

# Silverlight 4 Using Visual Basic 2010

## Table of Contents

INTRODUCTION .....	INTRO-1
Prerequisites .....	INTRO-2
Installing the Practice Files .....	INTRO-3
Software Requirements .....	INTRO-3
Sample Databases.....	INTRO-3
Security .....	INTRO-4
Installation.....	INTRO-5
About the Authors .....	INTRO-6
GETTING STARTED .....	1-1
Introducing Silverlight .....	1-2
Evolution of Silverlight.....	1-3
Getting Started with Silverlight.....	1-4
WPF vs. Silverlight.....	1-6
An Inconvenient Truth (or Two) .....	1-6
Silverlight and XAML.....	1-7
Introducing XAML and the Silverlight Designer .....	1-8
Your First Silverlight Application .....	1-8
Investigating XAML.....	1-21
Simple Properties and Type Converters .....	1-21
Complex Properties .....	1-22
Markup Extensions .....	1-24
Attached Properties .....	1-26
Introducing Content and Grid Controls .....	1-28
Working with Content Controls .....	1-28
List Box as a Container.....	1-36
Working with the Grid Control.....	1-39
Placing Controls onto the Grid .....	1-45
Running Out of Browser.....	1-52
Try It Out! .....	1-53
LAB 1: GETTING STARTED .....	1-59
Lab 1 Overview.....	1-60
Create the User Interface .....	1-62
Add Puzzle Behavior .....	1-66
Shuffle the Puzzle.....	1-70

---

*Table of Contents*

LAYOUT .....	2-1
Layout in Silverlight.....	2-2
Layout in Windows Forms.....	2-2
Layout in Web Forms.....	2-4
The Silverlight Layout System .....	2-4
Using the StackPanel .....	2-8
Using the WrapPanel.....	2-20
Using the DockPanel .....	2-24
Example 4: DockPanel.Dock .....	2-28
Example 5: DockPanel.Dock .....	2-29
Nesting Containers .....	2-31
Using the Grid.....	2-38
Using the Canvas .....	2-52
LAB 2: LAYOUT .....	2-59
Lab 2 Overview.....	2-60
Using the StackPanel .....	2-61
Using the DockPanel .....	2-67
Using the Grid.....	2-74
SIMPLE CONTROLS .....	3-1
The Simplest Controls .....	3-2
Border Control.....	3-3
Working with LinearGradientBrush .....	3-5
Button Control .....	3-7
CheckBox Control .....	3-9
RadioButton Control.....	3-12
Text Entry Controls .....	3-16
TextBlock Control.....	3-16
TextBox Control .....	3-19
PasswordBox Control .....	3-21
Date Entry Controls .....	3-23
Calendar Control.....	3-23
DatePicker Control.....	3-26
Miscellaneous Controls.....	3-28
Slider Control .....	3-28
ProgressBar Control .....	3-29
MediaElement Control .....	3-30

LAB 3: SIMPLE CONTROLS.....	3-35
Lab 3 Overview.....	3-36
Work with Border, RadioButton, DatePicker, and TextBlock Controls .....	3-37
Work with TextBox, Slider, and CheckBox Controls.....	3-43
ADVANCED CONTROLS.....	4-1
List Controls.....	4-2
ListBox .....	4-2
ComboBox .....	4-21
TreeView.....	4-31
Layout Controls.....	4-42
ScrollViewer .....	4-42
Headered Content Controls .....	4-45
LAB 4: ADVANCED CONTROLS.....	4-55
Lab 4 Overview.....	4-56
Display Items in a Combo Box and List Box.....	4-57
Display Items in a TreeView .....	4-64
Use the ScrollViewer and Expander Controls.....	4-69
RESOURCES AND STYLES .....	5-1
Introducing XAML Resources .....	5-2
The Resources Dictionary.....	5-2
Hierarchy of Resources .....	5-4
Modifying Resources in Code .....	5-11
Organizing Resources Using a Resource Dictionary .....	5-13
Introducing XAML Styles .....	5-17
Creating a Simple Style .....	5-17
Dynamic Styles .....	5-21
Style Inheritance .....	5-26
LAB 5: RESOURCES AND STYLES.....	5-33
Lab 5 Overview.....	5-34
Add Resources .....	5-35
Add Styles.....	5-39
NAVIGATION .....	6-1
Navigation in Applications.....	6-2
Hyperlinks and Uniform Resource Identifiers.....	6-10

---

*Table of Contents*

The Navigation Service.....	6-17
URI Mapping .....	6-22
Hosting Pages in Pages.....	6-25
Silverlight Navigation Applications.....	6-29
 LAB 6: NAVIGATION.....	6-37
Lab 6 Overview.....	6-38
Use the Navigation Application Template .....	6-39
Navigate in XAML and in Code.....	6-43
Host Pages in Pages .....	6-50
 BINDING.....	7-1
Introducing Binding .....	7-2
Connecting Sources and Targets .....	7-2
A Few Simple Examples .....	7-3
A Simple Example.....	7-8
Working with Type Converters.....	7-10
Using the StringFormat Property .....	7-10
Using a Type Converter .....	7-12
Binding Lists and Data Templates .....	7-20
Filling the List and Displaying the Data.....	7-21
Another Data Template Example .....	7-26
Using Binding and Data Templates .....	7-36
Creating the Data Source .....	7-36
Displaying a List of Colors .....	7-37
Binding Colors.....	7-39
Displaying the Color Rectangle.....	7-40
 LAB 7: BINDING.....	7-45
Lab 7 Overview.....	7-46
Set Up Data Binding .....	7-47
Add the Data Template.....	7-51
 WORKING WITH DATA .....	8-1
Data Binding .....	8-2
Binding to an Object.....	8-3
Data Source Options in Silverlight .....	8-7
Binding to a WCF Service .....	8-8
Binding to a List of Customers .....	8-17
Binding to One Customer.....	8-23

Displaying Related Data .....	8-25
Data Entry .....	8-31
Using the CollectionViewSource.....	8-36
Navigating .....	8-39
Sorting and Filtering.....	8-40
Drag and Drop Data Binding.....	8-41
<b>LAB 8: WORKING WITH DATA .....</b>	<b>8-53</b>
Lab 8 Overview.....	8-54
Display Customers.....	8-55
Add Navigation, Sorting, and Filtering .....	8-70
Add Data Modification Capabilities .....	8-77
Display Orders for Each Customer .....	8-86
<b>ADVANCED DATA CONTROLS .....</b>	<b>9-1</b>
<b>DataGrid .....</b>	<b>9-2</b>
Simple DataGrids.....	9-2
Show Row Details.....	9-13
Working with DataGrids in Code.....	9-17
Drag and Drop Data Binding .....	9-25
Grouping, Sorting, and Filtering .....	9-32
Data Entry .....	9-41
<b>DataForm.....</b>	<b>9-48</b>
<b>DataPager.....</b>	<b>9-66</b>
<b>LAB 9: ADVANCED DATA CONTROLS .....</b>	<b>9-75</b>
Lab 9 Overview.....	9-76
Display Orders in a DataGrid.....	9-77
Grouping Orders and Adding Row Details.....	9-85
<b>SHAPES AND GEOMETRIES .....</b>	<b>10-1</b>
Working with Shapes .....	10-2
Investigating Basic Shapes.....	10-2
The Shape Class .....	10-3
Rectangle and Ellipse Shapes .....	10-4
The Line Shape.....	10-13
The Polyline Shape .....	10-21
The Polygon Shape .....	10-24
Digging Deeper: Using Paths and Geometries.....	10-29
EllipseGeometry, LineGeometry, and RectangleGeometry ....	10-30

---

*Table of Contents*

Using the GeometryGroup Element.....	10-32
Creating Curves and Lines with PathGeometry .....	10-35
Geometry Mini-Language .....	10-45
<b>LAB 10: SHAPES AND GEOMETRIES.....</b>	<b>10-51</b>
Lab 10 Overview.....	10-52
Create a Polygon with a Dashed Border .....	10-53
Draw a Bezier Curve with Its Control Points.....	10-59
<b>BRUSHES AND TRANSFORMS .....</b>	<b>11-1</b>
Working with Brushes .....	11-2
SolidColorBrush Class .....	11-3
LinearGradientBrush Class.....	11-8
RadialGradientBrush Class.....	11-16
ImageBrush Class.....	11-21
Using Transparency.....	11-25
Using OpacityMask .....	11-27
Transforms.....	11-31
Repeating Shapes .....	11-33
Transforming Shapes.....	11-33
Avoiding Absolute Coordinates .....	11-39
Transforming a FrameworkElement.....	11-41
Adding Reflection Effects.....	11-42
<b>LAB 11: BRUSHES AND TRANSFORMS.....</b>	<b>11-49</b>
Lab 11 Overview.....	11-50
Work with Brushes.....	11-51
Work with Transforms.....	11-58
<b>DEPLOYMENT .....</b>	<b>12-1</b>
Deploy Silverlight Applications.....	12-2
Deploy a Silverlight Application.....	12-3
Explore the Web Page that Hosts the Application .....	12-10
Assembly Caching .....	12-14
Deploy Out-of-Browser Applications .....	12-19
Customize the Silverlight Installation Experience .....	12-36
<b>LAB 12: DEPLOYMENT .....</b>	<b>12-55</b>
Lab 12 Overview.....	12-56
Deploy a Silverlight Application .....	12-57
Configure Assembly Caching .....	12-64

Deploy an Out-of-Browser Application.....	12-69
<b>USING EXPRESSION BLEND .....</b>	<b>13-1</b>
Why Use Expression Blend? .....	13-2
Working with Expression Blend .....	13-4
Obtaining Expression Blend.....	13-4
Getting Started.....	13-5
Document Views .....	13-7
Workspaces .....	13-8
The Blend Toolbar .....	13-8
Expression Blend's Designer Panels.....	13-33
The Objects and Timeline Panel.....	13-33
The Projects Panel.....	13-40
Integrating Expression Blend and Visual Studio .....	13-41
The Properties Panel .....	13-43
Element to Element Binding.....	13-59
What's Next?.....	13-63
<b>LAB 13: USING EXPRESSION BLEND .....</b>	<b>13-67</b>
Lab 13 Overview .....	13-68
Create the Puzzle .....	13-69
Add Code to the Puzzle .....	13-74
Add a Resource .....	13-80
<b>INTRODUCING ANIMATION .....</b>	<b>14-1</b>
Getting Started.....	14-2
Understanding Animation.....	14-2
Simple Animations .....	14-4
Digging Deeper into Animations .....	14-10
Starting an Animation Using Code.....	14-10
Using the ColorAnimation Class .....	14-11
Using the PointAnimation Class.....	14-15
Animation with Key Frames .....	14-16
Animation Properties.....	14-21
More Advanced Animation Issues .....	14-27
Controlling Playback .....	14-27
Easing Functions .....	14-28
Animating Brushes .....	14-33
Animating Transforms.....	14-36
Creating Animations in Blend.....	14-37

---

*Table of Contents*

LAB 14: INTRODUCING ANIMATION .....	14-48
Lab 14 Overview.....	14-49
Animate a Rectangle—Move Onscreen During Load.....	14-50
Add a Color Animation During Load .....	14-53
Use Expression Blend to Add Motion and Key Frames.....	14-55
ADDITIONAL DATA TECHNIQUES.....	15-1
Isolated Storage.....	15-2
Explore the Basics of Isolated Storage .....	15-3
Working with Directories and Files.....	15-10
Saving Application Settings .....	15-18
Saving Data as XML .....	15-20
WCF Data Services .....	15-23
Build and Data Bind to a WCF Data Service .....	15-25
Explore the Sample Application .....	15-39
LAB 15: ADDITIONAL DATA TECHNIQUES .....	15-70
Lab 15 Overview.....	15-71
Work with Products Using a WCF Data Service.....	15-72
Store Data Locally with Isolated Storage.....	15-92
NETWORKING.....	16-1
Make Cross-Domain Calls .....	16-2
Use WebClient to Retrieve Data from Web Sites .....	16-20
WCF and REST .....	16-21
Create a Blog Reader .....	16-32
LAB 16: NETWORKING .....	16-45
Lab 16 Overview.....	16-46
Use WebClient to Call a RESTful WCF Service.....	16-47
Use WebClient to Create a Blog Reader .....	16-60
INDEX.....	INDEX-1