

Contents

About the Author	xv
About the Technical Reviewer	xvi
Acknowledgments	xvii
Introduction	xix
■ CHAPTER 1	
Distributed Architecture	1
Logical and Physical Architecture	1
Complexity	3
Relationship Between Logical and Physical Models	4
A 5-Layer Logical Architecture	8
Applying the Logical Architecture	13
The Way Ahead	18
Managing Business Logic	18
Potential Business Logic Locations	18
Business Objects	22
Mobile Objects	25
Architectures and Frameworks	33
Conclusion	33
■ CHAPTER 2	
Framework Design	35
Basic Design Goals	36
N-Level Undo Capability	37
Tracking Broken Business Rules	40
Tracking Whether the Object Has Changed	41
Strongly Typed Collections of Child Objects	41
Simple and Abstract Model for the UI Developer	43
Supporting Data Binding	47
Object Persistence and Object-Relational Mapping	50
Custom Authentication	57
Integrated Authorization	58

Framework Design	58
Business Object Creation	59
N-Level Undo Functionality	64
Data Binding Support	67
Validation Rules	68
Data Portal	71
Custom Authentication	84
Integrated Authorization	85
Helper Types and Classes	86
Namespace Organization	89
Conclusion	91

■ CHAPTER 3 **Business Framework Implementation** 93

Setting Up the CSLA .NET Project	94
Creating the Directory Structure	95
Supporting Localization	95
Csla.Core Namespace	96
IBusinessObject Interface	97
IUndoableObject Interface	97
IEditableCollection Interface	98
IReadOnlyObject Interface	99
IReadOnlyCollection Interface	99
ICommandObject Interface	99
ObjectCloner Class	99
BindableBase Class	100
NotUndoableAttribute Class	104
UndoableBase Class	104
BusinessBase Class	112
ReadOnlyBindingList Class	130
Csla.Validation Namespace	131
RuleHandler Delegate	132
RuleArgs Class	132
RuleMethod Class	133
ValidationRules Class	134
BrokenRule Class	137
BrokenRulesCollection Class	137
ValidationException	138
Csla.Security Namespace	139
RolesForProperty Class	139
AccessType Enum	140
AuthorizationRules Class	140

Csla Namespace	143
BusinessBase Class	143
BusinessListBase Class	146
ReadOnlyBase Class	159
ReadOnlyListBase Class	160
Conclusion	161

■ CHAPTER 4 **Data Access and Security** 163

Data Portal Design	164
Channel Adapter and Message Router Patterns	165
Distributed Transaction Support	168
Context and Location Transparency	170
Enhancing the Base Classes	173
Factory Methods and Criteria	175
Save Methods	176
Data Portal Methods	178
Csla.MethodCaller Class	181
Csla.Server.CallMethodException	187
Csla.RunLocalAttribute Class	188
Csla.DataPortalEventArgs Class	188
Csla.DataPortal Class	189
Csla.Server.IDataPortalServer	197
Csla.DataPortalClient.IDataPortalProxy	198
Csla.DataPortalClient.LocalProxy	198
Csla.DataPortalClient.RemotingProxy	200
Csla.Server.Hosts.RemotingPortal	202
Csla.DataPortalClient.EnterpriseServicesProxy	204
Csla.Server.Hosts.EnterpriseServicesPortal	206
Csla.DataPortalClient.WebServicesProxy	210
Csla.Server.Hosts.WebServicePortal	213
Distributed Transaction Support	215
Csla.TransactionalTypes	215
Csla.TransactionalAttribute	215
Csla.Server.DataPortal	216
Csla.Server.ServicedDataPortal	220
Csla.Server.TransactionaDataPortal	221
Message Router	222
Csla.CriteriaBase	223
Csla.Server.SimpleDataPortal	223

Context and Location Transparency	229
Csla.Server.DataPortalContext	229
Csla.Server.DataPortalResult	232
Csla.Server.DataPortalException	233
Csla.ApplicationContext	233
Conclusion	238

■ CHAPTER 5 **Completing the Framework** 239

Additional Base Classes	240
CommandBase	240
NameValueListBase	243
Custom Authentication	247
BusinessPrincipalBase	250
Sorting Collections	251
SortedBindingList	252
Date Handling	267
SmartDate	268
Common Business Rules	277
CommonRules	278
Data Access	281
SafeDataReader	281
DataMapper	285
Reporting	290
ObjectAdapter	291
Windows Data Binding	299
ReadWriteAuthorization	299
BindingSourceRefresh	306
Web Forms Data Binding	307
CslaDataSource	309
CslaDataSourceView	311
CslaDataSourceDesigner	314
CslaDesignerDataSourceView	314
ObjectSchema	318
ObjectViewSchema	319
ObjectFieldInfo	320
Conclusion	323

■ CHAPTER 6 **Object-Oriented Application Design** 325

Application Requirements	326
Use Cases	327

Object Design	330
Initial Design	330
Revising the Design	332
Custom Authentication	343
Using CSLA .NET	344
Database Design	347
Creating the Databases	348
PTracker Database	349
Security Database	362
Conclusion	363
 CHAPTER 7 Using the CSLA .NET Base Classes	 365
Business Object Life Cycle	365
Object Creation	366
Object Retrieval	369
Updating Editable Objects	371
Disposing and Finalizing Objects	376
Business Class Structure	378
Common Features	378
Class Structures	383
Conclusion	405
 CHAPTER 8 Business Object Implementation	 407
ProjectTracker Objects	407
Setting Up the Project	408
Business Class Implementation	410
Project	410
ProjectResources	431
ProjectResource	436
Assignment	441
RoleList	443
Resource and Related Objects	445
ProjectList and ResourceList	448
Roles	451
Role	454
Implementing Exists Methods	456
Custom Authentication	458
PTPrincipal	458
PTIdentity	460
Conclusion	464

CHAPTER 9	Windows Forms UI	465
	Interface Design	465
	User Control Framework	467
	User Control Design	469
	Application Configuration	469
	PTWin Project Setup	472
	User Control Framework	472
	WinPart	472
	MainForm	474
	Login Form	480
	Business Functionality	482
	MainForm	482
	RolesEdit	485
	Project List	494
	ProjectEdit	497
	Conclusion	513
CHAPTER 10	Web Forms UI	515
	Web Development and Objects	515
	State Management	517
	State on the Web Server	518
	Transferring State to or from the Client	520
	State in a File or Database	521
	Interface Design	522
	Application Configuration	525
	PTWeb Site Setup	527
	Master Page	528
	Login Page	533
	Business Functionality	540
	RolesEdit Form	540
	ProjectList Form	550
	ProjectEdit Form	554
	Conclusion	565
CHAPTER 11	Web Services Interface	567
	Overview of Web Services	568
	The SOAP Standard	568
	Message-Based Communication	569
	SOAP and Web Services	569
	SOAP, Web Services, and the .NET Framework	570

Web Services and SOA	571
Services vs. Components	571
Designing a Web Services Interface	575
Component-Based vs. Service-Oriented Design	575
Grouping Web Methods into Web Services	576
Returning and Accepting Data	577
Authentication	579
Web Service Implementation	581
Application Configuration	581
PTWebService Site Setup	583
PTService	585
Authentication	585
Component-Based Web Methods	589
Service-Oriented Web Methods	592
Web Service Consumer Implementation	596
A Simple Smart Client	599
Conclusion	605
 CHAPTER 12	
Implementing Remote Data Portal Hosts	607
Data Portal Channel Comparison	608
Factors for Comparison	608
.NET Remoting	611
Implementation	612
Web Services	615
Implementation	616
Enterprise Services	618
Creating the Proxy/Host Assembly	618
Client Setup	625
Conclusion	626
 INDEX	627