## brief contents

Part 1	INTRODUCING XCODE AND SWIFT	parage de company
	1 • Your first iOS application 3	
	2 Introduction to Swift playgrounds 29	
	3 Swift objects 55	
PART 2	BUILDING YOUR INTERFACE	81
	4 • View controllers, views, and outlets 83	
	5 • User interaction 105	
	6 ■ Adaptive layout 133	
	7 More adaptive layout 167	
	8 Keyboard notifications, animation, and scrolling 199	
PART 3	BUILDING YOUR APP	225
	9 Tables and navigation 227	
	10 Collections, searching, sorting, and tab bars 263	
	11 Local data persistence 297	
	12 Data persistence in iCloud 337	
	13 • Graphics and media 371	
	14 ■ Networking 409	
	15 ■ Debugging and testing 439	

PART 4	FINALIZING YOUR APP	479
	16 Distributing your app 481	
	17 • What's next? 513	

## contents

preface xv
acknowledgments xviii
about this book xix
about the author xxiii
about the cover illustration xxiv

PART 1	Bosonia	NTR	ODUCING XCODE AND SWIFT 1
	7	Your f	irst iOS application 3
	. selline	1.1	Exploring iOS SDK 3
		1.2	Creating an Xcode project 5
			Templates 6 • Project options 9
		1.3	Exploring the Xcode interface 10
			Toolbar area 11 • Utility area 12 • Navigator area 12 Editor area 13 • Debug area 15
		1.4	Editing your app's interface 15
		naa Seemi	Storyboards and nibs 15 * View controllers and views 16 Interface Builder 16 * Object Library 17 * Document Outline 18 * Inspectors 19
		1.5	Running your app 22
			Running your app on a device 22 • Running your app in the simulator 22 • Running your app 23 • Simulator features 23

1.0	Peeking at a completed app 24
	Checking out a repository in Xcode 24 • Peeking at the completed app's storyboard 24 • Tweaking the code 25
1.7	Summary 26
ntrod	luction to Swift playgrounds 29
2.1	Xcode playground 30
	Results sidebar 31 • Automatic compiling 32 Console 32
2.2	Type safety and type inference 33
	Converting numeric types 35 • Concatenating strings 36
2.3	Collections 36
	Arrays 36 • Sets 37 • Dictionaries 38
2.4	Control Flow 38
	for-in 39 • switch statement 40
2.5	Functions 41
	Modifying external parameter names 41 • Omitting external parameter names 42 • Default parameter names 42
2.6	Optionals 42
	Declaring an optional 44 • Unwrapping an optional 44 Optional chaining 48 • Final comments on optionals 49
2.7	Tuples 49
	Tuples as return values 50 • Tuple magic 50
2.8	Higher-order functions 51
	map 51 • Closures 52 • filter 53 • reduce 53 sorted 54
2.9	Summary 54
Swift	objects 55
3.1	Classes 56
	Defining a class 56 • Properties 57 • Initializers 58  Methods 59 • Computed properties 63 • Class inheritance 65  Protocols 68
3.2	Structures 71
	Structures vs. classes 72

CONTENTS

3.3	Extensions 76
	Extensions of your type 76 • Extensions of their type 77 Operator overloading 78 • Generics 79
3.4	Summary 80
PART 2 BUIL	LDING YOUR INTERFACE 81
4 View	controllers, views, and outlets 83
4.1	View hierarchy 84
4.2	Model-view-controller 85
4.3	View controller 86
	Creating a custom view controller 87 • Customizing a UIViewController subclass 88 • Initial view controller 90
4.4	Managing views 94
	Managing views in code 94 • Managing views in Interface Builder 97
4.5	Summary 104
Tuser User	interaction 105
5.1	Controls 106
,	Buttons 106 • Text field 109 • Other controls 114
5.2	Touching views 115
	Hit testing 116 • Overriding touch methods 116 The responder chain 117
5.3	Gesture recognizers 119
	Pan gesture 121 • Pinch gesture 125 • Rotate gesture 126 • Simultaneous gesture recognizers 126 Tap gesture in code 129
5.4	Summary 131
Adapt	tive layout 133
	The problems 134
6.2	Auto layout 135
	Auto layout tips 137 • Auto layout in Interface Builder 137 Auto layout in code 153

	CONTENTS
6.3	Autoresizing 157
	Autoresizing in code 158 • Autoresizing in Interface Builder 160 • Autoresizing considerations 160
6.4	Manual adaptive layout 161
	Receiving transition events 161 • Receiving layout events 163
6.5	Choosing an approach 165
6.6	Summary 166
More	adaptive layout 167
7.1	Size classes 167
	Size classes in code 170 • Size classes in Interface Builder 176
7.2	Stack views 185
	The problem with auto layout 185 • Stack view properties 187 Simple stack view in Interface Builder 189 • Nested stack views in Interface Builder 191 • Adding or removing views from a stack view 194 • Stack views in code 195
7.3	Summary 197
Keybo	ard notifications, animation, and scrolling 199
8.1	The problem with the keyboard 200
8.2	Dismissing the keyboard 201
	Dismissing the keyboard by resigning the first responder 202 Detecting when to dismiss the keyboard 202
8.3	Observing keyboard notifications 205
	What is a notification? 205 • Observing a keyboard frame change notification 206 • Unregistering a notification 207 Extracting keyboard information from the notification 208 Getting a reference to the first responder 209 • Calculating the offset to animate 210
8.4	Animating views 211

Animating the view from under the keyboard 212 • Diving deeper into animating views with a sample bar chart 213

Scroll view with form content and keyboard 218 • Diving

deeper into scroll views with image content 222

Scroll views

Summary 223

218

8.5

8.6

хi

0	Table	es and navigation 227	
	9.1	Displaying data in table views 228	
		Setting up a table view controller in the storyboard 229 • Displaying data in the table view 234	
	9.2	Adding a row 242	
		Embedding a navigation controller 243 • Creating a segue 245 • Embedding second navigation controller 248 • Communicating with the books scene using your own delegate 249 • Adding data to the table 252	
	9.3	Editing a row 255	
		Creating a segue from a row 255 • Passing in the book object to edit 257 • Removing the view controller 258 Updating the book object 259	
	9.4	Using large titles 259	
	9.5	Deleting a row 260	
	9.6	Summary 262	
10	Colleg	ctions, searching, sorting, and tab bars 263	
10	10.1	Sorting the data 264	
		Creating a sort method to sort the books array 264 Changing sort order 265	
	10.2	Searching the data 270	
	el gare Fel Perif a P	Creating a search controller 271 • Adding the search controller to the view controller 272 • Filtering the data 273 • Removing and updating rows with filtered data 275	
	10.3	Displaying data in collection views 278	
		Creating custom collection cells 280 • Displaying data in a custom collection view cell 281 • Implementing a flow layout 283 • Adding a search bar to the collection view 283 • Creating a second section 285 Implementing the flow layout delegate 286	
	10.4	Creating sections with a tab bar controller 288	
		Sharing data between tabs 290	
	10.5	Summary 295	

77	Local	data persistence 297
allow allow	11.1	Preserving user preferences and state 298
		Preserving and restoring state 298 • Preserving user preferences on the device 300
	11.2	Storing data locally 302
		Storage setup 302 • Structured data files 306 • Archiving objects 312 • SQLite 315 • Core Data 322
	11.3	Summary 335
12	Data	persistence in iCloud 337
M. diseaset	12.1	Setting up your app for iCloud 338
	12.2	Persisting data with ubiquitous key-value store 339
	12.3	Storing data using CloudKit 342
		Updating the model for CloudKit 344 • Adding a book record to CloudKit 346 • Updating a book record in CloudKit 352 • Loading book records in CloudKit 353 Deleting a book record in CloudKit 355 • Managing CloudKit errors 356 • Refreshing CloudKit data 360 Subscribing to changes 362
	12.4	Summary 369
13	Graf	bhics and media 371
alba and	13.1	Adding images to your app with an asset catalog 372  Adding image sets 373 • Adding app icons 377
	13.2	Displaying a launch screen 379
	13.3	Drawing with Core Graphics 381
		Overriding the draw method 382 • Describing a path 382  Drawing into the graphics context 383 • Saving and restoring graphics state 384 • Drawing paths with UIBezierPath drawing methods 384 • Rendering views in Interface Builder 385 • Creating a star-rating view 386
	13.4	Drawing with Core Animation 389
	13.5	
		Taking photos with the image picker controller 392 • Selecting photos from photo library with the image picker controller 397

Taking photos with AVFoundation 398

Playing sounds 405

Summary 407

13.6 13.7 iii

	CONTENTS
14 Netu	orking 409
14.1	Using a web service 410
14.2	Setting up a books service 411
14.3	Communicating with the web service 413
14.4	Creating a URL Session 414  URLSessionConfiguration 414 • URLSession 414
14.5	Setting up the URL request 416
14.6	Requesting data from a web service 418
14.7	Examining the data 418
14.8	Parsing JSON data with JSONSerialization 420
14.9	Parsing JSON data with JSONDecoder 421
14.10	Parsing JSON data with SwiftyJSON 424
	Integrating SwiftyJSON with Carthage 426 • Using SwiftyJSON 429
14.11	Downloading data from a web service 431
	Accessing insecure domains 433
14.12	Displaying the network activity indicator 436
14.13	Cancelling a task 436
14.14	Summary 437
7 Date	는 사람들이 되었다. 그 사람들이 되었다면 되었다. 그 사람들이 되었다면 되었다면 되었다. 그 사람들이 되었다면 되었다면 되었다면 되었다. 그 사람들이 되었다면 되었다면 되었다면 되었다면 되었다면 되었다면 되었다면 되었다면
william surviva	agging and testing 439
15.1	The setup 440
15.2	30 0
15.3	Debugging crash logs in the console 443
	Solving a crash caused by an outlet 445 • Solving a crash caused by an action 447
15.4	Examining variables and breakpoints 448
	Examining a variable with print 449 • Pausing your app
	with a breakpoint 450 • Examining a variable with the variables view 452 • Controlling the app's execution using the
	debug bar 452 • Examining a variable with Quick Look 454

Examining a variable with print description 455 • Examining a variable with LLDB 456 • Examining a variable with data 457 • Solving the save problem 458 • Examining a

Debugging playback with gauges and instruments 459

Debugging playback with debug gauges 459 • Debugging playback with instruments 461 • Solving the playback problem 463

variable in summary 458

15.5

15.	6 Debugging the user interface 463
	Debugging the user interface with the Debug View Hierarchy 465 Debugging the user interface with runtime issues 467 Solving the user interface problem 468
15.	7 Testing your app 469
	Testing for functionality 470 • Testing for performance 473  Testing your user interface 475
15.	8 Summary 478
PART 4 FI	NALIZING YOUR APP 479
16 Di	stributing your app 481
16.	.1 Joining the Apple Developer Program 482
e Na Santa	Signing into Xcode 482 • Code signing your app 483
16	.2 Setting up an app in iTunes Connect 490
16	.3 Uploading your build to iTunes Connect 493
16	0, 1,
	Distributing to beta testers manually 496 • Distributing to beta testers with TestFlight 497
16	.5 Distributing your app to the App Store 505
16	.6 Summary 511
17 W	hat's next? 513
_A#	7.1 Further learning 513
17	7.2 One more thing! 515
appendix	: A Project settings 517
appendix	c B Swift syntax cheat sheets 525
	index 529