

Microsoft

MCTS

Exam 70-526

15%

EXAM DISCOUNT!

Limited time offer.
Details inside.



Evaluation
software inside!
Visual Studio® 2005

Microsoft

.NET FRAMEWORK 2.0

Windows-Based Client Development

*Matthew A. Stoecker and Steve J. Stein,
with Tony Northrup*

Self-Paced

Training Kit

Contents at a Glance

1	Windows Forms and the User Interface	1
2	Configuring Controls and Creating the User Interface	49
3	Advanced Windows Forms Controls	93
4	Tool Strips, Menus, and Events.	145
5	Configuring Connections and Connecting to Data	197
6	Working with Data in a Connected Environment	251
7	Create, Add, Delete, and Edit Data in a Disconnected Environment . .	329
8	Implementing Data-Bound Controls	409
9	Working with XML	441
10	Printing in Windows Forms	485
11	Advanced Topics in Windows Forms.	521
12	Enhancing Usability	555
13	Asynchronous Programming Techniques.	591
14	Creating Windows Forms Controls	623
15	Deployment	663

Table of Contents

Introduction	xxiii
Hardware Requirements	xxiii
Software Requirements	xxiv
Using the CD and DVD	xxiv
How to Install the Practice Tests	xxv
How to Use the Practice Tests	xxv
How to Uninstall the Practice Tests	xxvi
Microsoft Certified Professional Program	xxvii
Technical Support	xxvii
Evaluation Edition Software Support	xxviii
1 Windows Forms and the User Interface	1
Before You Begin	2
Lesson 1: Adding and Configuring Windows Forms	3
Overview of Windows Forms	3
Adding Forms to Your Project	4
Properties of Windows Forms	5
Modifying the Look and Feel of the Form	8
Creating Non-Rectangular Windows Forms	16
Lab: Customizing a Windows Form	17
Lesson Summary	20
Lesson Review	20
Lesson 2: Managing Control Layout with Container Controls	24
Overview of Container Controls	24
The <i>GroupBox</i> Control	27
The <i>Panel</i> Control	28
The <i>FlowLayoutPanel</i> Control	29

What do you think of this book?
We want to hear from you!

Microsoft is interested in hearing your feedback about this publication so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit: www.microsoft.com/learning/booksurvey/

	The <i>TableLayoutPanel</i> Control	31
	The <i>TabControl</i> Control	35
	The <i>SplitContainer</i> Control	37
	Lab: Practice with Container Controls	40
	Lesson Summary	42
	Lesson Review	43
	Chapter Review	46
	Key Terms	46
	Case Scenarios	47
	Case Scenario 1: Designing a User Interface	47
	Case Scenario 2: Designing a Web Browser	47
	Suggested Practices	47
	Add a Windows Form to a Project at Design Time	47
	Configure a Windows Form to Control Accessibility, Appearance, Behavior, Configuration, Data, Design, Focus, Layout, Style, and Other Functionality	48
	Manage Control Layout on a Windows Form	48
	Take a Practice Test	48
2	Configuring Controls and Creating the User Interface	49
	Before You Begin	50
	Lesson 1: Configuring Controls in Windows Forms	51
	Overview of Controls	51
	Configuring Controls at Design Time	53
	Modifying Control Properties at Design Time	57
	Best Practices for User Interface Design	63
	Lab: Practice Configuring Controls	64
	Lesson Summary	65
	Lesson Review	66
	Lesson 2: Creating and Configuring Command and Text Display Controls	67
	The <i>Button</i> Control	67
	The <i>Label</i> Control	72
	The <i>LinkLabel</i> Control	73
	Lab: Practice with <i>Command</i> and <i>Text Display</i> Controls	75

Lesson Summary	77
Lesson Review	77
Lesson 3: Creating and Configuring Text Edit Controls	79
The <i>TextBox</i> Control	79
The <i>MaskedTextBox</i> Control	81
Lab: Practice with Text Display Controls	86
Lesson Summary	87
Lesson Review	87
Chapter Review	89
Chapter Summary	89
Key Terms	90
Case Scenarios	90
Case Scenario 1: Designing a Simple User Interface	90
Case Scenario 2: Designing a User Interface	91
Suggested Practices	92
Add and Configure a Windows Forms Control	92
Take a Practice Test	92
3 Advanced Windows Forms Controls	93
Before You Begin	94
Lesson 1: Creating and Configuring List-Display Controls	95
Overview of List-Based Controls	95
<i>ListBox</i> Control	96
<i>ComboBox</i> Control	97
<i>CheckedListBox</i> Control	98
Adding Items to and Removing Items from a List-Based Control	99
The <i>ListView</i> Control	108
<i>TreeView</i> Control	110
<i>NumericUpDown</i> Control	113
<i>DomainUpDown</i> Control	114
Lab: The Adventure Works Ski Instructor Reservation Form	115
Lesson Summary	116
Lesson Review	117

Lesson 2: Creating and Configuring Value-Setting, Date-Setting, and Image-Display Controls	119
Value-Setting Controls	119
The <i>CheckBox</i> Control	119
The <i>RadioButton</i> Control	121
The <i>TrackBar</i> Control	122
Choosing Dates and Times	123
<i>DateTimePicker</i> Control	123
MonthCalendar	124
Working with Images	126
<i>PictureBox</i> Control	126
<i>ImageList</i> Component	128
Lab: Adventure Works Ski Instructor Reservation Form	130
Lesson Summary	131
Lesson Review	131
Lesson 3: Configuring the <i>WebBrowser</i> Control and the <i>NotifyIcon</i> Component and Creating Access Keys	133
The <i>WebBrowser</i> Control	133
The <i>NotifyIcon</i> Component	136
Creating Access Keys	137
Lab: Creating a WebBrowser	138
Lesson Summary	139
Lesson Review	140
Chapter Review	141
Key Terms	142
Case Scenarios	142
Case Scenario 1: Incorporating List-Based Controls into the User Interface	142
Case Scenario 2: Working with Files and Background Processes	143
Suggested Practices	143
Take a Practice Test	144
4 Tool Strips, Menus, and Events	145
Before You Begin	146

Lesson 1: Configuring Tool Strips	147
Overview of the <i>ToolStrip</i> Control	147
Tool Strip Items	150
Displaying Images on Tool Strip Items	153
The <i>ToolStripContainer</i>	154
Merging Tool Strips	154
Lab 1: Creating a <i>ToolStrip</i> -Based Web Browser	156
Lesson Summary	158
Lesson Review	158
Lesson 2: Creating and Configuring Menus	161
Overview of the <i>MenuStrip</i> Control.	161
Creating Menu Strips and Tool Strip Menu Items	164
Adding Enhancements to Menus.	167
Moving Items Between Menus.	170
Disabling, Hiding, and Deleting Menu Items.	171
Merging Menus	172
Switching Between <i>MenuStrip</i> Controls Programmatically	173
Context Menus and the <i>ContextMenuStrip</i> Control	173
Lab 2: Adding File Browsing Capability to Your Web Browser	176
Lesson Summary	177
Lesson Review	178
Lesson 3: Using Events and Event Handlers	180
Overview of Events.	180
Creating Event Handlers in the Designer	182
Managing Mouse and Keyboard Events.	184
Creating Event Handlers at Run Time	188
Overriding Methods in the Code Editor	189
Lab 3: Practice with Mouse Events.	191
Lesson Summary	192
Lesson Review	193
Chapter Review	194
Key Terms	195
Case Scenarios	195

Case Scenario 1: Designing a Complex User Interface	195
Case Scenario 2: More Humongous Requirements	195
Suggested Practices	196
Take a Practice Test	196
5 Configuring Connections and Connecting to Data	197
Before You Begin	198
Lesson 1: Creating and Configuring Connection Objects	200
What Is a Connection Object?	200
Creating Connections in Server Explorer	201
Creating Connections Using Data Wizards	201
Creating Connection Objects Programmatically	201
Lab: Creating New Data Connections	206
Lesson Summary	210
Lesson Review	210
Lesson 2: Connecting to Data Using Connection Objects	212
Opening and Closing Data Connections	212
Connection Events	212
Lab: Practice Opening and Closing Data Connections	213
Lesson Summary	223
Lesson Review	223
Lesson 3: Working with Connection Pools	225
What Is Connection Pooling?	225
Controlling Connection Pooling Options	225
Configuring Connections to Use Connection Pooling	227
Lesson Summary	230
Lesson Review	231
Lesson 4: Handling Connection Errors	232
Lab: Handling Database Connection Errors	232
Lesson Summary	235
Lesson Review	236
Lesson 5: Enumerating the Available SQL Servers on a Network	237
Lab: Returning the List of Visible SQL Servers	238
Lesson Summary	239
Lesson Review	239

Lesson 6: Securing Sensitive Connection String Data	241
Securing Data in Configuration Files	242
Lab: Securing a Configuration File	243
Lesson Summary	246
Lesson Review	246
Chapter Review	248
Chapter Summary	248
Key Terms	248
Case Scenarios	249
Case Scenario 1: Troubleshooting a SQL Connection	249
Case Scenario 2: Securing Sensitive Data	249
Suggested Practices	249
Take a Practice Test	250
6 Working with Data in a Connected Environment	251
Before You Begin	252
Lesson 1: Creating and Executing <i>Command</i> Objects	253
What Are <i>Command</i> Objects?	253
Creating and Configuring <i>Command</i> Objects	256
Creating SQL Commands (SQL Statements) with the Query Designer	259
Lab: Executing SQL Statements and Calling Stored Procedures	265
Lesson Summary	271
Lesson Review	271
Lesson 2: Working with Parameters in SQL Commands	273
What Is a Parameter and Why Should I Use Them?	273
Types of Parameters	274
Creating Parameters	274
Adding Parameters to <i>Command</i> Objects	275
Lab: Working with Parameters	275
Lesson Summary	289
Lesson Review	290
Lesson 3: Saving and Retrieving BLOB Values in a Database	291
Working with BLOBs	291
Lesson Summary	303
Lesson Review	303

Lesson 4: Performing Bulk Copy Operations	305
Why Perform Bulk Copies?	305
Lab: Bulk Copying	305
Lesson Summary	315
Lesson Review	315
Lesson 5: Performing Transactions by Using the <i>Transaction</i> Object	317
What Is a Transaction?	317
How to Create Transactions	317
Setting the Isolation Level of a Transaction	318
Enlisting in a Distributed Transaction	319
Lab: Performing Transactions	320
Lesson Summary	324
Lesson Review	324
Chapter Review	326
Chapter Summary	326
Key Terms	326
Case Scenarios	327
Case Scenario 1: Troubleshooting a Non-Performing Application	327
Case Scenario 2: Preventing the Inventory System from Selling Unavailable Products	327
Suggested Practices	328
Take a Practice Test	328
7 Create, Add, Delete, and Edit Data in a Disconnected Environment	329
Before You Begin	330
Lesson 1: Creating <i>DataSet</i> Objects	332
<i>DataSet</i> Objects	332
Creating <i>DataSet</i> Objects Programmatically	333
Lab: Creating <i>DataSet</i> Objects	336
Lesson Summary	347
Lesson Review	347
Lesson 2: Creating <i>DataTable</i> Objects	349
How to Create <i>DataTable</i> Objects	349
How to Add a <i>DataTable</i> to a <i>DataSet</i>	350
How to Create Expression Columns in <i>DataTable</i> Objects	350

How to Create Auto-Incrementing Columns in <i>DataTable</i> Objects	351
How to Add Constraints to a <i>DataTable</i>	352
Lab: Creating <i>DataTable</i> Objects	353
Lesson Summary	356
Lesson Review	357
Lesson 3: Creating <i>DataAdapter</i> Objects	358
What Is a <i>DataAdapter</i> ?	358
How to Create <i>DataAdapter</i> Objects	359
<i>DataAdapter</i> Commands	359
Generating Typed <i>DataSet</i> Objects from <i>DataAdapter</i> Objects	361
Resolving Conflicts Between a <i>DataSet</i> and a Database Using the <i>DataAdapter</i>	361
Perform Batch Operations Using <i>DataAdapter</i> Objects	363
Lab: Working with <i>DataAdapter</i> Objects	363
Lesson Summary	371
Lesson Review	371
Lesson 4: Working with Data in <i>DataTable</i> Objects	373
Adding Data to a <i>DataTable</i>	373
Editing Data in a <i>DataTable</i>	374
Deleting Data in a <i>DataTable</i>	374
Maintaining Changes to <i>DataRow</i> Objects	374
Accepting and Rejecting Changes to a <i>DataTable</i>	375
<i>DataTable</i> Events	375
Row Errors	376
Lab: Working with Data in a <i>DataTable</i>	377
Lesson Summary	385
Lesson Review	385
Lesson 5: Working with XML in <i>DataSet</i> Objects	387
Writing a <i>DataSet</i> as XML Data	387
Writing <i>DataSet</i> Schema Information as XML Schema	388
Loading a <i>DataSet</i> from an XML Stream or Document	388
Loading <i>DataSet</i> Schema Information from an XML Stream or Document	388
Synchronizing a <i>DataSet</i> with an <i>XmlDataDocument</i>	389

Performing an XPath Query on a <i>DataSet</i>	389
Lab: Working with XML in <i>DataSets</i>	390
Lesson Summary	394
Lesson Review	394
Lesson 6: Creating and Using <i>DataView</i> Objects	396
Creating <i>DataView</i> Objects	396
Sorting and Filtering Data Using a <i>DataView</i>	397
Viewing Data Using a <i>DataView</i>	397
Modifying the Data in a <i>DataView</i>	398
Searching Data in a <i>DataView</i>	398
Navigating Related Data in a <i>DataView</i>	399
Working with <i>DataView</i> Events	399
Setting the <i>DataTable</i> Object's Default Table Views Using a <i>DataViewManager</i>	399
Lab: Working with <i>DataView</i> Objects	400
Lesson Summary	404
Lesson Review	405
Chapter Review	406
Key Terms	407
Case Scenarios	407
Case Scenario 1: Upgrading an Old Application.	407
Case Scenario 2: Slow System Performance.	407
Suggested Practices	408
Take a Practice Test.	408
8 Implementing Data-Bound Controls	409
Before You Begin	410
Lesson 1: Creating a Data-Bound Form with the Data Sources Wizard	411
What Does the Wizard Create?	411
Lab 1: Creating a Data-Bound Windows Form	411
Lesson Summary	414
Lesson Review	414
Lesson 2: Implementing Data-Bound Controls	416
Binding Controls to Data	416
Lab: Data Binding Controls	419

Lesson Summary	423
Lesson Review	423
Lesson 3: Working with the <i>DataGridView</i>	425
Displaying a Dataset in the <i>DataGridView</i> Control	425
Configuring <i>DataGridView</i> Columns	426
Adding Tables and Columns to a <i>DataGridView</i>	427
Deleting Columns in the <i>DataGridView</i>	428
Determining the Clicked Cell in a <i>DataGridView</i>	429
Validating Input in the <i>DataGridView</i>	429
Format a <i>DataGridView</i> Using Styles	430
Format a <i>DataGridView</i> Control by Using Custom Painting	430
Lab: Working with the <i>DataGridView</i>	431
Lesson Summary	435
Lesson Review	436
Chapter Review	437
Chapter Summary	437
Key Terms	438
Case Scenarios	438
Case Scenario 1: Upgrading an Old Application	438
Case Scenario 2: Preventing Recompile of a Large Application	438
Suggested Practices	439
Take a Practice Test	439
9 Working with XML	441
Before You Begin	442
Lesson 1: Reading and Writing XML with the <i>XmlReader</i> and <i>XmlWriter</i> Classes	443
The <i>XmlReader</i> Class	443
Writing XML with the <i>XmlWriter</i> Class	454
Lab: Create an Application that Reads an XML File	458
Lesson Summary	461
Lesson Review	462
Lesson 2: Managing XML with the XML Document Object Model	465
The <i>XmlDocument</i> Class	465
Lab: Use the <i>XmlDocument</i> Class	475

	Lesson Summary	478
	Lesson Review	478
	Chapter Review	481
	Key Terms	481
	Case Scenarios	482
	Case Scenario 1: Report Archiving	482
	Case Scenario 2: The Merger	482
	Suggested Practices	483
	Take a Practice Test	483
10	Printing in Windows Forms	485
	Before You Begin	486
	Lesson 1: Managing the Print Process by Using Print Dialogs	487
	The <i>PrinterSettings</i> Class	487
	The <i>PrintDialog</i> Component	487
	The <i>PageSetupDialog</i> Component	490
	The <i>PrintPreviewDialog</i> Component	492
	Lab: Use Print Dialogs	493
	Lesson Summary	494
	Lesson Review	495
	Lesson 2: Constructing Print Documents	496
	The <i>PrintDocument</i> Component	496
	Printing Graphics	498
	Printing Text	501
	Notifying the User When Printing is Complete	503
	Security and Printing	503
	Lab: Create a Print Document	504
	Lesson Summary	506
	Lesson Review	507
	Lesson 3: Creating a Customized <i>PrintPreview</i> Component	509
	The <i>PrintPreviewControl</i>	509
	Lab: Create a Customized <i>PrintPreview</i> Form	513
	Lesson Summary	516
	Lesson Review	516

Chapter Review	518
Key Terms	519
Case Scenarios	519
Case Scenario 1: A Better <i>PrintPreview</i> Control	519
Case Scenario 2: A Simple Report Tool	519
Suggested Practices	520
Take a Practice Test	520
11 Advanced Topics in Windows Forms	521
Before You Begin	522
Lesson 1: Implementing Drag-and-Drop Functionality	523
Implementing Drag-and-Drop Functionality	523
Lab: Implement Drag and Drop	529
Lesson Summary	531
Lesson Review	531
Lesson 2: Implementing Globalization and Localization for a Windows Forms Application	533
Globalization and Localization	533
Lab: Create Localized Forms	538
Lesson Summary	541
Lesson Review	541
Lesson 3: Implementing MDI Forms	543
MDI Applications	543
Lab: Create a Simple MDI Application	547
Lesson Summary	549
Lesson Review	549
Chapter Review	551
Chapter Summary	551
Key Terms	552
Case Scenarios	552
Case Scenario 1: Still More Document Control	552
Case Scenario 2: Fabrikam Goes International	553
Suggested Practices	553
Take a Practice Test	554

12	Enhancing Usability	555
	Before You Begin	556
	Lesson 1: Implementing Accessibility	557
	Implementing Accessibility	557
	Lab: Create an Accessible User Interface	560
	Lesson Summary	562
	Lesson Review	563
	Lesson 2: Using User Assistance Controls and Components	564
	User Assistance Controls and Components	564
	Lab: Practice with User Assistance Controls	581
	Lesson Summary	583
	Lesson Review	584
	Chapter Review	587
	Chapter Summary	587
	Key Terms	588
	Case Scenarios	588
	Case Scenario 1: Putting the Final Touches on the Document Management System	588
	Case Scenario 2: Making the Document Management Application Accessible	589
	Suggested Practices	589
	Take a Practice Test	589
13	Asynchronous Programming Techniques	591
	Before You Begin	592
	Lesson 1: Managing a Background Process with the <i>BackgroundWorker</i> Component	593
	Running a Background Process	594
	Lab: Practice with Background Worker	601
	Lesson Summary	603
	Lesson Review	603
	Lesson 2: Implementing Asynchronous Methods	605
	Using Delegates	605
	Creating Process Threads	609

	Lab: Practice with Delegates and Threads	613
	Lesson Summary	617
	Lesson Review	617
	Chapter Review	619
	Key Terms	620
	Case Scenarios	620
	Case Scenario 1: The Publishing Application	620
	Case Scenario 2: Creating a Simple Game	620
	Suggested Practices	621
	Take a Practice Test	621
14	Creating Windows Forms Controls	623
	Before You Begin	624
	Lesson 1: Creating Composite Controls	625
	Introduction to Composite Controls	625
	Lab: Create a Composite Control	632
	Lesson Summary	634
	Lesson Review	634
	Lesson 2: Creating Custom Controls	636
	Overview of Custom Controls	636
	Lab: Create a Custom Control	643
	Lesson Summary	645
	Lesson Review	645
	Lesson 3: Creating Extended Controls and Dialog Boxes	647
	Custom Dialog Boxes	647
	Creating Extended Controls	651
	Lab: Create an Extended Control	654
	Lesson Summary	656
	Lesson Review	656
	Chapter Review	658
	Key Terms	659
	Case Scenarios	659
	Case Scenario 1: Collecting and Displaying User Data	659
	Case Scenario 2: Trey Research Stock Price	660

	Suggested Practices	660
	Take a Practice Test.	661
15	Deployment.	663
	Before You Begin	664
	Lesson 1: Deploying Applications with ClickOnce	665
	Overview of ClickOnce.	665
	Lab: Publish an Application to a Network Share with ClickOnce	669
	Lesson Summary.	670
	Lesson Review	671
	Lesson 2: Creating Setup Projects for Deployment	672
	Setup Projects	672
	Lab: Create a Setup Project	682
	Lesson Summary.	684
	Lesson Review	685
	Chapter Review	686
	Chapter Summary.	686
	Key Terms.	687
	Case Scenarios.	687
	Case Scenario 1: Distributing the Document Viewer	687
	Case Scenario 2: Installing the Document Core	688
	Suggested Practices	688
	Take a Practice Test.	688
	Answers.	689
	Glossary.	741
	Index	745

What do you think of this book?
We want to hear from you!

Microsoft is interested in hearing your feedback about this publication so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit: www.microsoft.com/learning/booksurvey/