## Contents at a Glance

*Introduction* xix  
*Assessment Test* xxxii  

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>Creating and Managing Windows Services</td>
<td>1</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Creating and Managing Serviced Components</td>
<td>37</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Creating and Managing .NET Remoting Objects</td>
<td>73</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Creating and Managing XML Web Services</td>
<td>103</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Working with the .NET Data Providers</td>
<td>141</td>
</tr>
<tr>
<td>Chapter 6</td>
<td>Working with the DataSet</td>
<td>197</td>
</tr>
<tr>
<td>Chapter 7</td>
<td>Working with XML Data</td>
<td>265</td>
</tr>
<tr>
<td>Chapter 8</td>
<td>Testing and Debugging</td>
<td>351</td>
</tr>
<tr>
<td>Chapter 9</td>
<td>Overview of Security Concepts</td>
<td>405</td>
</tr>
<tr>
<td>Chapter 10</td>
<td>Deploying, Securing, and Configuring Windows-Based Applications</td>
<td>459</td>
</tr>
<tr>
<td>Chapter 11</td>
<td>Deploying and Securing XML Web Services</td>
<td>513</td>
</tr>
<tr>
<td><strong>Glossary</strong></td>
<td></td>
<td>547</td>
</tr>
<tr>
<td><strong>Index</strong></td>
<td></td>
<td>573</td>
</tr>
</tbody>
</table>
## Contents

**Introduction** xix

**Assessment Test** xxxii

### Chapter 1 Creating and Managing Windows Services 1

- **Introduction to Windows Services** 2
- **Creating a Windows Service by Using Visual Studio .NET** 5
  - Methods and Properties of the `ServiceBase` Class 8
  - Project Installer Classes 9
  - Setting Security Account Context for Windows Services 10
  - Running a Windows Service 10
- **Debugging a Windows Service** 17
- **Configuring Client Computers and Servers to Use a Windows Service** 19
  - Instantiating the `ServiceController` Object 20
  - Properties and Methods of the `ServiceController` Class 20
  - Executing Custom Commands for a Service 23

**Summary** 28

**Exam Essentials** 29

**Key Terms** 29

**Review Questions** 30

**Answers to Review Questions** 34

### Chapter 2 Creating and Managing Serviced Components 37

- **Advantages of Serviced Components** 38
- **Features of Component Services** 39
- **Creating a Serviced Component** 42
  - Adding Code and Attributes to Your Component 42
  - Signing and Registering the Component Assembly 45
  - Configuring the Component in Component Services 46
  - Designing Components for Performance and Scalability 50
  - Using and Managing Transactions 51
- **Making a .NET Component Visible to COM** 55
- **Making a COM Component Visible to the CLR** 58
  - Command-Line Tools 63
- **Calling Unmanaged DLL Functions** 64

**Summary** 65

**Exam Essentials** 65

**Key Terms** 66

**Review Questions** 68

**Answers to Review Questions** 71
### Chapter 6: Working with the DataSet

- Using Connection Pooling to Optimize Performance 147
- Storing Connection String Information 148
- Closing Connections 148
- Sending Commands to a Data Source 149
  - Using the DataReader 152
  - Modifying Command Behavior 155
  - Using Queries That Don’t Return Rows 160
- Calling Stored Procedures 165
- Understanding New Objects in the ADO.NET Object Model 179
  - Transactions 179
  - Understanding the Exception Class and the Error Class 183
- Summary 187
- Exam Essentials 188
- Key Terms 189
- Review Questions 190
- Answers to Review Questions 194

### Chapter 7: Working with XML Data

- Introduction to XML Data 266
  - Understanding XML Basics 267
  - Understanding XML Schema Definition 269
- ADO.NET DataSets and XML 272
  - Reading XML Data into a DataSet 273
  - Writing XML Data from a DataSet 274
  - Controlling XML Format with Column Mappings 275
  - Creating DiffGram Output 285
**Contents**

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Testing and Debugging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning a Testing Strategy</td>
<td>352</td>
</tr>
<tr>
<td>Unit Testing</td>
<td>353</td>
</tr>
<tr>
<td>Integration Testing</td>
<td>354</td>
</tr>
<tr>
<td>Regression Testing</td>
<td>354</td>
</tr>
<tr>
<td>Testing for Globalization</td>
<td>354</td>
</tr>
<tr>
<td>Configuring the Debugging Environment</td>
<td>356</td>
</tr>
<tr>
<td>Configuring Debugging in ASP.NET Applications</td>
<td>359</td>
</tr>
<tr>
<td>Running the Visual Studio .NET Debugger</td>
<td>359</td>
</tr>
<tr>
<td>Debugging Other Types of Applications</td>
<td>365</td>
</tr>
<tr>
<td>Implementing Instrumentation and Tracing</td>
<td>367</td>
</tr>
<tr>
<td>Writing Messages with Debug and Trace</td>
<td>369</td>
</tr>
<tr>
<td>Using TraceListeners</td>
<td>372</td>
</tr>
<tr>
<td>Using TraceSwitches</td>
<td>373</td>
</tr>
<tr>
<td>Using SOAP Extensions for Debugging</td>
<td>385</td>
</tr>
<tr>
<td>Summary</td>
<td>395</td>
</tr>
<tr>
<td>Exam Essentials</td>
<td>396</td>
</tr>
<tr>
<td>Key Terms</td>
<td>397</td>
</tr>
<tr>
<td>Review Questions</td>
<td>398</td>
</tr>
<tr>
<td>Answers to Review Questions</td>
<td>402</td>
</tr>
</tbody>
</table>

**Chapter 9**

**Overview of Security Concepts**

| Introduction to Security Concepts | 406 |
| Identifying Basic Security Capabilities | 407 |
| Understanding the STRIDE Model of Security Threats | 408 |
| Implementing Security on the .NET Platform | 409 |
| CLR and .NET Framework Security Features | 409 |
| Modern Windows Operating System Security Features | 413 |
Contents

Configuring Authorization via Permissions 416
  Introduction to Permissions 416
  Understanding How Permission-Checking Works 419
  Using Permissions in Code 421
  Using Permission Sets 427
Using Code Security Models 428
  CLR Role-Based Security 429
  .NET Code Access Security 435
  .NET Enterprise Services Role-Based Security 444
Using .NET Framework Cryptography 446
  Understanding the Types of Cryptographic Algorithms 446
  Choosing an Encryption Algorithm 447
  Designing an Encryption Strategy 447
Summary 450
Exam Essentials 450
Key Terms 451
Review Questions 452
Answers to Review Questions 456

Chapter 10 Deploying, Securing, and Configuring Windows-Based Applications 459

Creating a Setup Project by Using
  Visual Studio .NET 460
  Choosing Setup Templates and Configuring Properties 461
  Using the Setup Project Editors 464
Deploying a Windows Service 473
Deploying a Serviced Component 480
  Deploying Serviced Components by Using Dynamic Registration 481
  Using the Services Registration Utility and the RegistrationHelper Class 484
  Using the Component Services Tool to Export a Service Component to an MSI File 488
  Deploying COM+ Proxies 490
Deploying a .NET Remoting Object 492
Considering Other Deployment Issues 495
  Registering Components and Assemblies 495
  Working with Strong-Named Assemblies 496
  Deploying to the GAC 497
  Implementing Component Versioning 498
Ensuring Security in Windows-Based Services 499
  Securing Windows Services 500
  Securing Serviced Components 500
  Securing .NET Remoting Objects 502