

Programming Windows Phone 7

*Microsoft®
XNA®
Framework
Edition*



Charles Petzold

Table of Contents

Introduction	xi
Part I The Basics	
1 Hello, Windows Phone 7	3
Targeting Windows Phone 7	3
The Hardware Chassis.	5
Sensors and Services.	7
File New Project	8
A First Silverlight Phone Program	9
The Standard Silverlight Files	11
Color Themes.	18
Points and Pixels	19
The XAP is a ZIP.	21
An XNA Program for the Phone	21
2 Getting Oriented.	31
Silverlight and Dynamic Layout	31
Orientation Events	38
XNA Orientation	40
Simple Clocks (<i>Very Simple Clocks</i>)	43
3 An Introduction to Touch	49
Low-Level Touch Handling in XNA	49
The XNA Gesture Interface	53
Low-Level Touch Events in Silverlight	54
The Manipulation Events	58
Routed Events	61
Some Odd Behavior?	63

4	Bitmaps, Also Known as Textures.	65
	XNA Texture Drawing.	66
	The Silverlight <i>Image</i> Element	68
	Images Via the Web	69
	Image and ImageSource	73
	Loading Local Bitmaps from Code.	74
	Capturing from the Camera	76
	The Phone's Photo Library.	79
5	Sensors and Services	83
	Accelerometer	83
	A Simple Bubble Level	89
	Geographic Location	94
	Using a Map Service.	98
6	Issues in Application Architecture	107
	Basic Navigation	107
	Passing Data to Pages	114
	Sharing Data Among Pages.	116
	Retaining Data across Instances.	121
	The Multitasking Ideal	124
	Task Switching on the Phone	124
	Page State.	126
	Isolated Storage	130
	Xna Tombstoning and Settings.	134
	Testing and Experimentation	140

Part II **XNA**

7	Principles of Movement.	143
	The Naïve Approach.	143
	A Brief Review of Vectors	146
	Moving Sprites with Vectors.	151
	Working with Parametric Equations	153
	Fiddling with the Transfer Function.	156
	Scaling the Text.	157
	Two Text Rotation Programs.	161

8	Textures and Sprites	169
	The <i>Draw</i> Variants	169
	Another Hello Program?	171
	Driving Around the Block	176
	Movement Along a Polyline	180
	The Elliptical Course	185
	A Generalized Curve Solution	188
9	Dynamic Textures	193
	The Render Target	193
	Preserving Render Target Contents	202
	Drawing Lines	206
	Manipulating the Pixel Bits	213
	The Geometry of Line Drawing	217
	Modifying Existing Images	229
10	From Gestures to Transforms	233
	Gestures and Properties	233
	Scale and Rotate	237
	Matrix Transforms	245
	The <i>Pinch</i> Gesture	249
	Flick and Inertia	257
	The Mandelbrot Set	260
	Pan and Zoom	271
	Game Components	278
	Affine and Non-Affine Transforms	282
11	Touch and Play	293
	More Game Components	293
	The PhingerPaint Canvas	299
	A Little Tour Through SpinPaint	309
	The SpinPaint Code	311
	The Actual Drawing	316
	PhreeCell and a Deck of Cards	321
	The Playing Field	322
	Play and Replay	331

12 Tilt and Play	345
3D Vectors	345
A Better Bubble Visualization	347
The Graphical Rendition	356
Follow the Rolling Ball	364
Navigating a Maze	376
 Index	 389

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

Microsoft is interested in hearing your feedback so we can continually improve our books and learning resources for you. To participate in a brief online survey, please visit:

microsoft.com/learning/booksurvey