

CONTENTS

Chapter 1 ■ Introduction to .NET Framework 4.5	1
Versions of .NET Framework	2
Benefits of .NET Framework	3
Architecture of .NET Framework 4.5	3
CLR	4
CTS.....	5
Metadata and Assemblies.....	6
.NET Framework Class Library.....	6
Windows Forms	7
ASP.NET and ASP.NET AJAX	7
ADO.NET.....	7
WF	7
WPF	8
WCF	8
Windows CardSpace.....	8
LINQ.....	8
New Features of .NET Framework 4.5	9
.NET for Windows Store Apps.....	9
Portable Class Library.....	9
Core New Features and Improvements	9
Tools	10
Parallel Computing	10
Improvements in Web Development	11
Improvements in Networking.....	11
Improvements in WPF.....	11
Improvements in WCF	12
Improvements in WF.....	12
Chapter 2 ■ Common Language Runtime	15
Understanding the Architecture of CLR	16
Understanding the Managed Code	17
Understanding the Memory Management	19
Understanding Exceptions	19
Understanding CTS.....	21
Value Types	22
Reference Types.....	23
Understanding CLS	24
Understanding Metadata and Assemblies	24
Assembly Manifest	25
GAC	25
Strong Name Assemblies.....	26
Private and Shared Assemblies.....	26
Side-by-Side Execution	26
Understanding Security	26
The Type-safe Code	28
The Verifiably Type-Safe MSIL Code.....	28
Understanding Threading	29

Difference between Processes and Threads	30
Multithreading	30
Thread Priorities	31
Thread Synchronization	31
Understanding AppDomains	31

Chapter 3 ■ .NET Framework Class Libraries 33

Understanding Namespaces	33
Exploring the System Namespace	36
Exploring the Object Class	40
Understanding the Type Class and Reflection Namespace	41
Understanding the Array Class and Collections Namespace	42
The ArrayList Class	43
The Hashtable Class	44
The SortedList Class	45
The Stack Class	45
The Queue Class	46
The BitArray Class	47
Exploring the I/O Namespace	47
Exploring the File and FileInfo Classes	48
Exploring the Stream and FileStream Classes	50
Understanding Base Class Libraries in .NET 4.5	51
Support for Code Contracts	52
Understanding Parallel Extensions	52
Understanding Tuple	53
Understanding Memory-Mapped Files	53
Simplified Asynchronous Programming	54
Read-only Collection Interfaces	54
Support for .zip archives	54
Miscellaneous Improvements	54

Chapter 4 ■ Working with Windows Forms 57

Exploring the Common Operations on Windows Forms	57
Changing the Title of a Windows Forms	58
Showing and Hiding the Maximize, Minimize, and Close Buttons	61
Setting the Initial State and Positions of a Windows Form	61
Adding Controls to a Form	63
Setting the Tab Orders of Controls	63
Docking and Anchoring Controls	66
Adding Multiple Forms to a Windows Application	68
Setting the Startup Form	69
Creating the Always-on-Top Form	70
Enabling and Disabling Controls and Forms	71
Moving and Resizing Forms and Controls at Run-Time	72
Creating a Message Box	74
Creating an Input Box	76
Creating a Dialog Box	79
Commenting the Code	85

Chapter 5 ■ Working with Web Forms	87
ASP.NET and Web Forms	88
New Features of ASP.NET 4.5	89
ASP.NET 4.5 Core Services	89
ASP.NET 4.5 Web Forms	91
ASP.NET Web Pages 2	92
General Enhancements for Web Development	93
Data-Related Enhancements for Web Development	93
IIS Express for Web Development	94
ASP.NET Web API	94
ASP.NET MVC 4, Web API, and ASP.NET Web Pages (Razor) are now Open Source	94
The ASP.NET 4.5 Provider Model	95
ASP .NET 4.5 Coding Models	95
The Single-File Page Model	95
The Code-Behind Page Model	95
Code Sharing in ASP.NET 4.5	96
Using the Code Directory	96
Using the Bin Folder	99
Using the Global Assembly Cache	99
States of an ASP .NET Application	99
The Application State	100
The Session State	100
The View State	100
Using Application State, Session State, and View State	101
Web Form Controls	105
HTML Controls	105
Web Server Controls	106
Web Form Life Cycle in ASP.NET	111
Different Stages of the ASP.NET Page	111
ASP.NET Pages Life Cycle Events	112
Chapter 6 ■ Programming with Windows Presentation Foundation (WPF)	113
Improvements over Windows Forms	114
Architecture of WPF 4.5	114
The PresentationFramework Component	115
The PresentationCore Component	115
The WindowBase Component	115
The MIL or Milcore Component	115
New features in WPF 4.5	115
The Ribbon Control	116
Support for Validating Data Synchronously and Asynchronously	116
Support for Binding to Types that implement ICustomTypeProvider	116
Support for Fetching Binding Information	116
Data Binding to Static Properties	117
Support for Access to Collections on a Non-UI Thread	117
Support for Automatically Updating a Source of a Data Binding	117
New VirtualizingPanel Features	117
Support for Implementing Weak Reference to an Event	118
New Methods Defined in the Dispatcher Class	118
Support for the Use of Markup Extensions for Events	118

Support for Rearrangement of Data on Modification (Live shaping)	118
Improved Performance when displaying large sets of grouped data	119
Support for Validation of DataContext Object	119
Types of WPF Applications	119
Standalone WPF Applications	119
XAML Browser Applications (XBAPs)	122
The WPF 4.5 Designer	124
The Design View	125
Grid Rails, Gridlines, and Gridlines Indicators	126
The Zoom Control	126
Move and Resize Handles	126
Margin Lines and Margin Stubs	128
Snaplines	128
The XAML View	129
The Split View Bar	130
XAML and WPF	131
XAML Elements and Attributes	132
Namespaces and XAML	134
Markup Extensions	135
Common Controls in WPF 4.5	136
Using the Grid Control	136
Using the Button Control	139
Using the TextBox Control	140
Using the PasswordBox Control	143
Using the TextBlock Control	146
Using the Border Control	147
Using the GridSplitter Control	149
Using the Canvas Control	151
Using the StackPanel Control	153
Using the RichTextBox Control	155
Using the DataGrid Control	156
Using the Calendar Control	160
Using the DatePicker Control	162
Using Ribbon Control	165
Resources and Styles	167
Using a Static Resource	168
Using a Dynamic Resource	170
Setting Style through a Resource	173
Chapter 7 ■ Working With ADO .NET and Data Binding	175
ADO .NET	175
New Features in ADO.NET	176
SQLClient Data Provider	177
ADO.NET Entity Framework	178
Components of ADO.NET	178
Data Providers	179
DataSets	181
Basic Operations in ADO.NET	181
Using the Wizard	181
Using a Connection String	186
Using a Command Object	187
Adding and Configuring a Data Adapter	187

Creating a DataSet	194
Using a Data Adapter to retrieve Data in a DataSet.....	196
Data Binding in a Windows Forms	198
Simple Data Binding	201
Complex Data Binding.....	204
Data Binding in Windows Presentation Foundation	206
Data Flow Directions	207
OneTime Data Binding	207
OneWay Data Binding.....	207
TwoWay Data Binding.....	207
OneWayToSource Data Binding.....	207
Declarations of Data Binding in WPF	207
Using XAML.....	208
Using the Code-Behind File	209
Using the Path Property	212
Binding Sources in WPF.....	214
Binding to CLR Objects.....	214
Binding to ADO.NET Objects	220

Chapter 8 ■ Language Integrated Query (LINQ) 225

Exploring LINQ Queries	226
Standard Query Operators	228
Sorting Operators	229
Set Operators	232
Filtering Operators	234
Quantifier Operators	235
Projection Operators	237
Partitioning Operators	239
Join Operators	241
Grouping Operators	244
Generation Operators	245
Element Operators	247
Conversion Operators	248
Aggregate Operators	251
The Zip Operator	253
LINQ to ADO.NET.....	255
LINQ to SQL	256
LINQ to DataSet.....	259
Anonymous Types	263
Lambda Expressions.....	264
PLINQ.....	266

Chapter 9 ■ Windows Workflow Foundation (WF) 269

Exploring the Improvements in WF.....	270
Workflow Versioning	270
Activities	271
Support for Partial Trust.....	271
New Designer Capabilities.....	271
New Workflow Development Models	273
Introducing Workflow Design Principles	273
Workflows Coordinate Work Performed by People and Software	273

Workflows are Long Running and Stateful	273
Workflows are based on Extensible Models	273
Workflows are Transport and Dynamic throughout the Lifecycle.....	273
Exploring the Components of WF	273
Workflow	274
The Flowchart Workflow	275
Activity.....	275
Built-in Activity Library	275
Host Process.....	276
Runtime Engine.....	276
Runtime Services.....	277
Developing a Simple Workflow Application	277
Implementing Conditions in Workflows	279
Creating and Using Custom Activities	284

Chapter 10 ■ Developing ASP.NET AJAX Applications 291

Exploring Some Important Features of AJAX	291
Live Data Binding	292
Declarative Instantiation of Client Components.....	292
The Observer Pattern on JavaScript Objects and Arrays	292
ADO.NET Data Services and Data Contexts.....	292
Exploring the ASP.NET AJAX Architecture.....	293
The Client-Side Architecture	293
The Server-Side Architecture.....	294
Script Support.....	295
Web Services	295
Application Services.....	295
Server Controls.....	295
Introducing AJAX Server or Extension Controls.....	296
The ScriptManager Control	296
The ScriptManagerProxy Control	297
The UpdatePanel Control.....	298
The UpdateProgress Control	298
The Timer Control	299
Creating an AJAX-Enabled Website	299
Using the ASP.NET AJAX Control Toolkit	303
Installing AJAX Control Toolkit	307
Using the ASP.NET ACT Controls	311

Chapter 11 ■ Web, WCF, and Cloud Services in ASP.NET 4.5 315

Using a Web Service	316
Using a WCF Service.....	322
Cloud Service	327

Bonus Chapter Available with the book for Download

Chapter 1: Working with XML
(Companion code to download this chapter: .NET4.5-9969-SS-330)
URL: <http://www.dreamtechpress.com/TitlePage.aspx?x=978-93-5004-996-9>