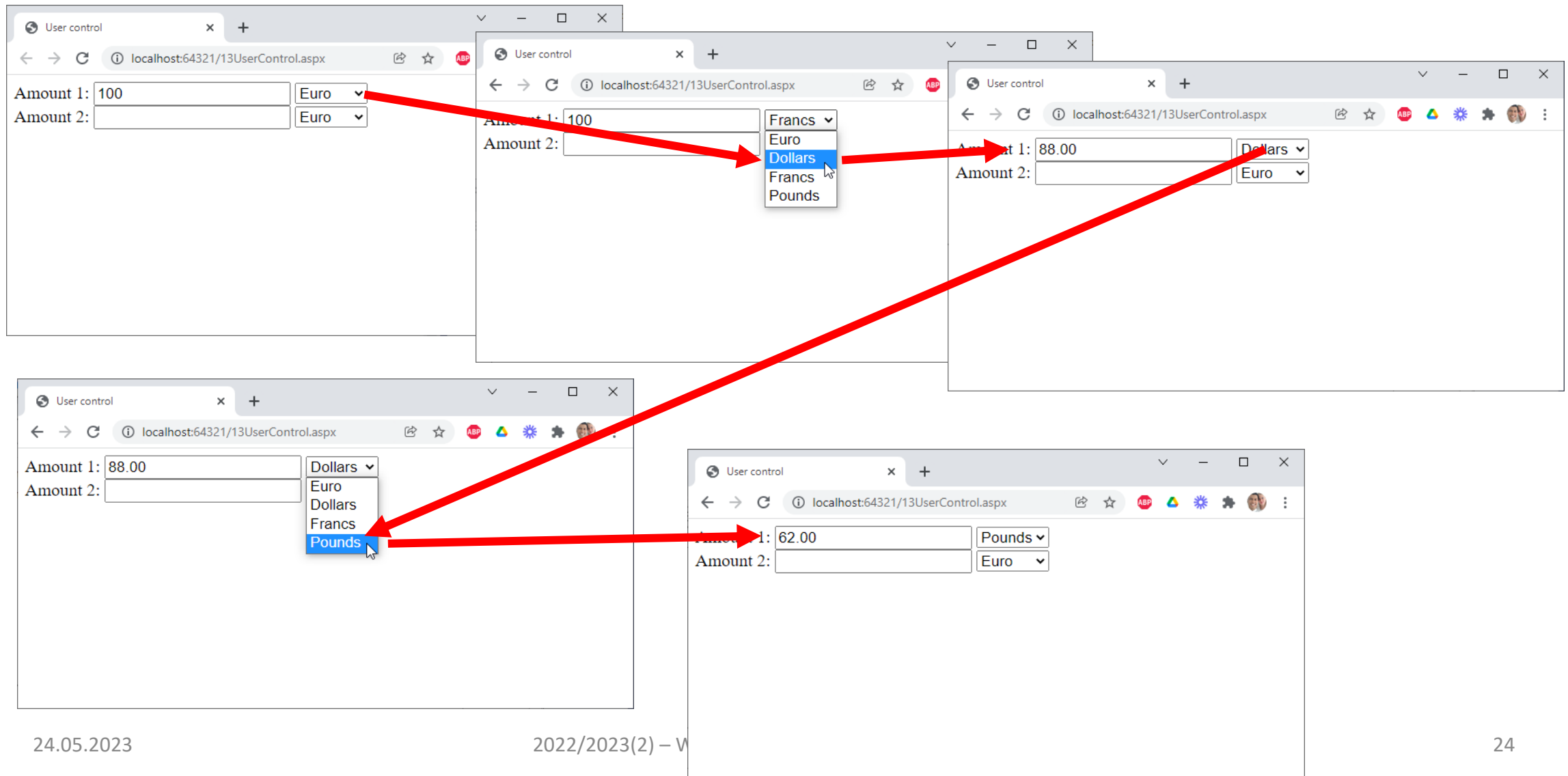
13 UserControl.aspx

```
13UserControl.aspx  X
1 <%@ Page Language="C#" AutoEventWireup="true" %>
2 <%@ Register TagPrefix="my"
3     TagName="MoneyField"
4     Src="MoneyField.ascx" %>
5
6 <!DOCTYPE html>
7
8 <html xmlns="http://www.w3.org/1999/xhtml">
9 <head runat="server">
10 <title>User control</title>
11 </head>
12 <body>
13 <form id="form1" runat="server">
14 <div>
15     Amount 1: <my:MoneyField ID="field1" Text="100"
16         Runat="server" /><br>
17     Amount 2: <my:MoneyField ID="field2"
18         Runat="server" />
19 </div>
20 </form>
21 </body>
22 </html>
```

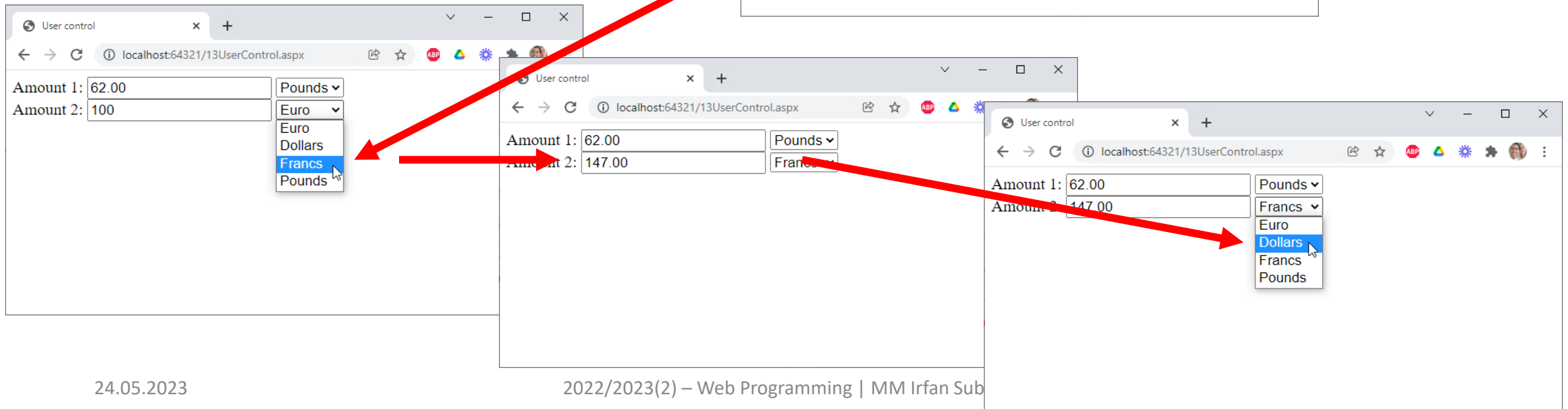
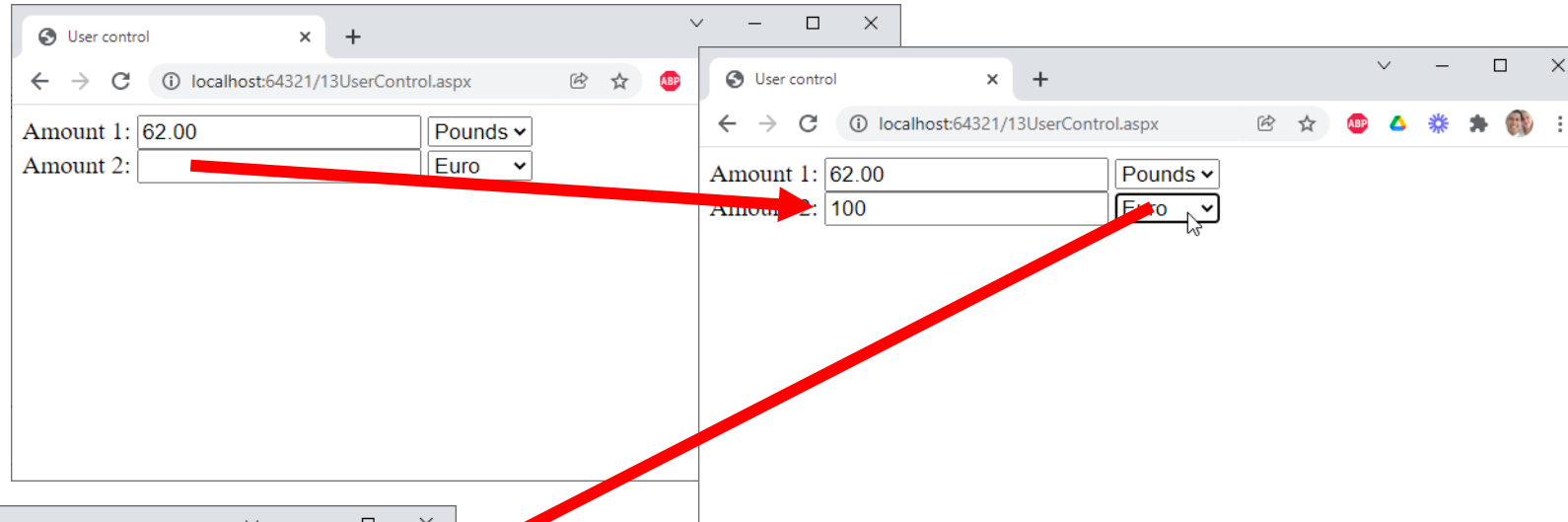
```
MoneyField.ascx  X
1 <%@ Control Language="C#"
2     AutoEventWireup="true"
3     CodeFile="MoneyField.ascx.cs"
4     Inherits="MoneyField" %>
5 <asp:TextBox ID="amount" Runat="server" />
6 <asp:DropDownList ID="currency" AutoPostBack="true"
7     OnSelectedIndexChanged="Select" Runat="server">
8 <asp:ListItem Text="Euro" Value="1.0" Selected="true" />
9 <asp:ListItem Text="Dollars" Value="0.88" />
10 <asp:ListItem Text="Francs" Value="1.47" />
11 <asp:ListItem Text="Pounds" Value="0.62" />
12 </asp:DropDownList>
```

```
MoneyField.ascx.cs  X
97_MoneyField.ascx  MoneyField
1 using System;
2 using System.Collections.Generic;
3 using System.Linq;
4 using System.Web;
5 using System.Web.UI;
6 using System.Web.UI.WebControls;
7
8 public partial class MoneyField : System.Web.UI.UserControl {
9     public string Text {
10         get { return amount.Text; }
11         set { amount.Text = value; }
12     }
13     private double OldRate {
14         get {
15             return
16                 ViewState["rate"] == null ? 1 : (double)ViewState["rate"];
17         }
18         set {
19             ViewState["rate"] = value;
20         }
21     }
22     public void Select(object sender, EventArgs arg) {
23         try {
24             double val = Convert.ToDouble(amount.Text);
25             double newRate = Convert.ToDouble(currency.SelectedItem.Value);
26             double newVal = val / OldRate * newRate;
27             amount.Text = newVal.ToString("F2");
28             OldRate = newRate;
29         } catch (Exception) {
30             amount.Text = "0";
31         }
32     }
33 }
```

13UserController (Output)



13UserController (Output)



13UserController (Output)

