

Microsoft Visual Basic 2005: Developing Applications

Additional Topics

Table of Contents

INTRODUCTION	INTRO-1
Prerequisites	INTRO-2
Installing the Practice Files	INTRO-3
Software Requirements	INTRO-3
Sample Database	INTRO-3
Security	INTRO-4
Installation	INTRO-4
About the Authors	INTRO-5
SERIALIZATION.....	1-1
Introducing Serialization	1-2
Using Serialization	1-2
The .NET Framework and Serialization	1-4
Generalizing the Serialization	1-10
Serializing Your Own Classes.....	1-13
What Extra Information Is Serialized?.....	1-16
Serializing Complex Objects.....	1-18
Investigating the Sample.....	1-18
Serializing/Deserializing an Object Graph	1-25
Using Serialization to Clone Objects.....	1-26
Serializing Multiple Objects.....	1-32
Customizing the Serialization Process	1-36
Investigating the Sample.....	1-36
Custom Serialization	1-41
Serializing to a BitArray.....	1-42
LAB 1: SERIALIZATION.....	1-51
Lab 1 Overview.....	1-52
Serialize Settings	1-53
Deserialize Settings	1-58
CREATING AND DISPLAYING REPORTS	2-1
Reports in Data Applications	2-2
Creating and Displaying Reports	2-3
The ReportViewer Control	2-9

The ReportViewer Toolbar	2-11
Page Headers and Footers	2-14
Formatting Numbers and Dates	2-17
Using Expressions	2-18
Grouping and Sorting Reports	2-23
Filtering Data in a Report at Runtime	2-27
One-to-Many Relationships in Reports	2-34
Deployment Considerations	2-41
LAB 2: CREATING AND DISPLAYING REPORTS	2-45
Lab 2 Overview	2-46
Creating and Displaying Reports	2-47
Using Report Parameters	2-54
FILLING THE .NET GAPS WITH WMI	3-1
Introducing WMI	3-2
WMI Background	3-5
Getting Started with WMI	3-8
The ManagementObject Class	3-8
Working with Scope and the ManagementScope Class	3-11
The ManagementClass Class	3-13
WMI Queries, Properties, and Methods	3-20
Providing More Refined Searches	3-20
Investigating the SelectQuery Class	3-23
Modifying WMI Object Properties	3-29
Calling WMI Object Methods	3-31
WMI Server Explorer Extensions	3-37
Working with Management Classes	3-38
LAB 3: FILLING THE .NET GAPS WITH WMI	3-49
Lab 3 Overview	3-50
List Available Printers	3-51
Change Location Text	3-54
Rename a Printer	3-58
WMI EVENTS AND ASYNCHRONOUS HANDLING	4-1
Creating WMI Event Handlers	4-2
The WqlEventQuery Class	4-3
Tracking Creation and Deletion Events	4-10
Working with WMI Asynchronously	4-13

Investigating the Synchronous Sample.....	4-13
Introducing the ManagementOperationObserver Class.....	4-21
WMI Server Explorer Extensions and Events.....	4-27
Creating Strongly Typed Event Queries	4-28
LAB 4: WMI EVENTS AND ASYNCHRONOUS HANDLING	4-37
Lab 4 Overview.....	4-38
Use WMI Events to Log Service Status Change	4-39
Run a Method Asynchronously.....	4-44
EXAMINING THE DATAGRIDVIEW	5-1
Controlling Appearance in Grids.....	5-2
Working with Columns	5-2
Working with Rows	5-4
Working with Bands	5-5
Working with Cells	5-5
Examples	5-6
Formatting and Styles.....	5-18
Custom Cell Templates.....	5-26
Working with Data in Grids	5-30
Populating Grids in Code	5-30
Data Entry in Grids.....	5-31
Displaying Objects in Grids.....	5-45
Sorting in Grids	5-46
LAB 5: EXAMINING THE DATAGRIDVIEW.....	5-55
Lab 5 Overview.....	5-56
Controlling Appearance in Grids.....	5-57
Formatting at Runtime	5-61
Data Entry.....	5-64
EXTENDING VISUAL STUDIO 2005	6-1
Getting Started.....	6-2
Creating Your Own Item Templates	6-3
Creating an Item Template	6-5
Modifying an Item Template.....	6-10
Managing Item Templates	6-13
Organizing Item Templates.....	6-17
Creating Your Own Project Templates	6-18
Creating a Project Template	6-19

Managing Project Templates	6-24
Organizing Project Templates.....	6-29
Using and Creating Code Snippets	6-31
Using Code Snippets	6-32
Managing Code Snippets.....	6-34
The Code Snippet File	6-36
Creating and Modifying Code Snippets	6-38
Using Macros to Automate the IDE	6-41
Recording and Running a Macro	6-41
Examining the Macro Code.....	6-42
Saving Macros	6-45
Macro Projects	6-46
Examples of Macros	6-47
LAB 6: EXTENDING VISUAL STUDIO 2005	6-55
Lab 6 Overview.....	6-56
Create an Item Template	6-57
Create a Project Template.....	6-63
Create a Code Snippet	6-69
CREATING RICH USER INTERFACES WITH GDI+.....	7-1
Introducing Drawing in the .NET Framework.....	7-2
Learn to Paint.....	7-3
Investigating Drawing.....	7-16
Creating Owner-Drawn Controls.....	7-24
Creating a ListBox Using OwnerDrawFixed DrawMode	7-25
Using Different Item Heights	7-32
Creating Images on Menus.....	7-35
Creating Non-Rectangular Forms.....	7-41
Setting a Form's Region Property.....	7-42
Setting a Form's TransparencyKey Property	7-46
Dynamically Modifying the Form's User Interface.....	7-48
Creating a Custom DataGridView Control Column.....	7-59
Examining the Sample	7-61
LAB 7: CREATING RICH USER INTERFACES WITH GDI+	7-77
Lab 7 Overview.....	7-78
Create the Non-Rectangular Form and Add Mouse Support.....	7-80
Add all the Static Image Parts	7-84
Add Text and Slider Images	7-93

HANDLING VERSIONING ISSUES	8-1
Before You Begin.....	8-2
Assemblies	8-3
Version Numbers	8-6
How the CLR Locates Assemblies.....	8-7
Private Assemblies	8-8
Using Configuration Files.....	8-11
Strong Naming Assemblies.....	8-18
Redirecting.....	8-23
Shared Assemblies.....	8-28
The Global Assembly Cache	8-28
Installing an Assembly in the GAC.....	8-30
Using Shared Assemblies.....	8-31
References to Shared Assemblies.....	8-32
LAB 8: HANDLING VERSIONING ISSUES	8-37
Lab 8 Overview.....	8-38
Using Private Assemblies	8-39
Strong Naming Assemblies	8-42
Using Shared Assemblies.....	8-50
CREATING WINDOWS SERVICES.....	9-1
Introducing Windows Services.....	9-2
Things to Consider	9-3
Building Your First Windows Service.....	9-6
Building the Windows Service.....	9-6
The FileWatcher Service	9-16
Investigating the Sample Project	9-16
Introducing the FileSystemWatcher Class	9-17
The OnStart Event Procedure.....	9-22
Debugging Your Service	9-24
What's Next?.....	9-28
LAB 9: CREATING WINDOWS SERVICES.....	9-33
Lab 9 Overview.....	9-34
Create and Install the Windows Service	9-35
Debug and Remove the Windows Service	9-39
BUILDING MOBILE APPLICATIONS.....	10-1

.NET Compact Framework	10-2
Supported Devices	10-2
Developing for Devices	10-3
Device Emulators	10-14
WindowsMobile Class Library	10-19
Mobile Database Applications	10-24
LAB 10: BUILDING MOBILE APPLICATIONS	10-39
Lab 10 Overview	10-40
Build a Mobile Application	10-41
Build a Mobile Database Application	10-46
READING AND WRITING XML USING THE XML DOM	11-1
Getting Started	11-2
Introducing the XML Document Object Model	11-3
Investigating the Sample File	11-5
Reading XML Data	11-8
Load XML Data	11-8
Work with a Node's Children	11-10
Iterate through All Nodes	11-12
Retrieve Element Nodes	11-15
Retrieve Just Text Nodes	11-18
Working with Nodes	11-20
Retrieve Nodes Matching a Criterion	11-20
Searching with XML Namespaces	11-23
Retrieve a Reference to a Particular Node	11-27
Navigate to Related Nodes	11-28
Retrieve Attributes of a Node	11-29
Creating and Modifying XML	11-32
Create XML Programmatically	11-32
Add or Delete Elements	11-36
Remove All Nodes and Attributes	11-39
Add or Delete Attributes	11-39
Modify the Value of an Element	11-42
Modify the Value of an Attribute	11-42
Dealing with Errors	11-44
Determine if XML Isn't Well Formed	11-44
Handle XML Loading Errors	11-45
LAB 11: READING AND WRITING XML USING THE XML DOM	11-51

Lab 11 Overview	11-52
Read Data from an XML File	11-54
Modify and Save XML Data	11-58
EXPERT XML	12-1
Getting Started	12-2
Working with XML Data	12-2
Sample Data	12-3
Reading XML with XmlReader	12-4
Read and ReadToFollowing Methods	12-5
ReadToDescendant and ReadToNextSibling Methods	12-10
ReadInnerXml and ReadOuterXml Methods	12-13
Validating XML with the XmlReaderSettings Class	12-14
Writing XML with XmlWriter	12-24
Writing an XML Document	12-24
Formatting XML	12-27
Writing Namespaces	12-29
Writing Typed Data	12-29
Writing XML Using a Different Structure	12-31
Searching XML with XPath	12-35
Classes in the System.Xml.XPath Namespace	12-37
XPath Expressions	12-40
Compiled XPath Expressions	12-45
LAB 12: EXPERT XML	12-51
Lab 12 Overview	12-52
Reading XML	12-53
Writing XML	12-57
Searching XML	12-62
PRINTERS AND PRINTING	13-1
The PrintDocument Class	13-2
A Simple Report	13-3
Introducing the PrintDocument Class	13-5
Creating a Tabular Report	13-10
The PageSettings Class	13-16
Handling Enumerated Properties	13-20
The PrinterSettings Class	13-22
Working with Printers	13-24

Working with Print-Related Controls	13-34
The PageSetupDialog Control	13-36
The PrintDialog Class	13-37
The PrintPreviewDialog Control	13-39
The PrintPreviewControl Control	13-40
A More Complex Report	13-43
Determining Page Dimensions	13-43
Printing the Images Report	13-50
LAB 13: PRINTERS AND PRINTING	13-65
Lab 13 Overview	13-66
Select a Printer and Set Up the PrintDocument Object	13-67
Create a Simple Report	13-70
SECURING WINDOWS APPLICATIONS	14-1
Security in the .NET Framework	14-2
Code Access Security	14-3
Evidence	14-3
Security Policy	14-4
How the CLR Grants Permissions	14-11
Configuring Security Policy	14-15
Checking For Permissions	14-20
Code Access Permissions	14-20
Using Imperative Syntax	14-22
Using Declarative Syntax	14-23
Role-Based Security	14-26
Identity	14-26
Principal	14-28
PrincipalPermission	14-34
LAB 14: SECURING WINDOWS APPLICATIONS	14-39
Lab 14 Overview	14-40
Managing Security Policy	14-41
Code Access Security	14-45
Role-Based Security	14-47
BUILDING SETUP APPLICATIONS	15-1
Windows Installer Deployment	15-2
Creating a Setup Project	15-4
Customizing a Setup Project	15-9

Setup Project Properties	15-9
Deployment Editors.....	15-11
File System Editor	15-12
User Interface Editor	15-14
Launch Conditions Editor	15-20
Custom Actions Editor	15-25
LAB 15: BUILDING SETUP APPLICATIONS.....	15-37
Lab 15 Overview	15-38
Create a Setup Project	15-39
Customize the Installation.....	15-44
ATTRIBUTES AND REFLECTION	16-1
Introducing Attributes	16-2
Attributes in Visual Basic 6	16-2
Attributes in .NET	16-3
Attributes as Classes	16-4
Using Attributes in Managed Code	16-6
Where Are Attributes Applied?.....	16-9
Creating and Using Custom Attributes	16-10
Building a Custom Attribute Class	16-10
Using a Custom Attribute	16-14
Retrieving Attribute Values at Runtime	16-15
Introducing Reflection	16-23
Working with Assemblies, Modules, and Types.....	16-24
Working with Types.....	16-28
Retrieving Type Members.....	16-31
Using Reflection to Perform Late Binding.....	16-37
Why Use Late Binding?	16-37
Why Not Use Late Binding?.....	16-37
Late Binding Sample	16-37
Investigating the Sample.....	16-38
The Sample Form	16-41
What Does Reflection Get You?	16-53
LAB 16: ATTRIBUTES AND REFLECTION	16-57
Lab 16 Overview	16-58
Retrieve Colors Using Reflection.....	16-59
Create and Manipulate a Custom Attribute.....	16-62

INDEX.....	INDEX-1
------------	---------