

Fun with Silverlight 4

Rajesh Lal

Illustrated Guide to Creating Rich Internet Applications

(with examples in C#, ASP.NET, XAML, Media, Webcam, AJAX, REST and Web Services)

Contents at a Glance

	Introduction.....	1
Part I	Developing Silverlight Applications	
1	Design a Rich Internet Application	11
2	Extend Control Framework.....	69
3	Create Compelling Graphics	119
4	Work with Animation.....	193
Part II	Interact with the Web	
5	Extend Browser Programming Model.....	231
6	Bring Data Visualization to the Web	295
7	Develop with ASP.NET and AJAX.....	379
8	Work with Web Services.....	413
Part III	Advance with Media	
9	Play with Media	451
10	Fun with Advanced Media	505
Part IV	Appendix	
11	Silverlight: A Beginner's Guide	559

Table of Contents

Contents

Introduction

What's in the Book		1
Section 1: Develop Silverlight Applications	2	
Section 2: Interact with Web	2	
Section 3: Advance with Media	3	

Part I: Developing Silverlight Applications

1. Design a Rich Internet Application

Use Common Controls		11
Use a Grid	11	
Use Grid Splitter Control	15	
Create Popup Control	18	
Work with Stack Panel	20	
Use Repeat Button	22	
Use ToolTip	25	
Create Canvas and Shapes	29	
Handle Input and Events		32
Capture Mouse Input	32	
Capture Mouse	37	
Capture Keyboard Input	42	
Use Ink	47	
Use Dynamic Resources		52
Load XAML Resource dynamically	52	
Load XAML Files dynamically	55	
Load XAML Code	56	
Load Image file	58	
Load Media File	60	
Load Audio File	62	
Use Fonts	63	

2. Extend Control Framework

Customize Common Controls		69
Create a Reusable Control	69	
Apply Style to the Login Control	71	
Use Template with controls	75	
Create Rich experience with Visual State Manager	78	
Reusable Control		82
Create a Thumbnail User Control	82	
Create a Slideshow Custom Control	90	
DeepZoom		100
Create Single Image Zoom Application	100	
Create Multiple Image Zoom with Information	108	

Table of Contents

3. Create Compelling Graphics

Understand Layout		119
Work with Border	119	
Understand Padding	125	
Work with Advanced Shapes		127
Work with Lines	128	
Draw Curves	131	
Create Geometry	132	
Draw Arcs	135	
Create Yin Yan	137	
Work with Paintbrushes		139
Create Solid Color Brush	140	
Create a Web Safe Palette	143	
Use Predefined Colors	145	
Work with Linear Gradient Brush	145	
Create a Sun Glow effect	148	
Work with Linear Gradient Brush	150	
Create Gradient for Prism	151	
Work with Radial Gradient Brush	153	
Work with Radial Gradient	155	
Create Sun glow using Radial Gradient	157	
Create a Sunrise picture using Radial Gradient	159	
Create a Glass Orb	160	
Use Media Brush	162	
Use Image and Video in a Brush	164	
Apply ImageBrush and VideoBrush in a shape	165	
Image and Video Brush on a Control	166	
Work with Transformations		168
Use Rotate Transformation	168	
Use Scale Transformation	171	
Use Skew Transformation	173	
Use Translate Transformation	176	
Manipulate Image		178
Stretch Image	179	
Clip Image	182	
Apply Opacity to an Image	184	
Shadow Image	186	
Glow Image	187	
Add Reflection to an Image	189	

4. Work with Animation

Understanding Animation		193
Use Double Animation	196	
Customize the speed of the animation	199	
Rotate an Element	201	
Create Multiple Animations	202	
Create Point Animation	203	

Create a Solar Eclipse animation	205	
Use Point Animation with Gradient	207	
Create Color Animation	209	
Create a Rainbow with Fade In effect.	214	
Understand Keyframe Animation		217
Create Discrete KeyFrame Animation	220	
Create Splined KeyFrame Animation		222

Part II: Interacting with the Web

5. Extend Browser Programming Model

Get Browser Information	232	
Read Query Strings	234	
Implement History Navigation	238	
Work with Cookies	241	
Understand SilverlightHost		244
Access Silverlight Plug-in Values	245	
Create Transparent Background	247	
Work with Custom Parameters	249	
Slideshow Widget with Custom Parameters	251	
Create Silverlight Dynamically	254	
Use Local Storage		257
Open File Dialog	257	
Work with Isolated Store	261	
Add Local files to Isolated Store	266	
Add embedded files to Isolated Store	271	
Work with Isolated Settings	275	
Work through HTML Bridge		279
Access Elements in the HTML Page	279	
Access Document Object Model (DOM)	283	
Access Script on the Page	286	
Access Silverlight from the Page	289	

6. Bring Data Visualization to Web

Know Data		295
Know Array data structures	296	
Bind Data with One-Way and Two-Way Binding	311	
Work with Data Template	318	
Use Data Validation and Conversion	322	
Work with XML Data		330
Use XML Reader	331	
Create XML using XML Writer	342	
Work with XLinq	346	
Serialize, De-Serialize XML data	357	
Understand JSON Data		360
Consume JSON Data	360	
Use JSON Data Contract Serializer	366	

Table of Contents

Work with RSS and Atom feeds		369
Read RSS 2.0 and Atom 1.0 feed	370	
Format XML as RSS and Atom 1.0 Feed	373	
7. Develop with ASP.NET and AJAX		
Use Silverlight in ASP.NET		379
Create Silverlight using Server code	380	
Work with ASP.NET Silverlight Server Control	381	
Work with ASP.NET Media Control	383	
Encapsulate Silverlight in ASP.NET User Control		386
Work with ASP.NET AJAX Extension		390
Use ADO.NET Data Services		394
Use ADO.NET Data Services for CREATE Operation	399	
Use ADO.NET Data Services for READ Operation	404	
Use ADO.NET Data Services for UPDATE Operation	408	
Use ADO.NET Data Services for DELETE Operation	410	
8. Work with Web Services		
Interact with REST Web Service		413
Use Silverlight to GET from Flickr REST API	414	
Use Silverlight to POST to Twitter REST API	421	
Work with ASP.NET Web service (ASMX)		426
Use Silverlight enabled WCF service		433
Develop with .NET/WCF RIA Service		439
Part III: Advance with Media		
9. Play with Media		
Work with Rich Media		451
Create a Rich Video Experience	452	
Work with Media State and Full Screen Mode	457	
Use Video Brush	463	
Learn SetSource and MediaStream	470	
Encode and Deliver Media		472
Progressive Download Media	473	
Know Media Streaming	475	
Smooth Streaming	479	
Create Media Markers		483
Add Keywords and Thumbnails Media Markers	483	
Add Closed Captioning to a Media	487	
Add Chapters List and Subtitles	490	
Edit Media		494
Insert Image Before/After Media	494	
Embed Image into Media	497	
Embed Video into Media (Picture in Picture)	500	
Embed XAML into Media	501	

10. Fun with Advanced Media

Create an Advanced Media Player		505
Custom Media Player with Timeline	506	
Use Media Player Object with Media Skins	510	
Customize Encoder Media Player	512	
Working with Playlists		520
Create Client Side Playlists	520	
Work with Web Playlists	524	
Create Server-Side Playlists	527	
Use Webcam		529
Use Audio Capture to Record Audio	530	
Use Webcam to Record Video	535	
Take a Screenshot from Silverlight	542	
Use Silverlight Media Frameworks (SMF)		545
SMF Simple Media Player	546	
SMF Progressive Download Player	549	
SMF Smooth Streaming Player	551	

Part IV: Appendix

11. Silverlight:A Beginner's Guide

Silverlight Basics		560
Silverlight Plug-in		561
Steps for rendering Silverlight on a web page	562	
Silverlight Host		563
Silverlight Application File (.XAP)		564
Silverlight XAML		568
Extensible Markup Language files (Visual Part)	568	
XAML .NET Files (Application Part)	572	
Silverlight and .NET Framework		574
Understand the Embedded CLR	575	
.NET Framework Libraries for Silverlight	575	
Create Silverlight Application		578
Creating the Hello World Application	578	
Create an Event Driven Application	582	

About the Author



Rajesh Lal is passionate about Silverlight and Web technologies. He likes to take a pragmatic approach to solving problems and make extra effort to simplify complex topics. Rajesh has worked on software design and development for more than ten years and had authored multiple books on Windows Gadgets, Web Widgets and Smartphone Web development. He has a Master's degree in Computer Science from Texas and currently lives in Mountain View, California.

Book resources : <http://silverlightfun.com>
Twitter : [@rajeshlalnokia](http://twitter.com/rajeshlalnokia)
Personal website : <http://irajesh.com>
Email : connectrajesh@hotmail.com

Technical Reviewers



Rick Kingslan is a Senior Technical Writer for the Microsoft Office division, working on the Lync Server product line developing planning and deployment documentation for customers. Rick worked on the Lync Server 2010 resource kit, as well as the Office Communications Server 2007 R2 and 2007 resource kit books. Prior to taking on the role of a technical writer, he worked as a Consultant, Microsoft Consulting Services (MCS) delivering solutions to enterprise customers. During his tenure with MCS, Rick travelled internationally to 12 countries on four continents, delivering Application Compatibility and Remediation seminars. The training was sponsored by the Windows division in an effort to expedite the transition of customers moving from Windows XP and Server 2003.

Rick lives and works in Omaha, Ne (yes, Nebraska IS that large, flat place right between Chicago and Denver...OK, Iowa is there, too.) He is married to Sue. Rick's blog is "Musings of a Constant Geek" at <http://rkingsla.wordpress.com/>



Kunal Chowdhury is a Microsoft MVP (Silverlight), a Telerik MVP, a Codeproject MVP & Mentor, Speaker in various Microsoft events, Author, passionate Blogger and a Software Engineer by profession. He has a very good skill over Silverlight, LightSwitch, Windows Phone 7, C#, XAML & Blend. He shares his technical findings, tutorials in his technical blog. Follow his Blog and Facebook page to be updated on latest articles.

Technical Blog <http://www.kunal-chowdhury.com>
Silverlight-Zone <http://www.silverlight-zone.com>
Twitter <http://twitter.com/kunal2383>
Facebook Page <https://www.facebook.com/blog.kunal2383>

Dedication

To my wife Lakshmi. Kaise Mujhe Tum Mil Gayee (How did I find you!)

Acknowledgement

Writing is a fascinating journey, but it is also long and tiring. I would like to extend my special thanks to all my friends and family who supported me during this journey. Specially my mom and dad and my brothers Rakesh and Rajeev, for all the wonderful things I have learned from them, and Simple, and Shilpi for just, being so wonderful, and to my inspiration and my wife Neelu the most beautiful thing happned to me in the last ten years.