

Chapter 1: Hello macOS



The screenshot shows the macOS System Information window. At the top, there are navigation tabs: Overview (selected), Displays, Storage, Support, and Service. The main content area displays the following information:

- macOS Sierra**
Version 10.12 Beta (16A239m)
- MacBook Pro (Retina, 13-inch, Mid 2014)**
- Processor** 2.6 GHz Intel Core i5
- Memory** 8 GB 1600 MHz DDR3
- Graphics** Intel Iris 1536 MB
- Serial Number** C02NWXG2G3QJ

At the bottom of the main content area, there are two buttons: "System Report..." and "Software Update...".

At the very bottom of the window, the copyright notice reads: "™ and © 1983–2016 Apple Inc. All Rights Reserved. License and Warranty".

Chapter 2: Basic Swift

```
7
8  b = 3
9
```

Cannot assign to value: 'b' is a 'let' constant

Cannot assign to value: 'b' is a 'let' constant

Fix-it Change 'let' to 'var' to make it mutable

```
12 //let is runtime
```

```
27
28  let b = 1
29
```

Variable 'b' was never mutated; consider changing to 'let' constant

Variable 'b' was never mutated; consider changing to 'let' constant

Fix-it Replace "var" with "let"

```
33
```

```
210
211 let x: Int = squareOfTwo!
212
```

Value of optional type 'Int?' not unwrapped; did you mean to use '!' or '??'

Value of optional type 'Int?' not unwrapped; did you mean to use '!' or '??'

Fix-it Insert "!"

```
216
```

```
247
248 if (possibleNil != nil)
249 {
```

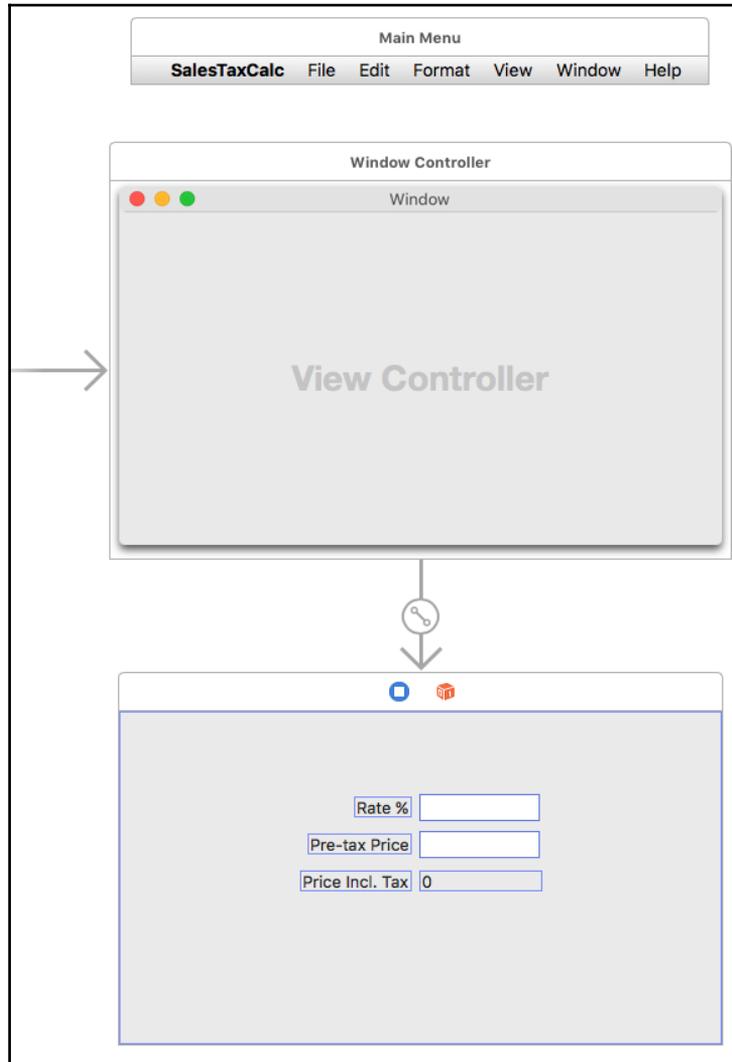
Optional type 'Int?' cannot be used as a boolean; test for '!= nil' instead

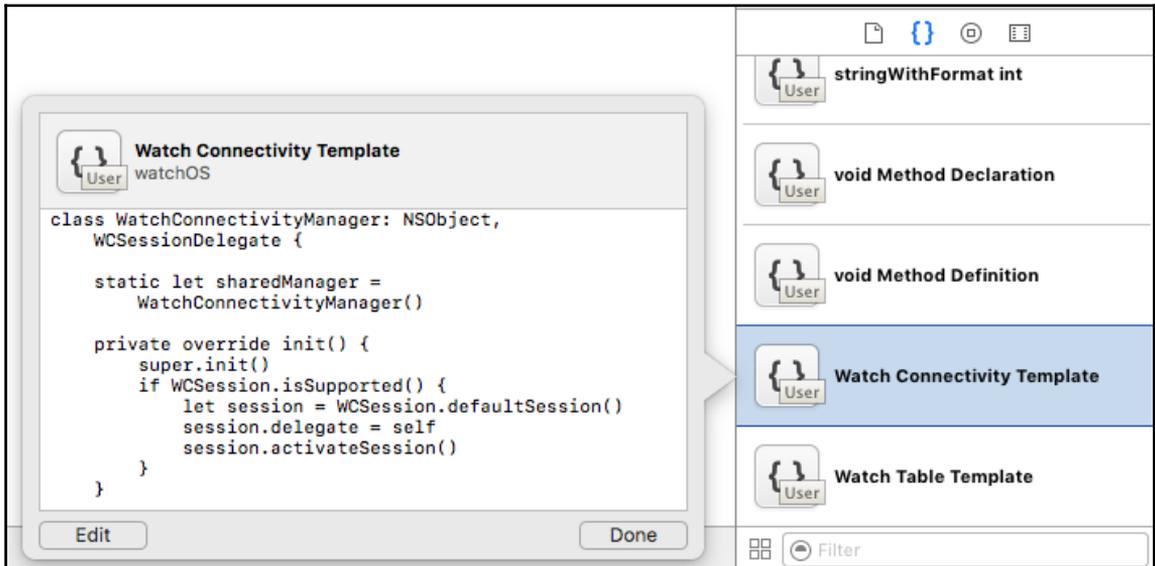
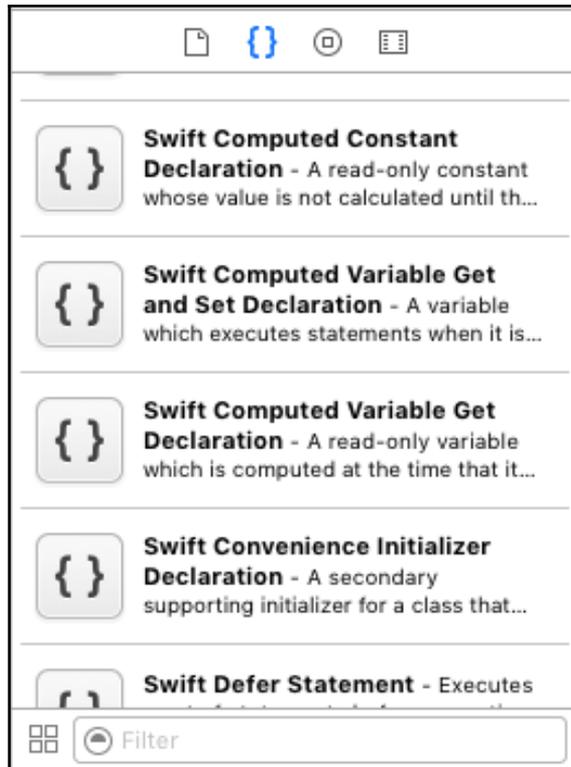
Optional type 'Int?' cannot be used as a boolean; test for '!= nil' instead

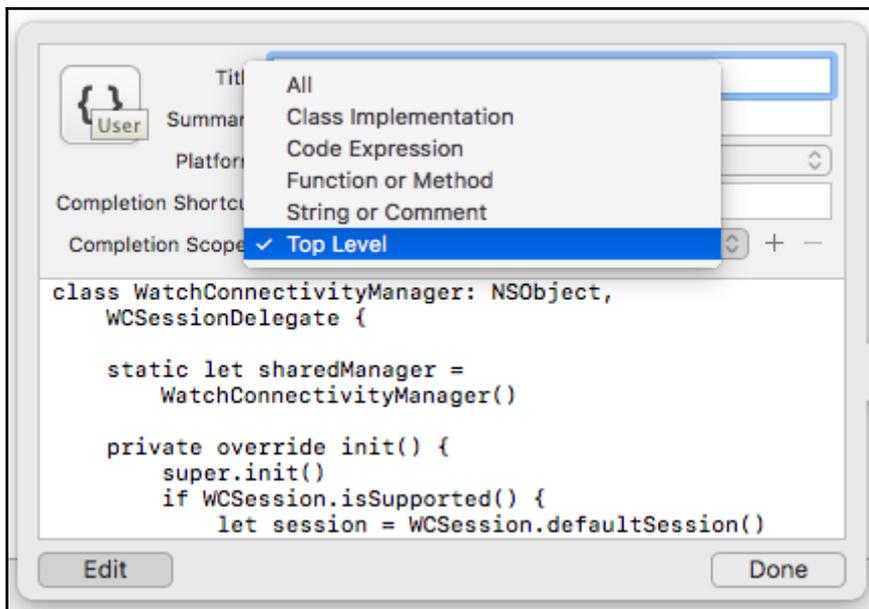
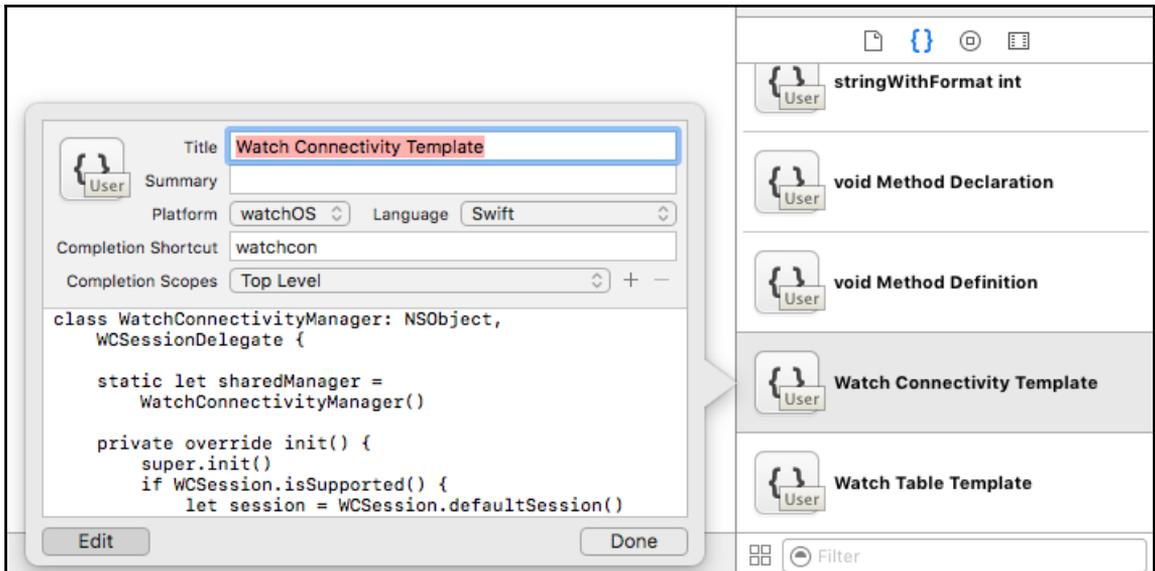
Fix-it Replace "possibleNil" with "(possibleNil != nil)"

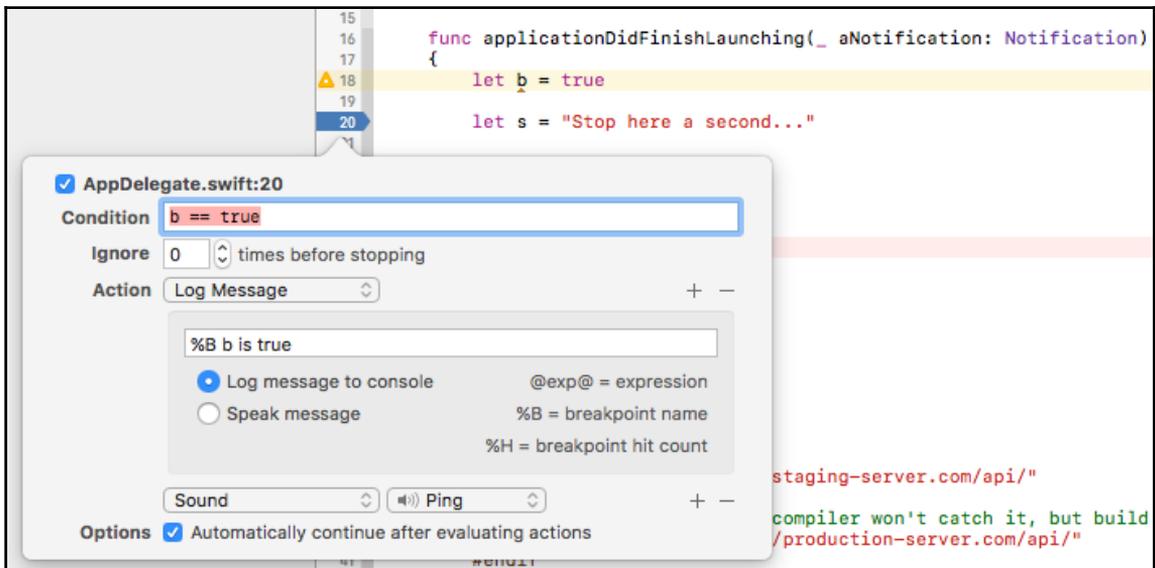
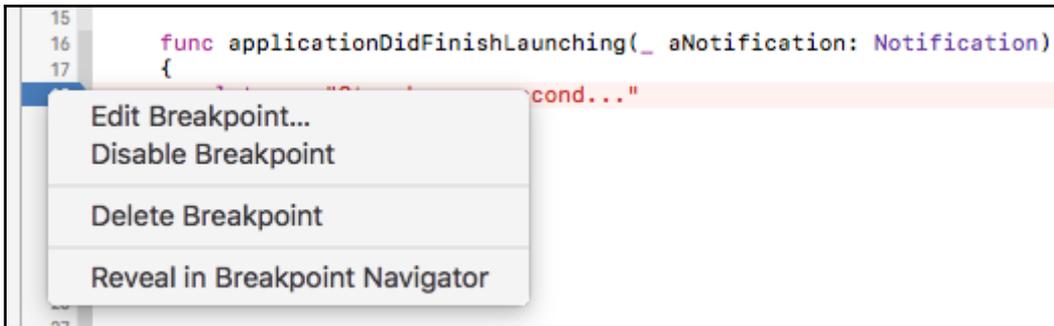
```
253
```

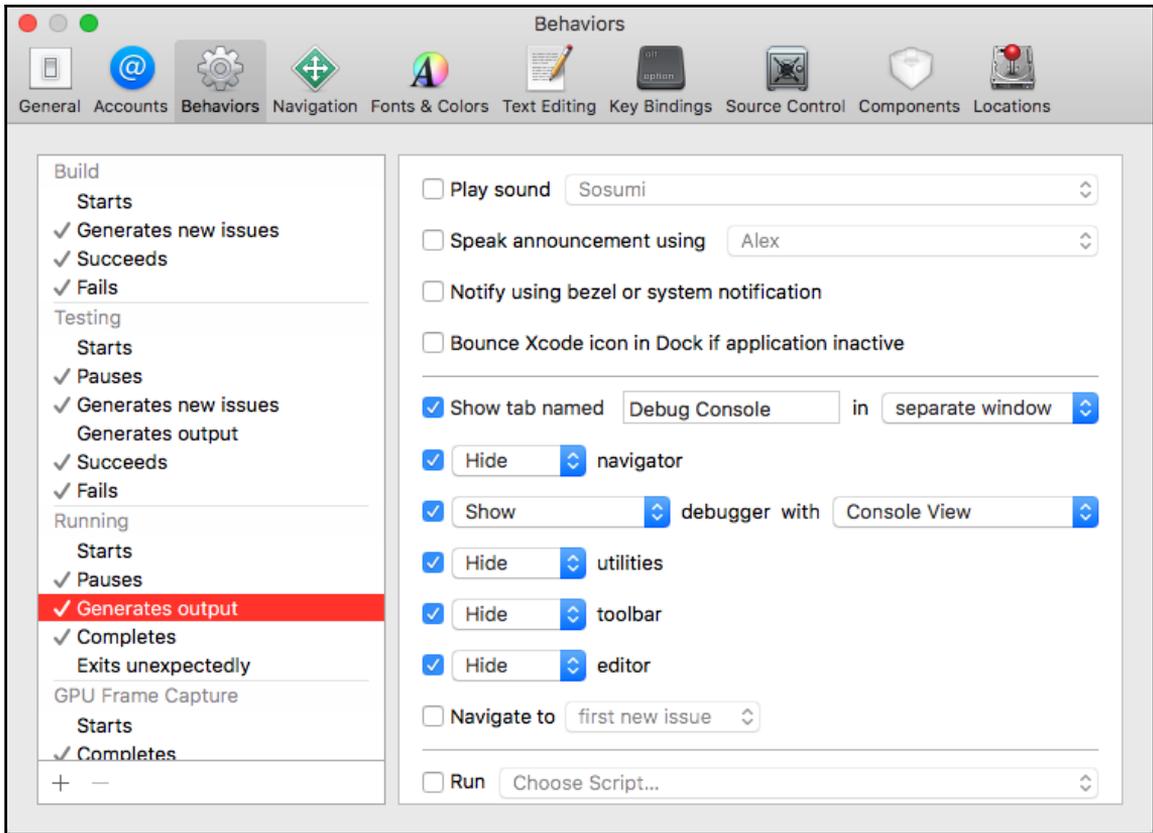
Chapter 3: Checking Out the Power of Xcode

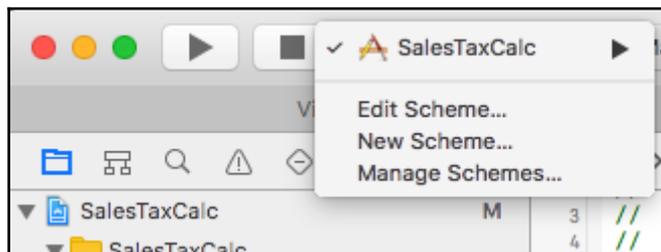
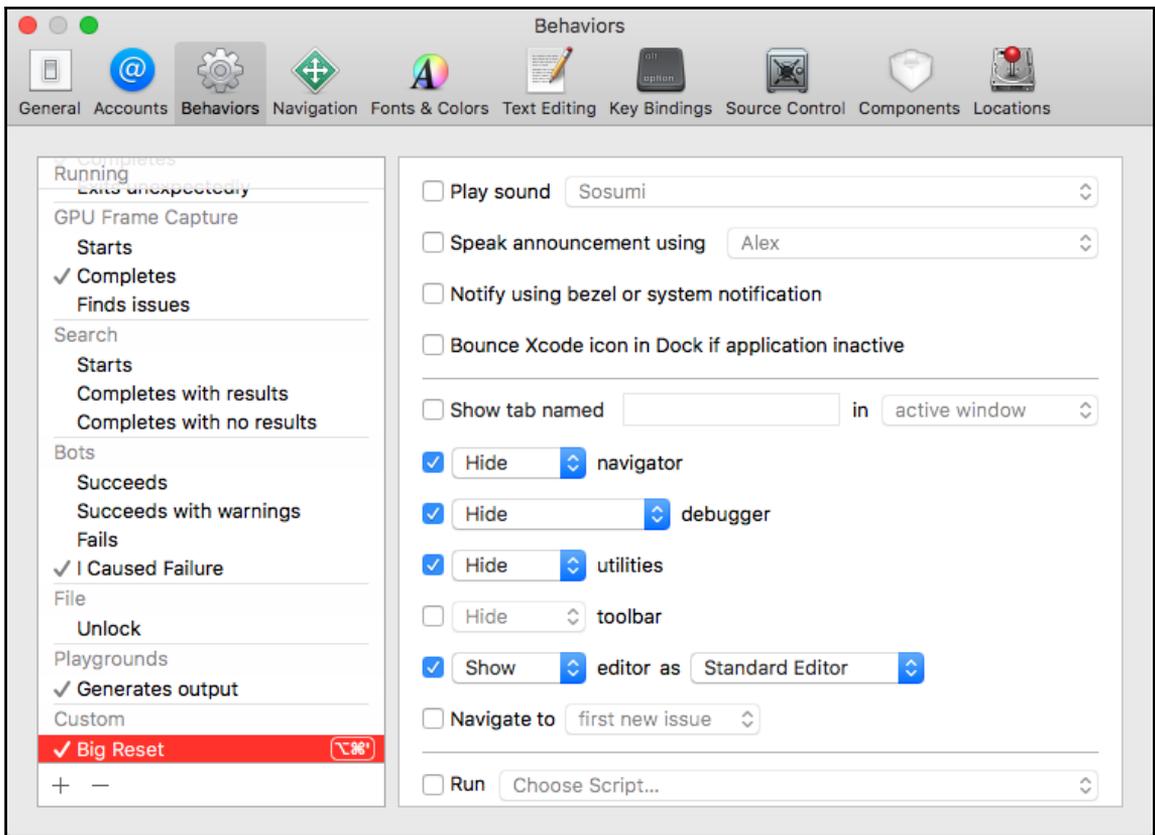


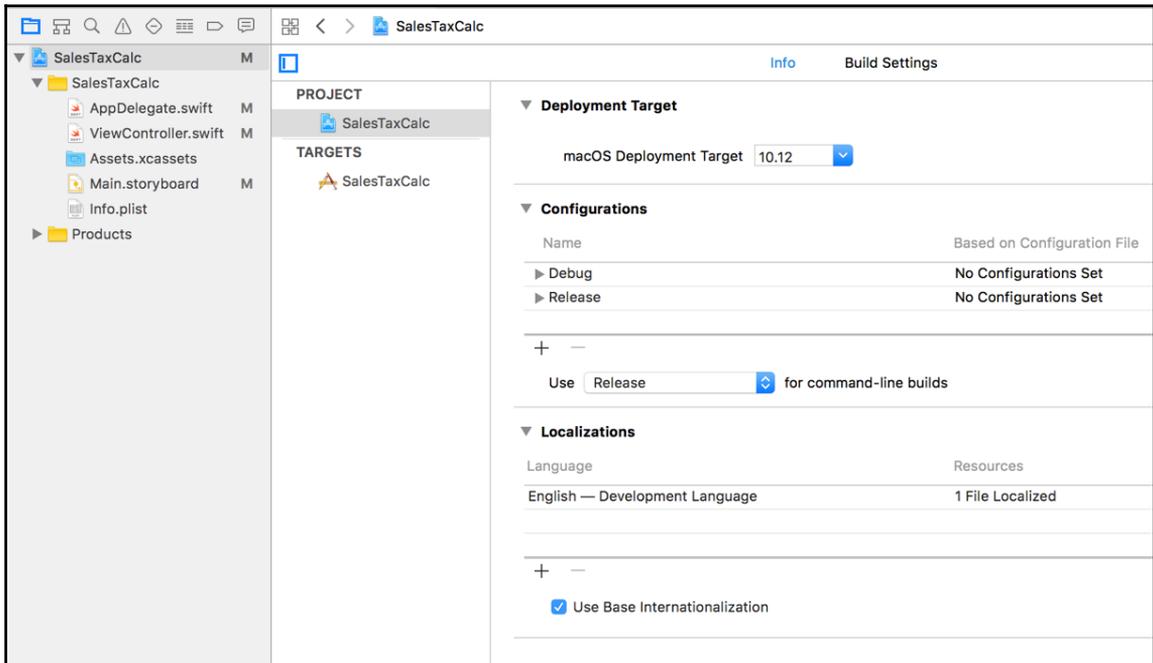
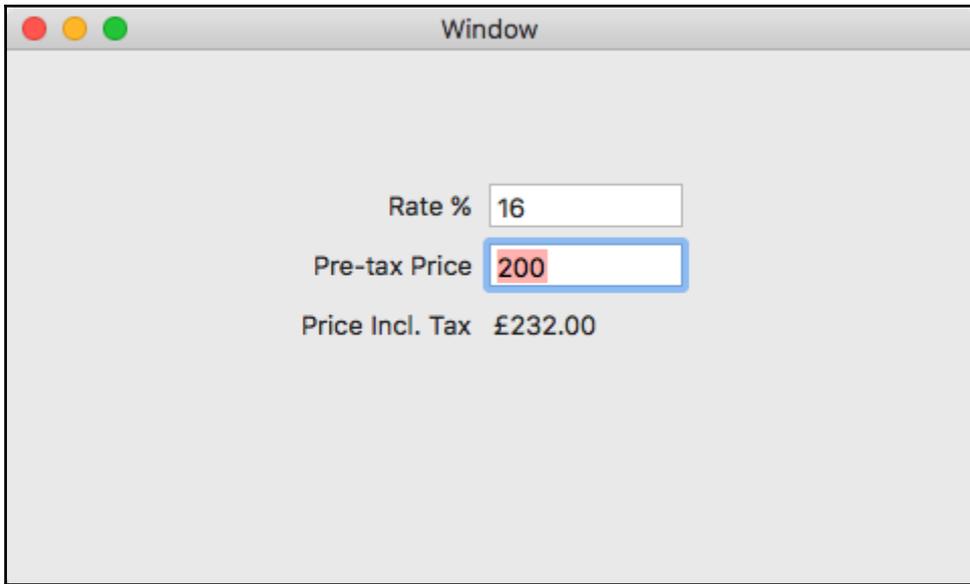


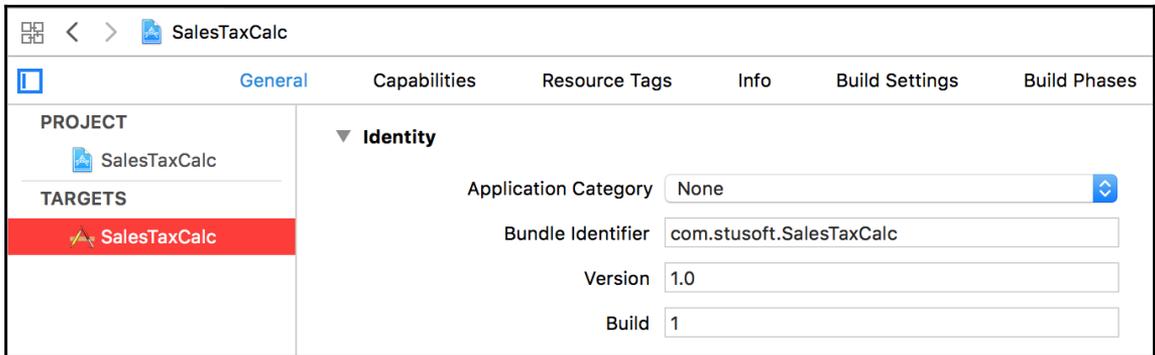
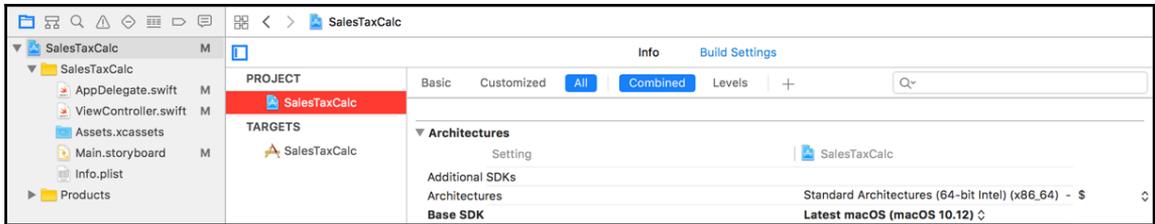
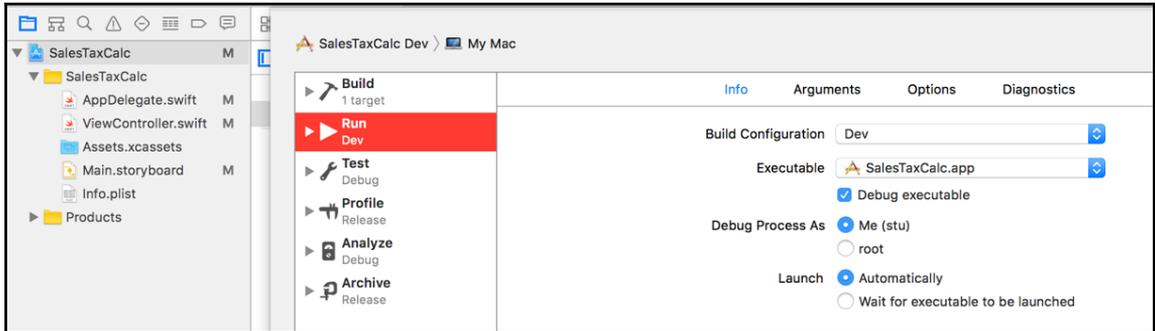












The screenshot shows the Xcode Build Settings interface for the 'SalesTaxCalc' project. The 'Info' tab is selected, and the 'Combined' configuration level is chosen. The 'User-Defined' section is expanded, showing a table of settings. The 'BUNDLE_ID_SETTING' is highlighted in red, with its 'Dev' configuration set to 'com.stusoft.SalesTaxCalc.dev'.

Setting	Value
BUNDLE_ID_SETTING	<Multiple values>
Debug	com.stusoft.SalesTaxCalc
Dev	com.stusoft.SalesTaxCalc.dev
Release	com.stusoft.SalesTaxCalc
CLANG_WARN_SUSPICIOUS_MOVES	YES
MTL_ENABLE_DEBUG_INFO	<Multiple values>

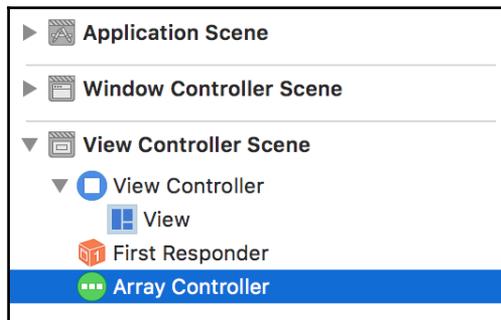
The screenshot shows the 'Other Swift Flags' section of the Xcode Build Settings. The 'Dev' configuration is selected, and the flag '-DDEV' is visible. A pop-up window is open, showing a list of flags with '-DDEV' selected at the top.

Configuration	Flags
Debug	
Dev	-DDEV
Release	

Chapter 6: Cocoa Frameworks - The Backbone of Your Apps

```
15  
16 class MyFoundationClass: NSObject  
17 {  
18     var someDate = Date()  
19 }  
20
```

```
20  
21 class MyAppKitClass  
22 {  
23     var someColor = NSColor.red  
24 }  
25
```



Availability

- ▶ Editable

Controller Content

- ▼ Content Array (View Controller.people)

Bind to

Controller Key

Model Key Path



Value Transformer

Action Invocation

- ▶ Double Click Argument
- ▶ Double Click Target

Availability

- ▶ Enabled
- ▶ Hidden

Font

- ▶ Font
- ▶ Font Bold
- ▶ Font Family Name
- ▶ Font Italic
- ▶ Font Name
- ▶ Font Size

Table Content

- ▼ Content (Array Controller.arrangedObjects)

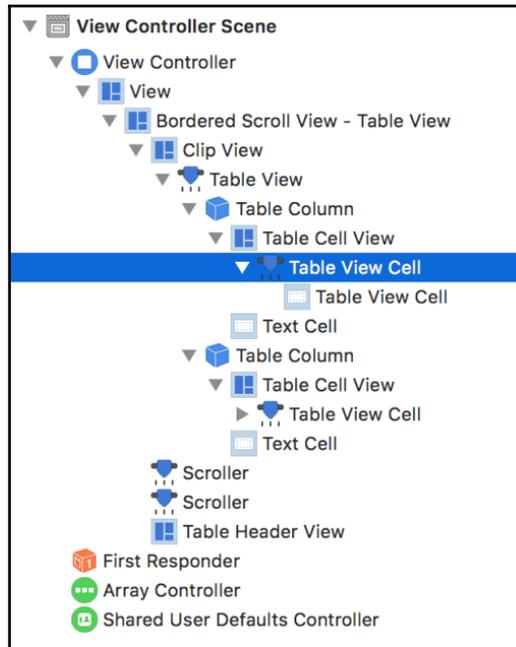
Bind to

Controller Key

Model Key Path

Value Transformer

Raises For Not Applicable Keys



Value

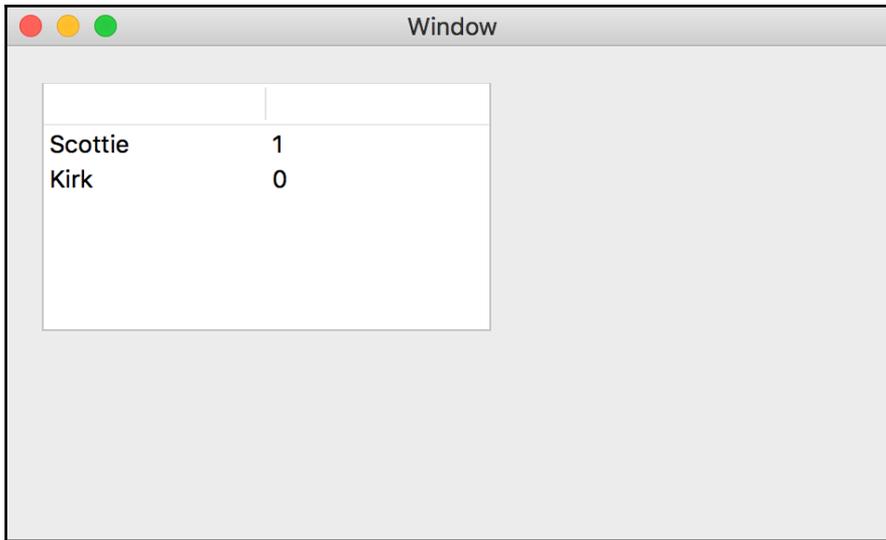
▼ Value (Table Cell View.objectValue.name)

Bind to

Controller Key

Model Key Path

Value Transformer



Scottie	1
Kirk	0

Table Content

▼ Content (Array Controller.arrangedObjects)

Bind to ▾

Controller Key

Model Key Path

Value Transformer

Raises For Not Applicable Keys

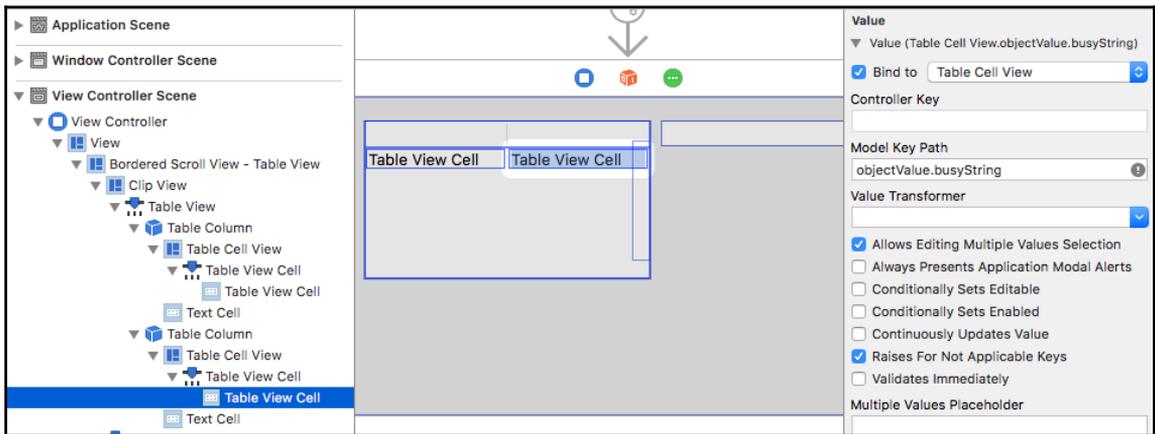
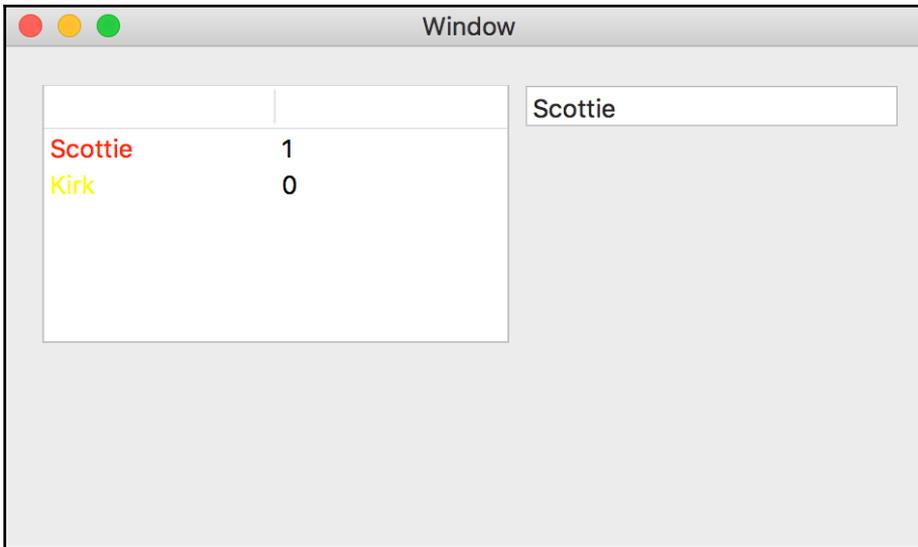
▼ Selection Indexes (Array Controller.selectionIn...)

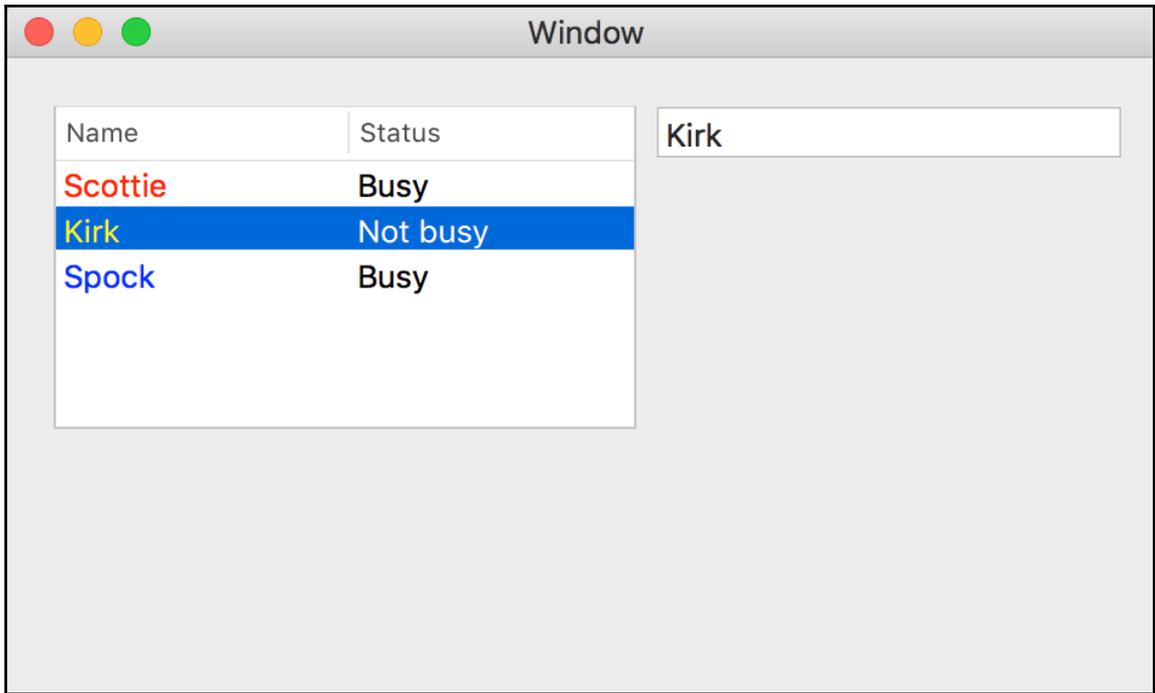
Bind to ▾

Controller Key

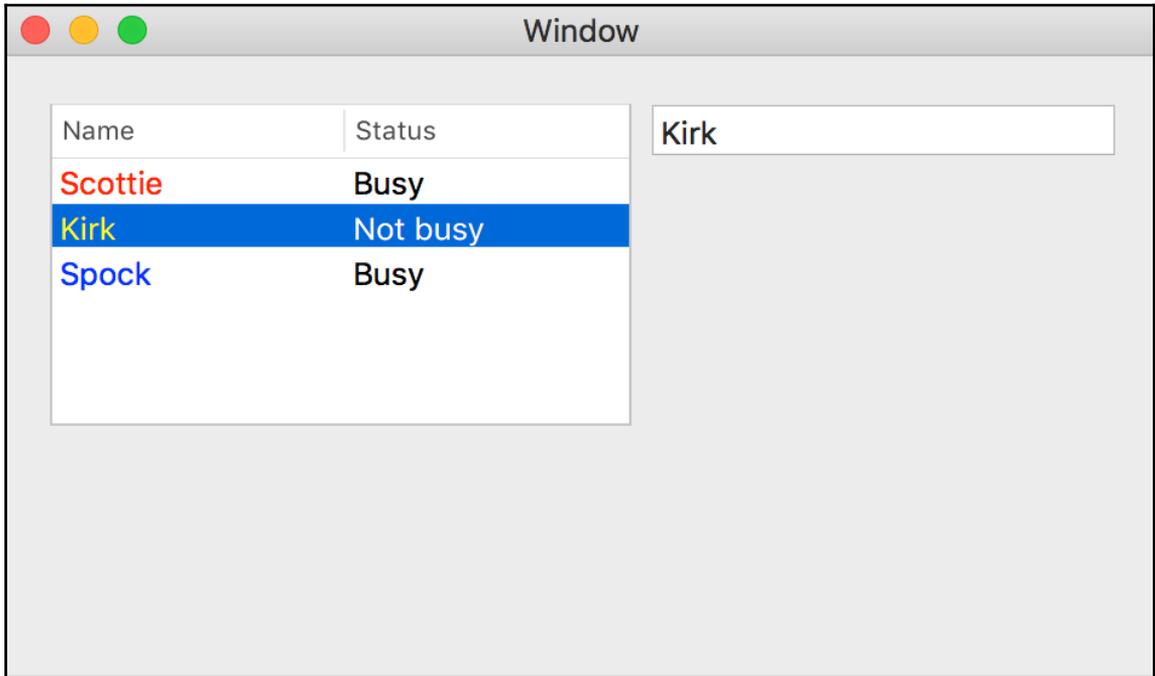
Model Key Path

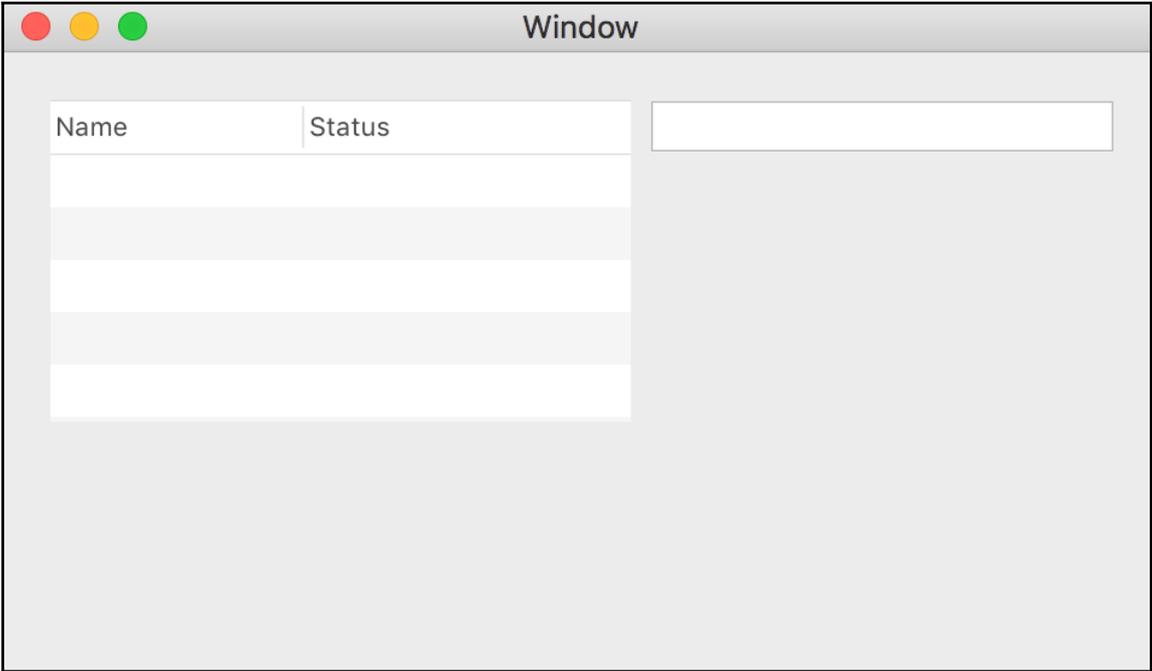
Value Transformer

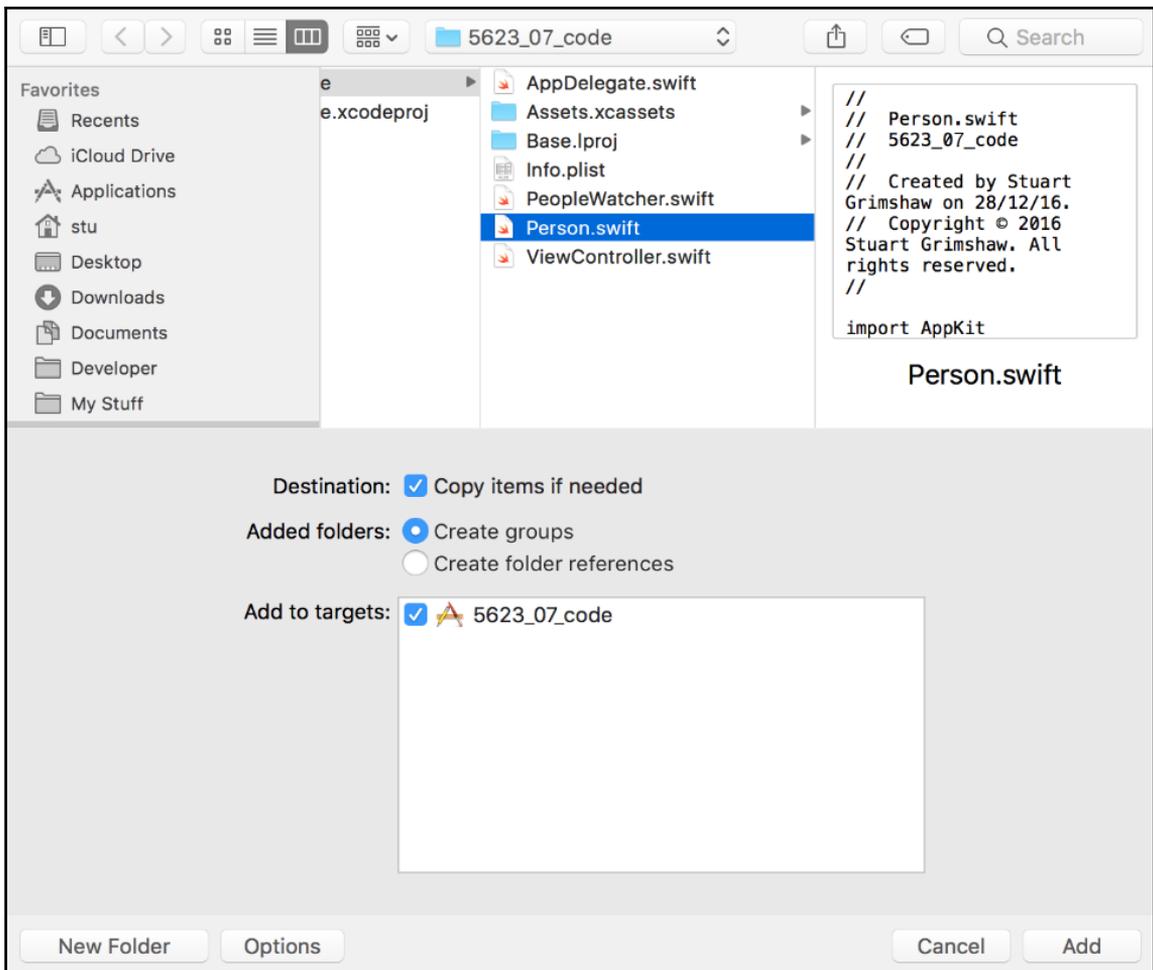


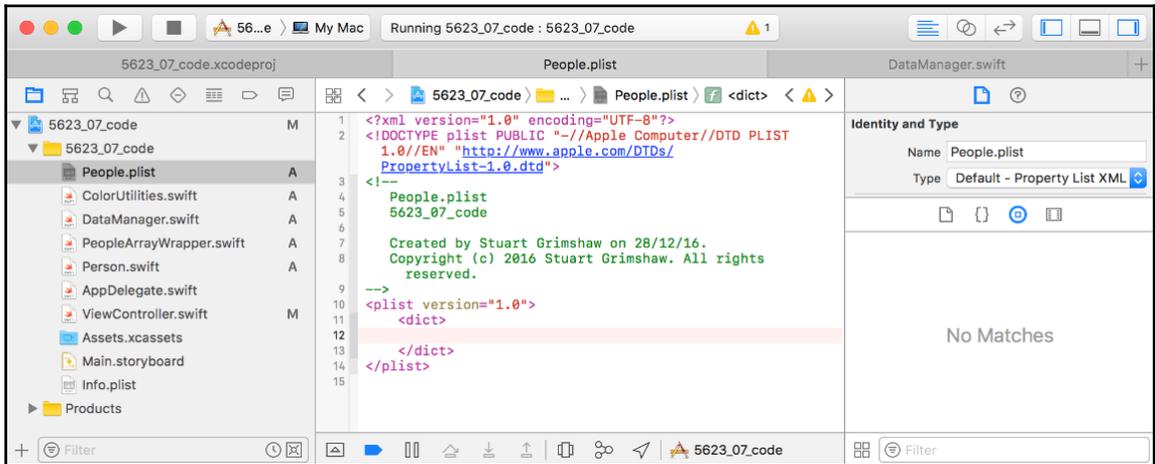
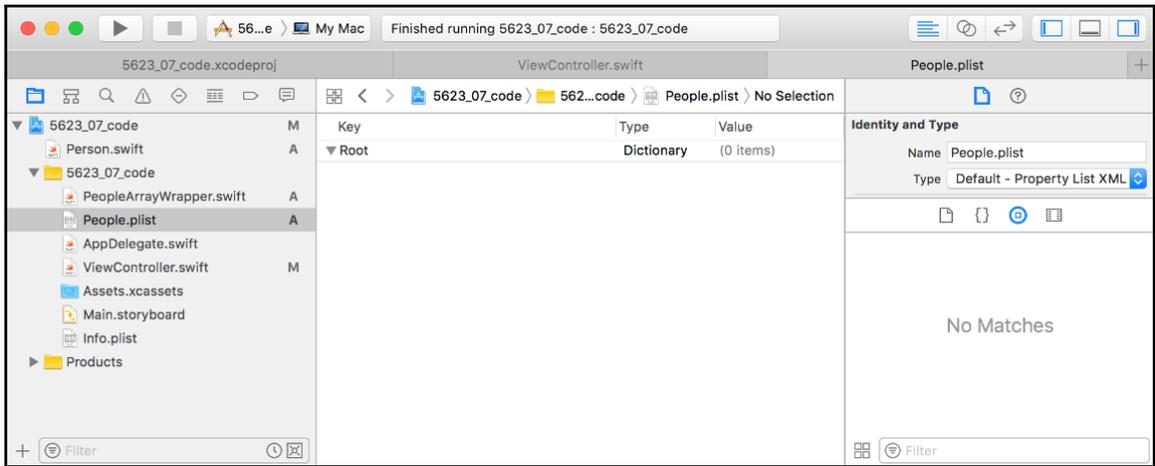


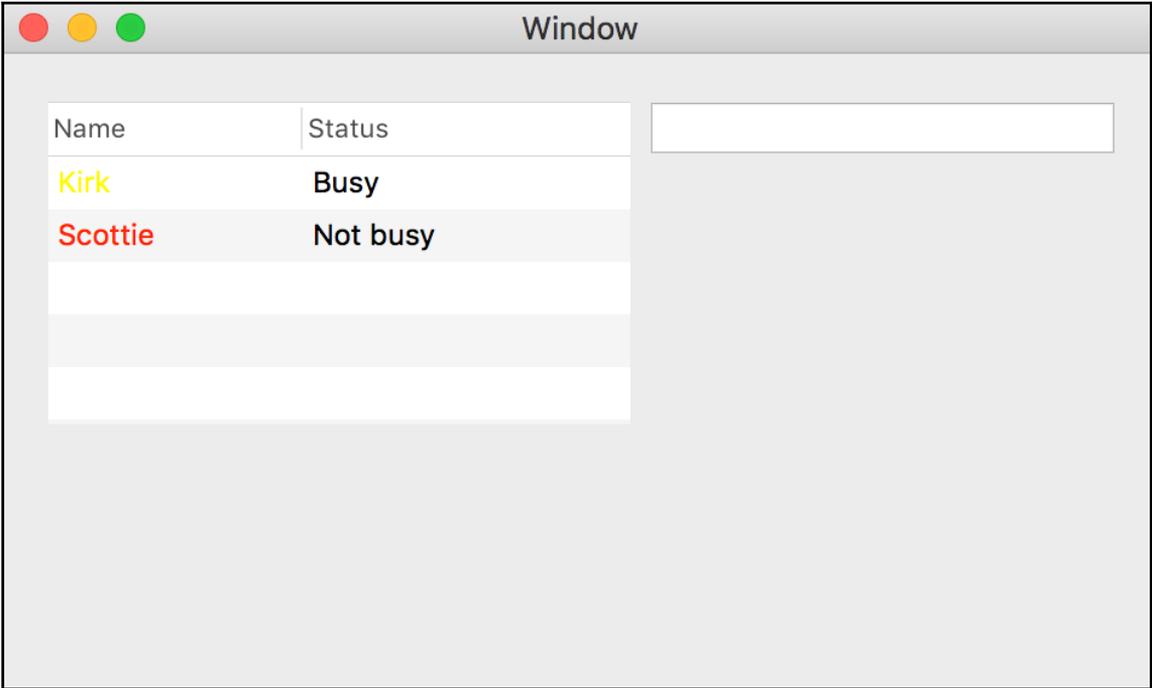
Chapter 7: Creating Views Programmatically

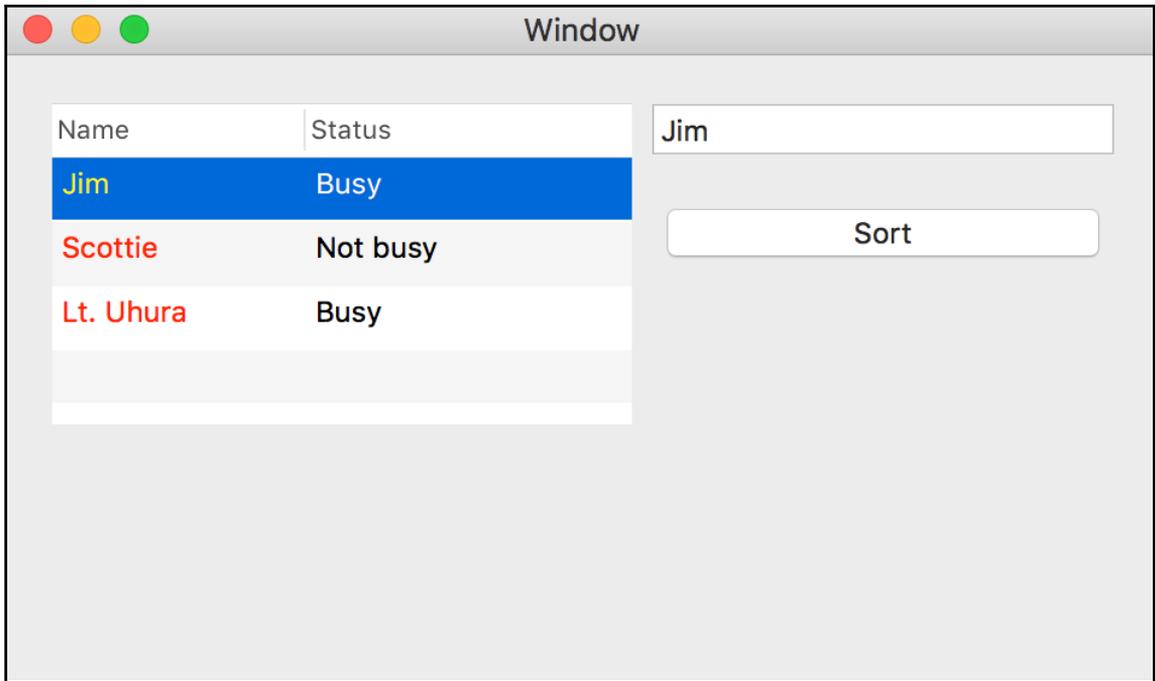






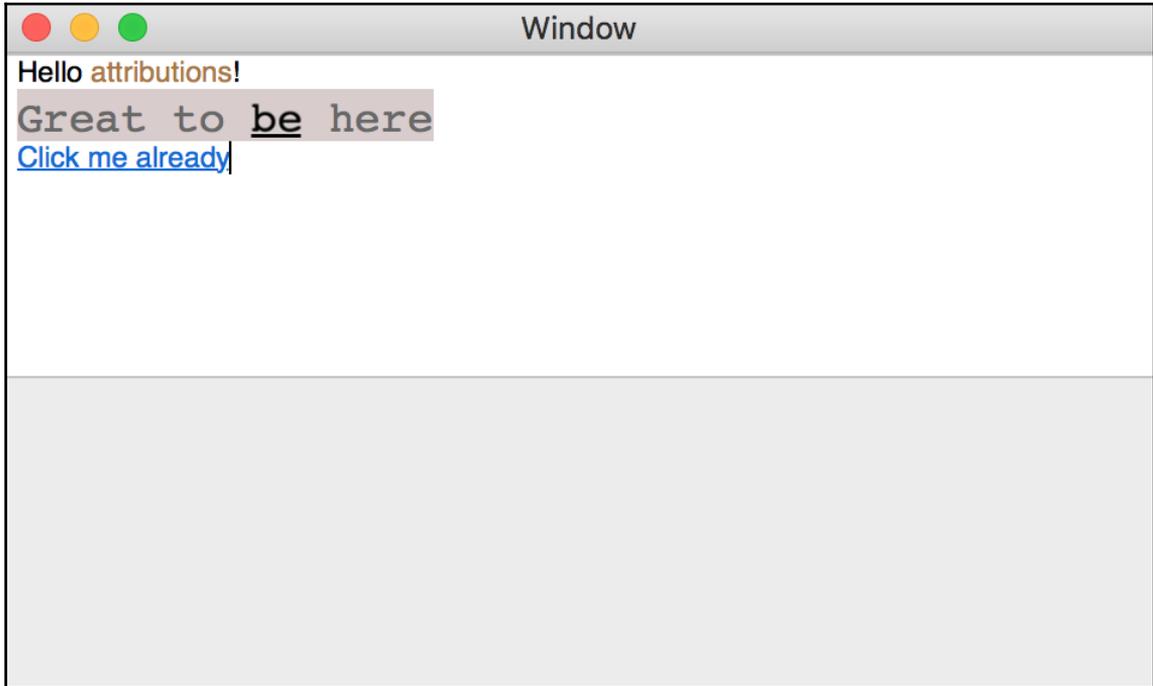


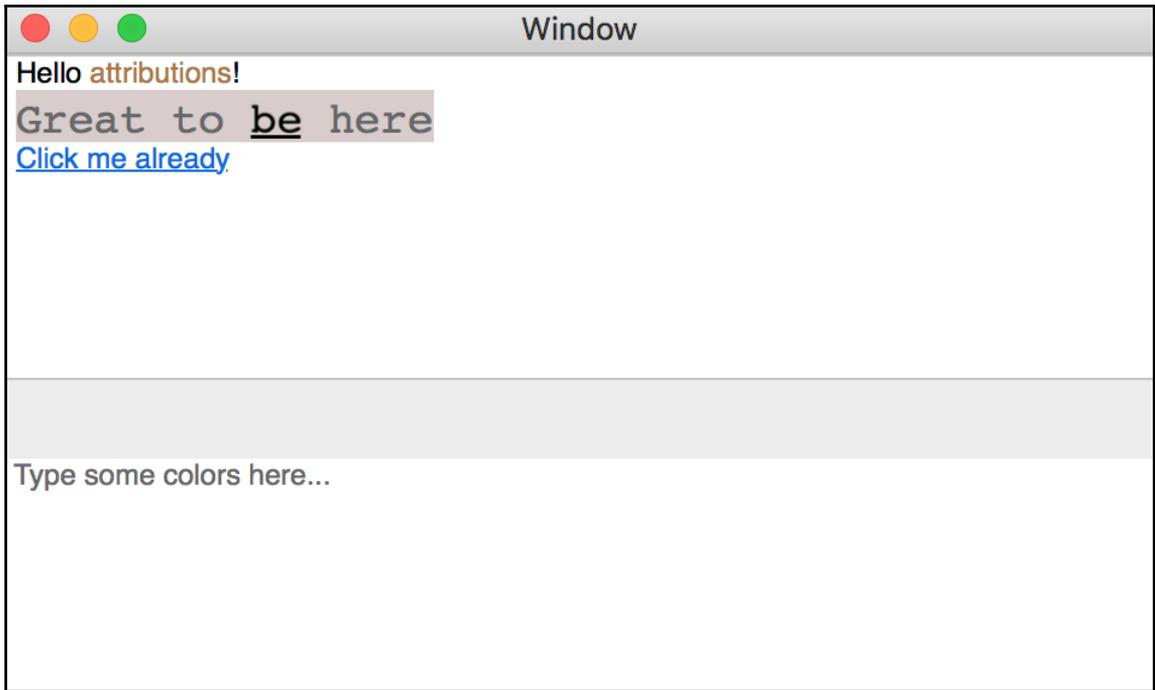


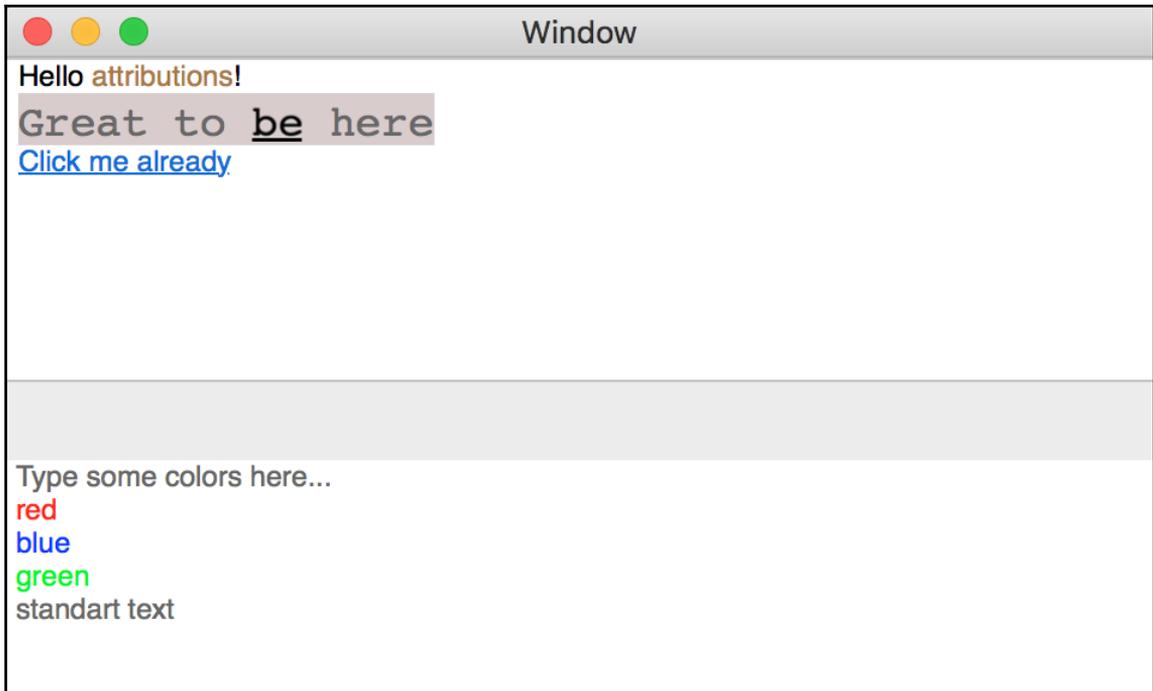


Chapter 8: Strings and Text

Salut!

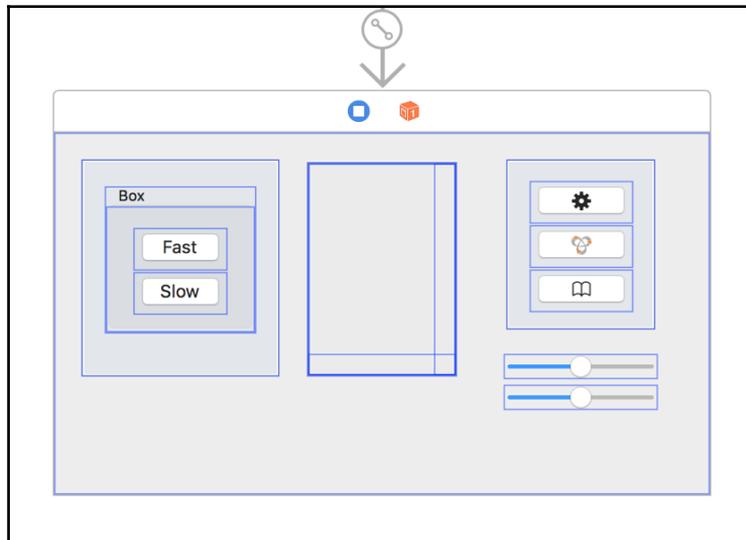
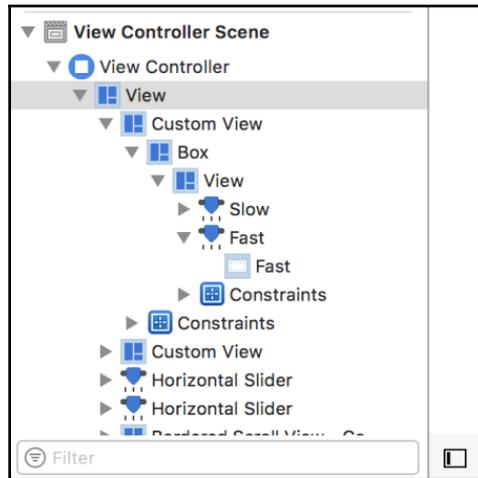


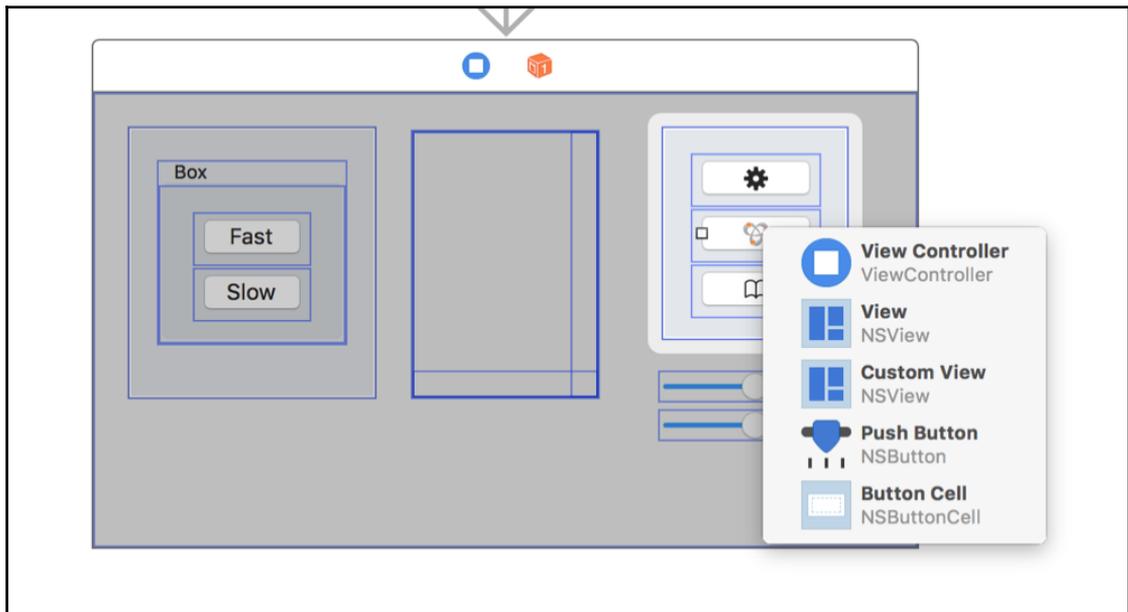
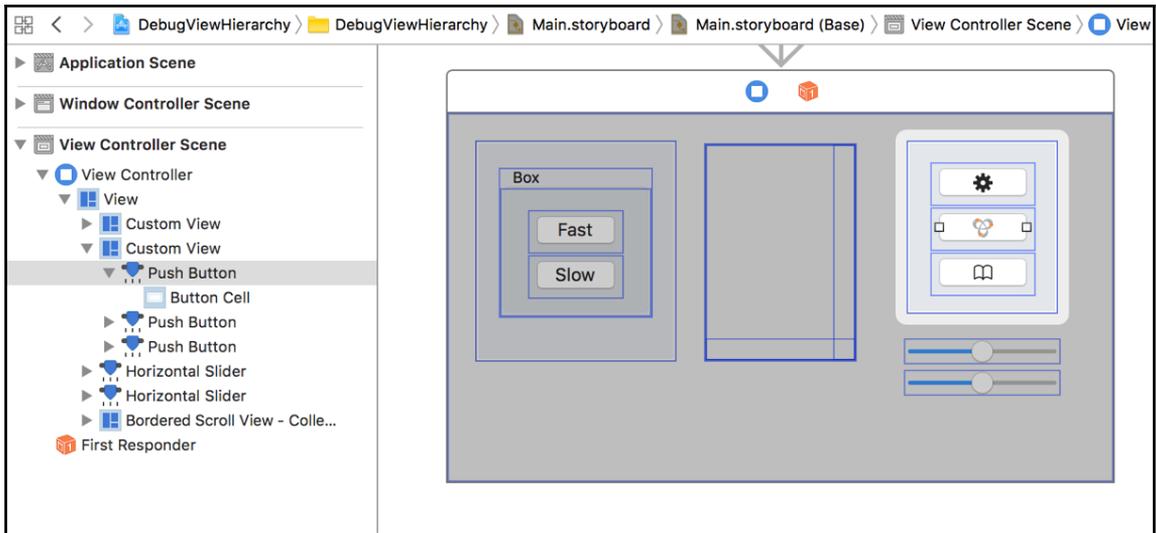


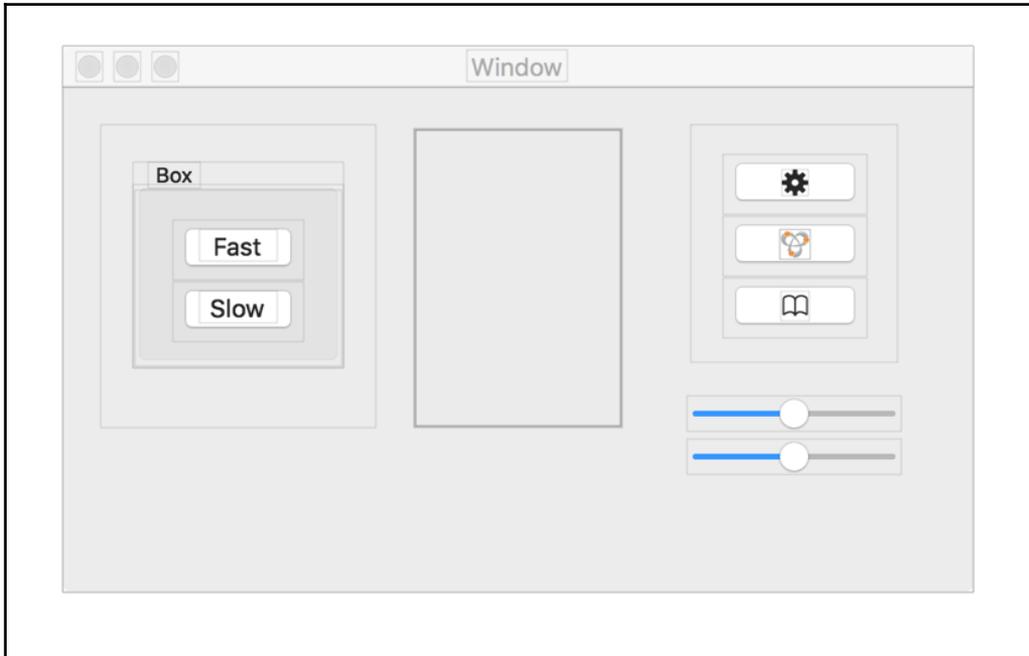


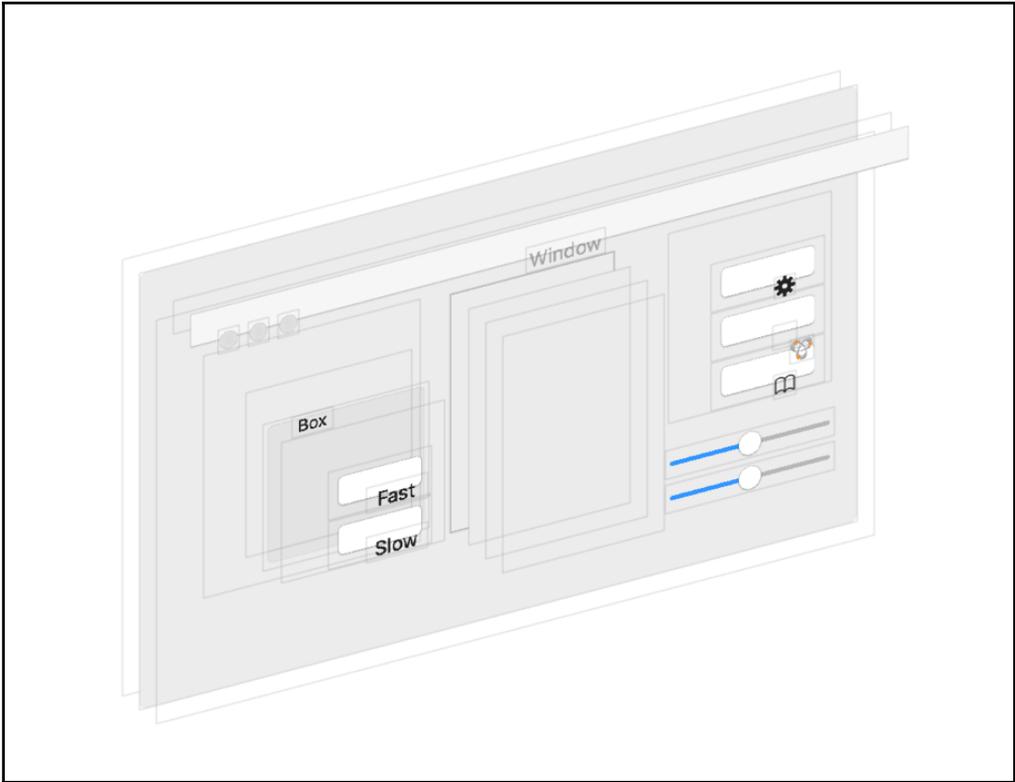
Chapter 9: Getting More from Interface Builder

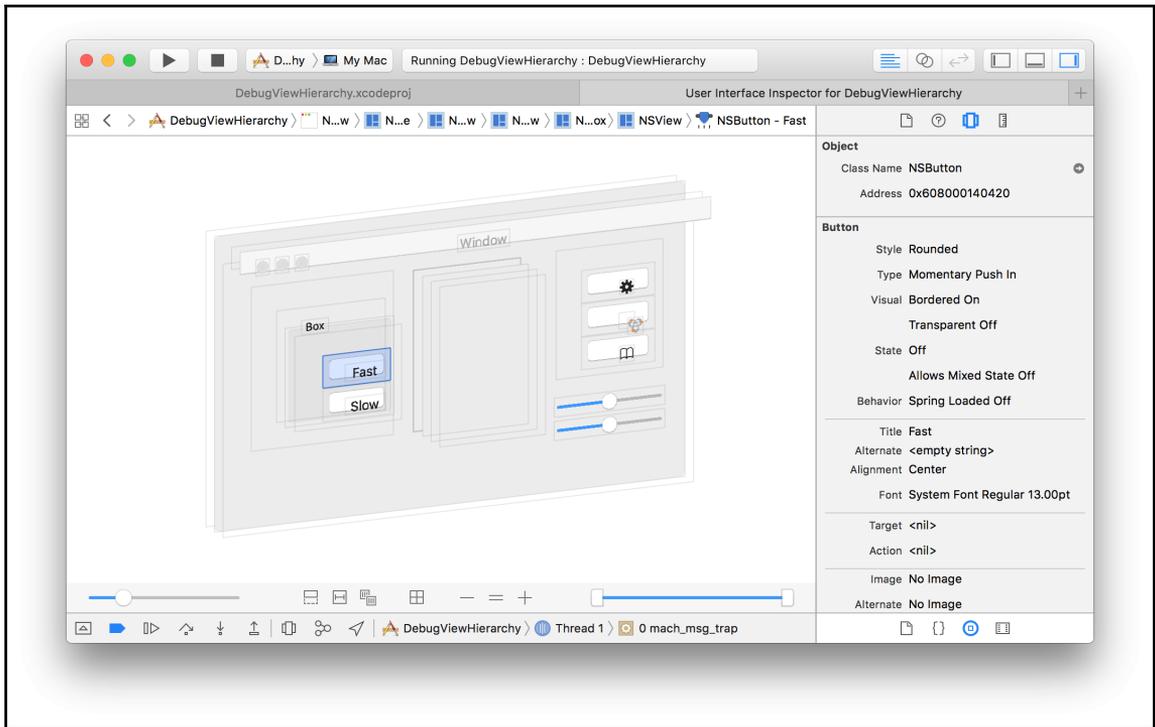


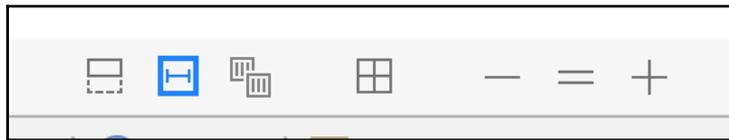
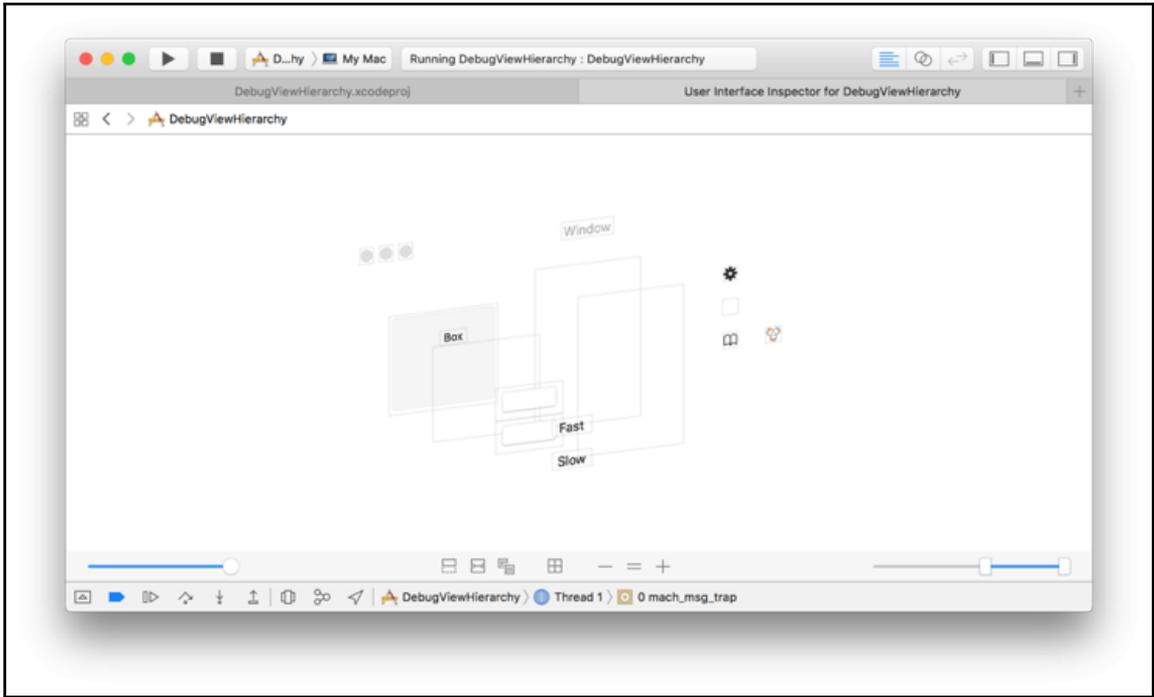


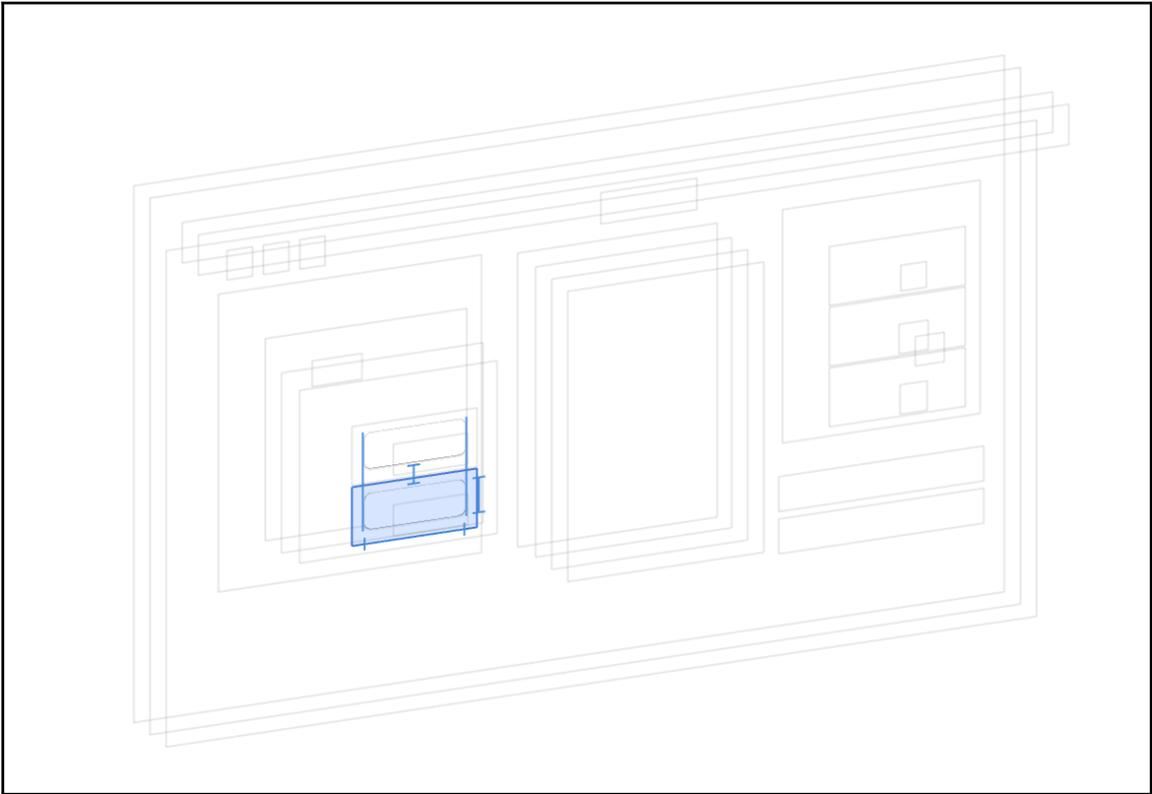


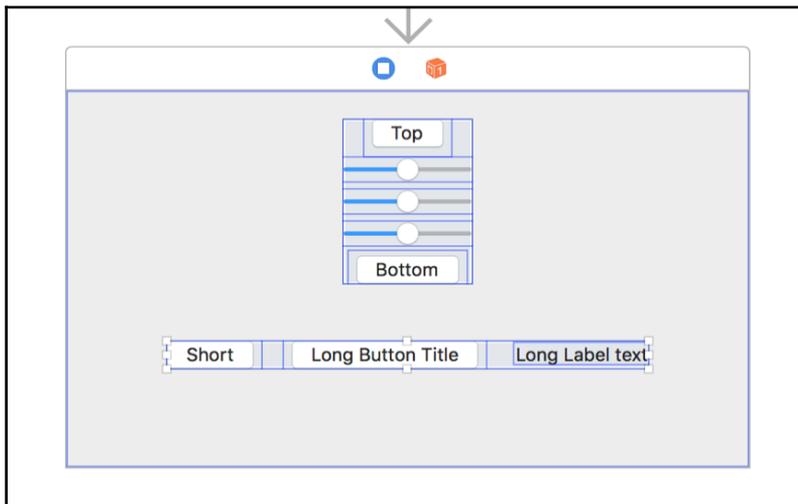
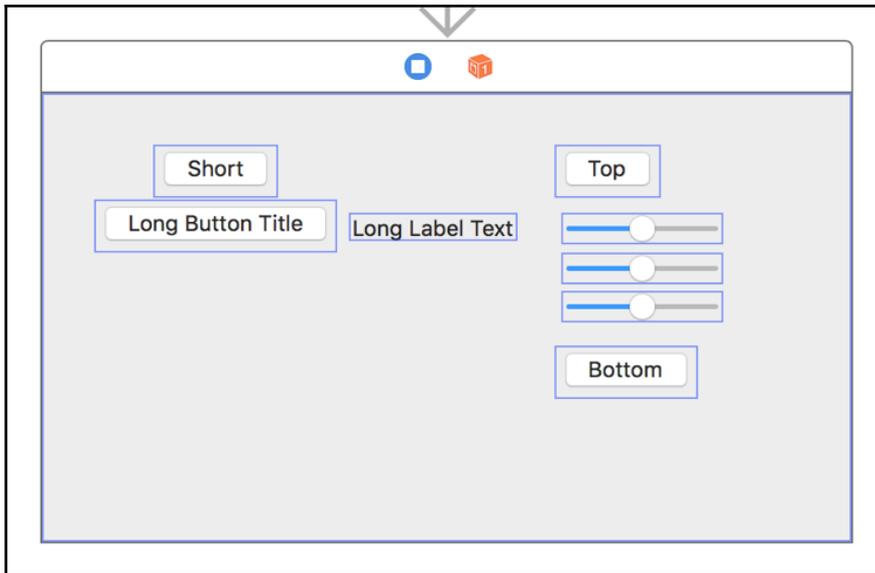












Stack View

Orientation

Alignment

Distribution

Spacing

Detaches Hidden Views

Stack View

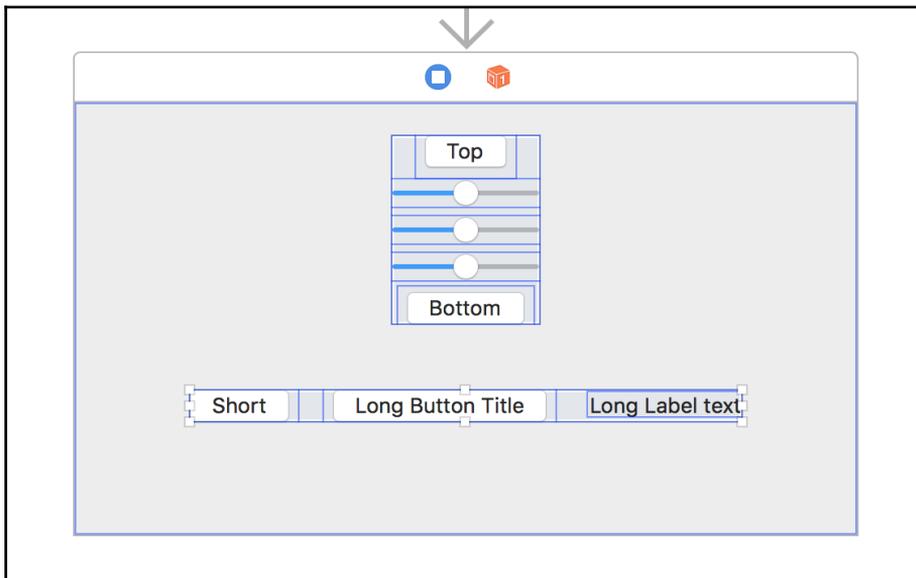
Orientation

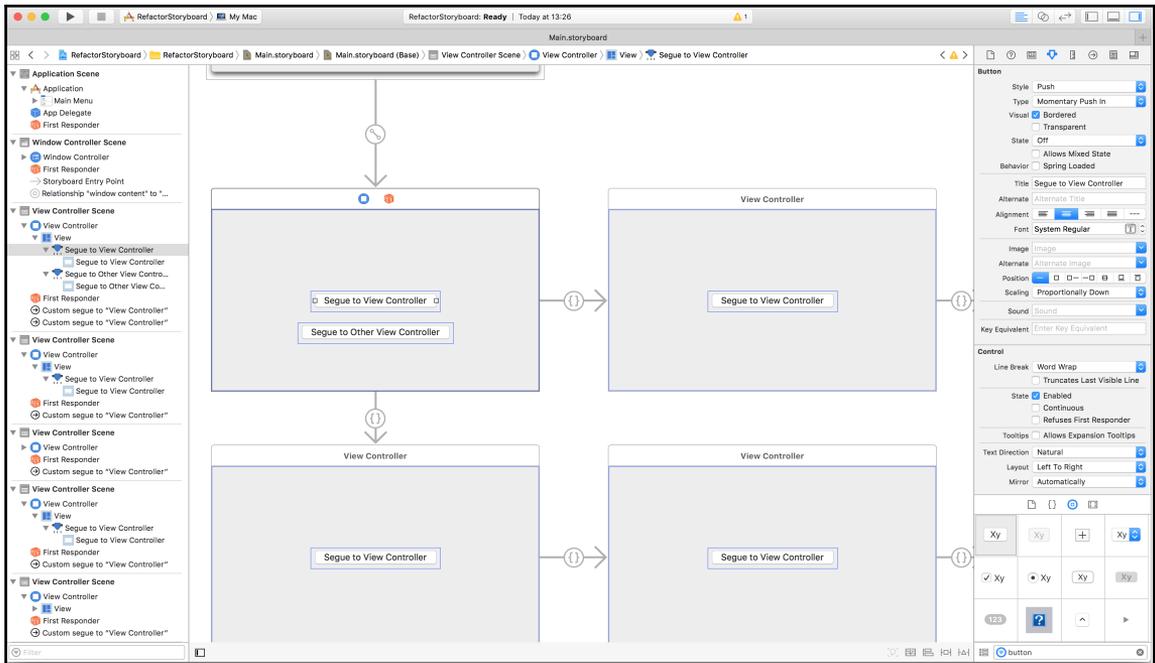
Alignment

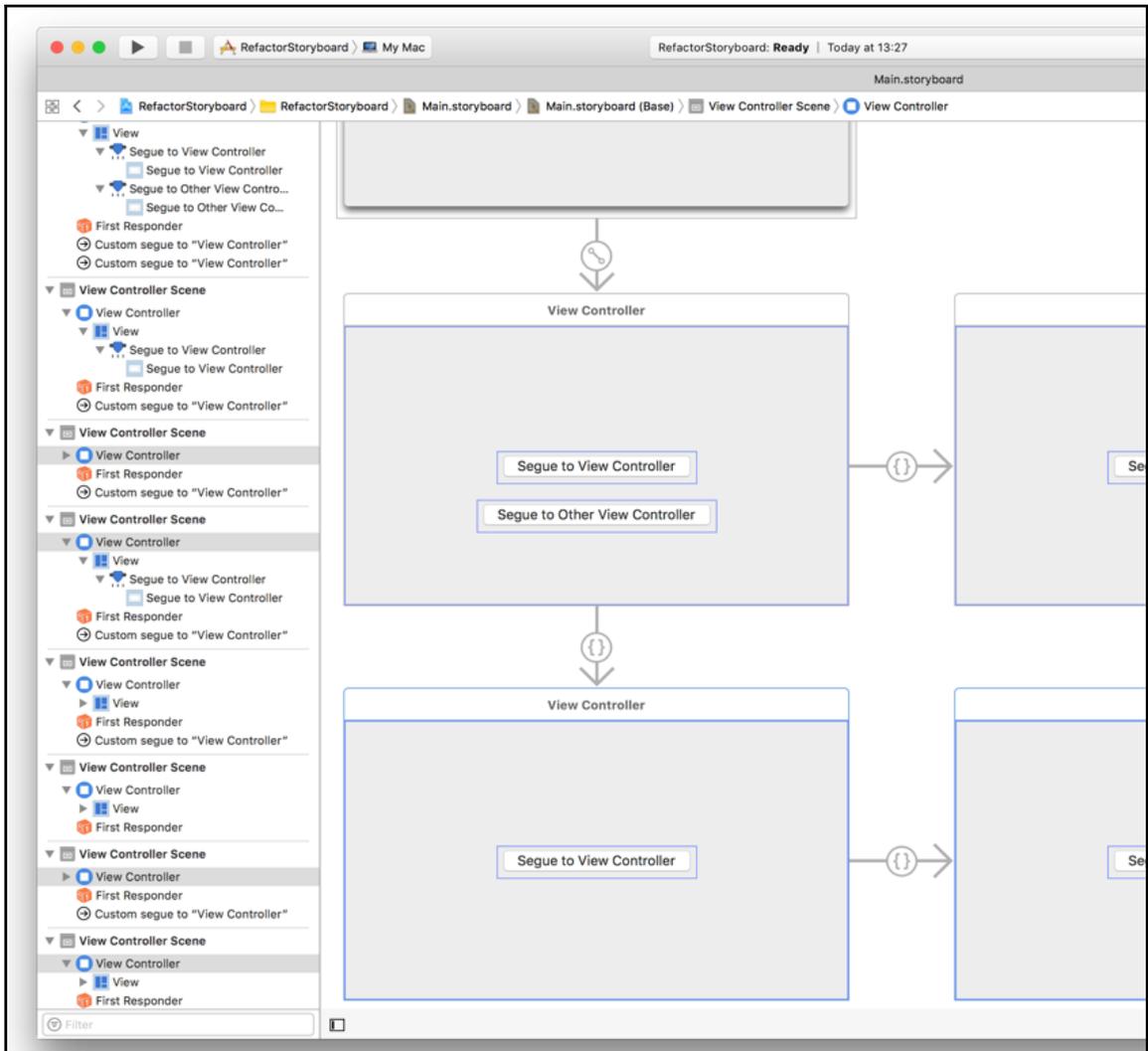
Distribution

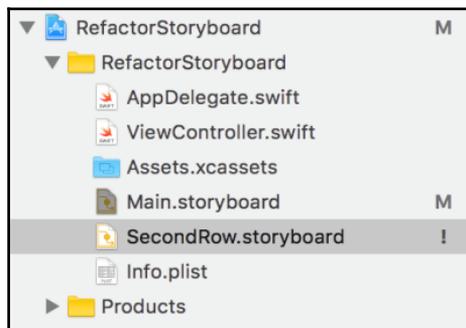
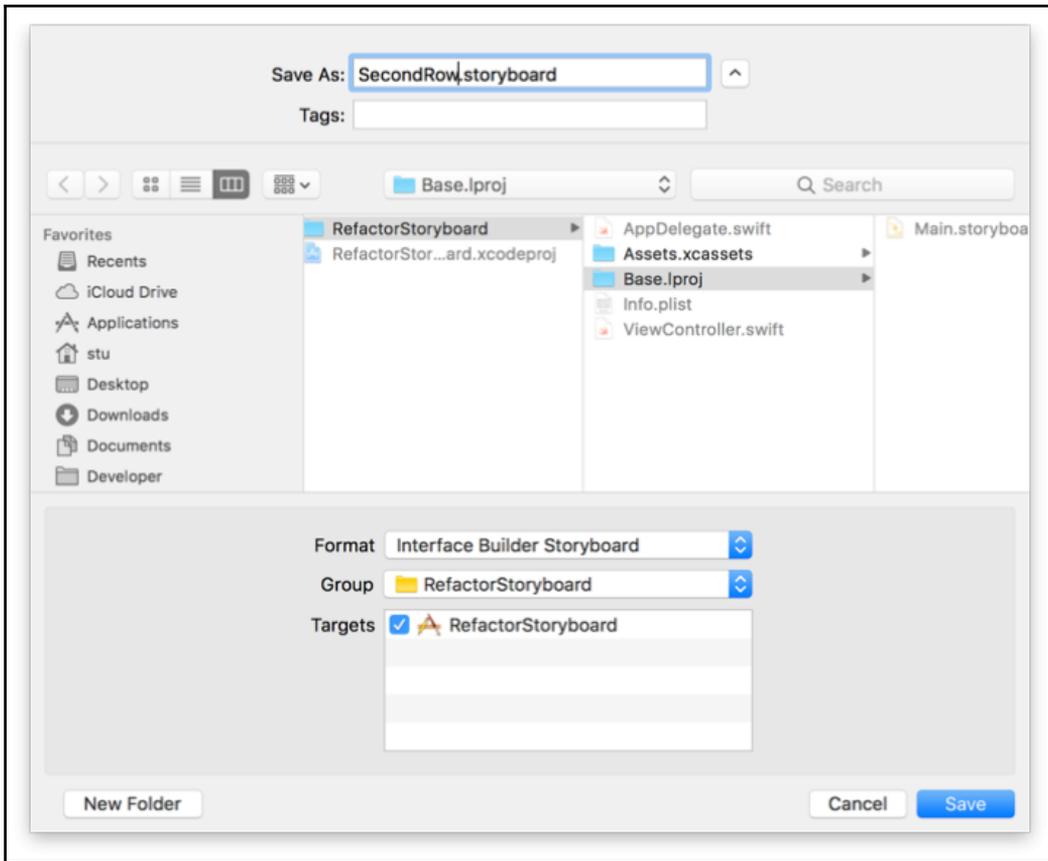
Spacing

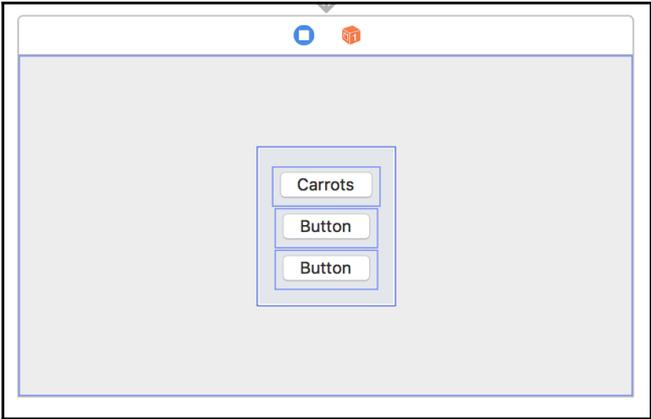
Detaches Hidden Views



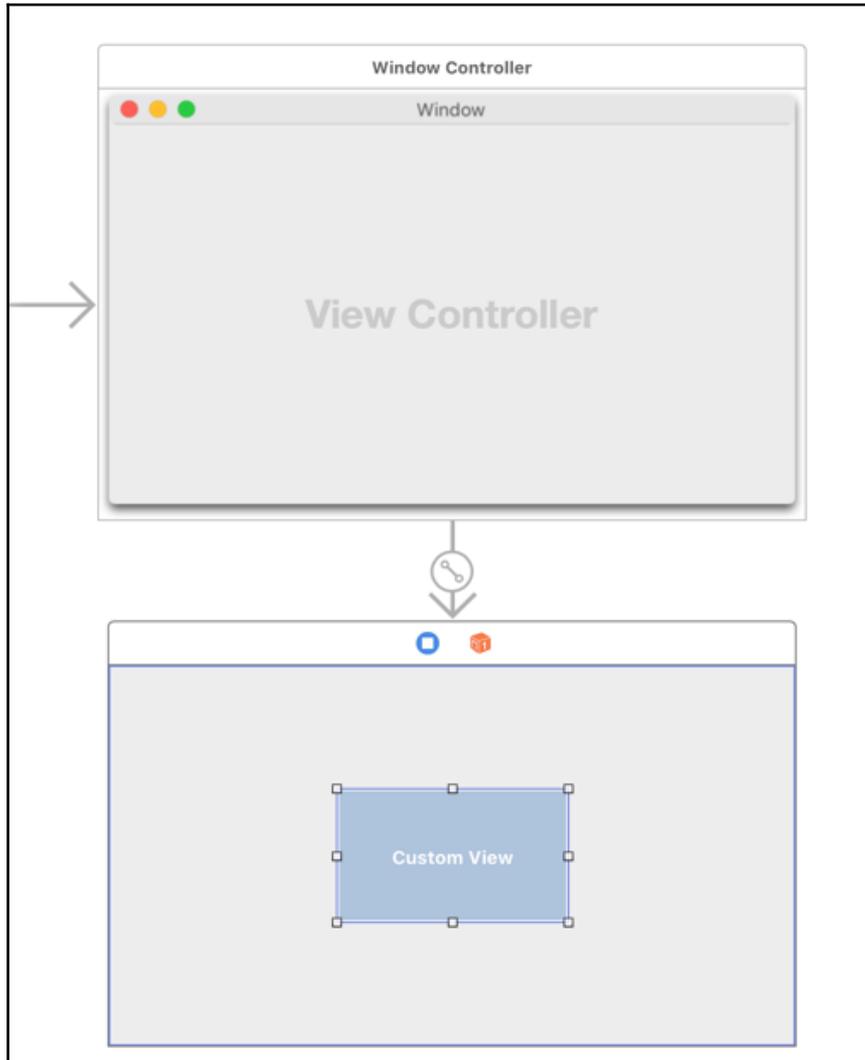


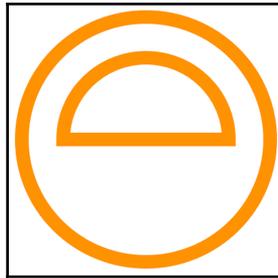






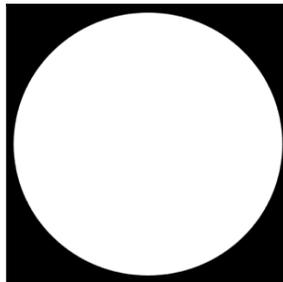
Chapter 10: Drawing on the Strength of Core Graphics

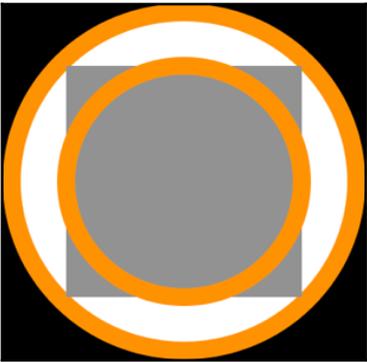
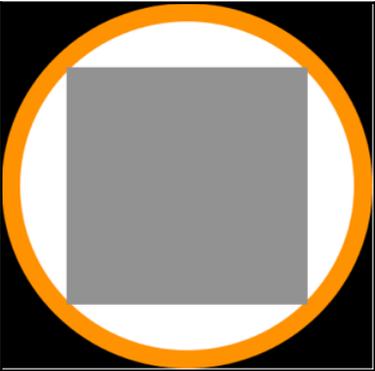
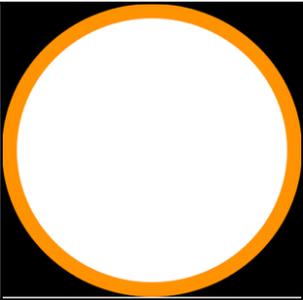


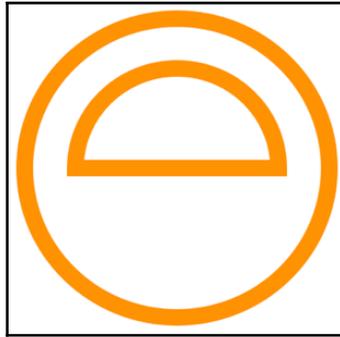


```

1 // ButtonView.swift
2 // 5623_10_code
3 //
4 // Created by Stuart Grimshaw on 1/11/16.
5 // Copyright © 2016 Stuart Grimshaw. All rights reserved.
6 //
7 //
8
9 import Cocoa
10
11 @IBDesignable
12 class ButtonView: NSButton
13 {
14     @IBInspectable var borderColor: NSColor = .orange
15     @IBInspectable var normalButtonColor: NSColor = .white
16     @IBInspectable var highlightedButtonColor: NSColor = .gray
17
18     @IBInspectable let roundIcon: Bool = false
19
20     var fillColor: NSColor {
21         return isHighlighted ?
22             highlightedButtonColor :
23             normalButtonColor
24     }
25
26     // sizes
27     var standardLineWidth: CGFloat {
28         return min(bounds.width, bounds.height) * 0.05
29     }
30
31     var insetRect: CGRect {
32         return bounds.insetBy(
33             dx: standardLineWidth * 0.5,
34             dy: standardLineWidth * 0.5)
35     }
36
37     var iconRect: CGRect {
38         return insetRect.insetBy(
39             dx: min(bounds.width, bounds.height) * 0.15,
40             dy: min(bounds.width, bounds.height) * 0.15)
41     }
42
43     override func draw(_ dirtyRect: NSRect) {
44         super.draw(dirtyRect)
45
46         // Drawing code here.
47         NSColor.black.setFill()
48         NSRectFill(dirtyRect)
49     }
50 }
51
52
53
54
                    
```







Custom Button

Border Color

Normal Butto...

Highlighted B...

Round Icon

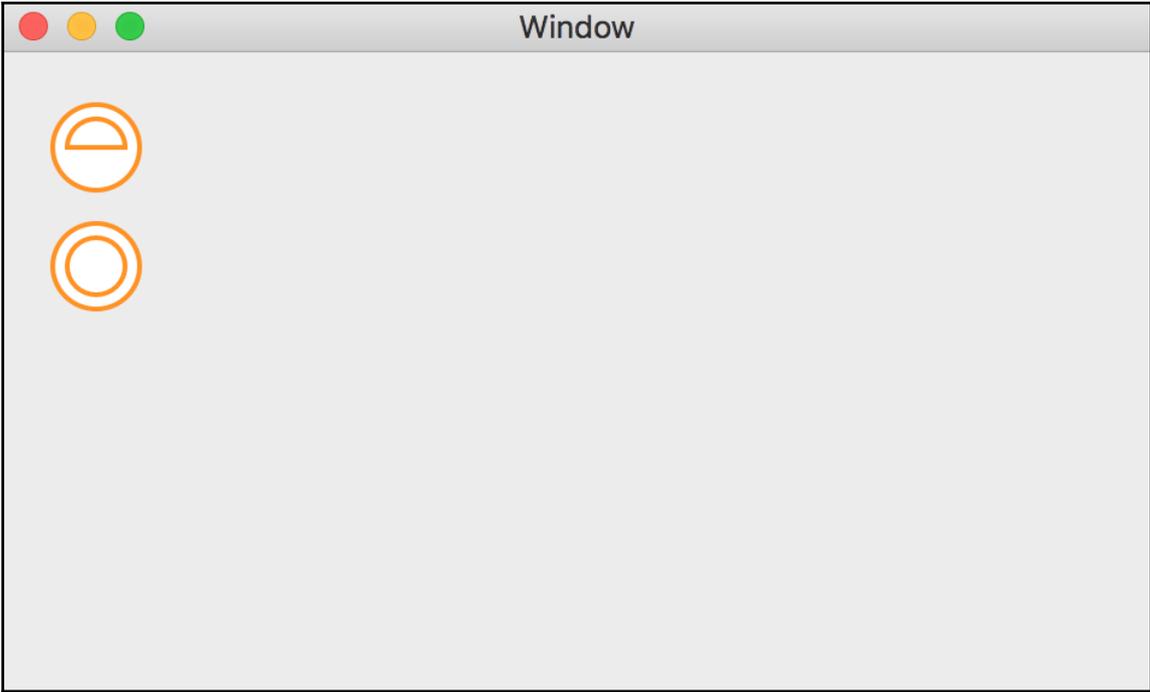
Button

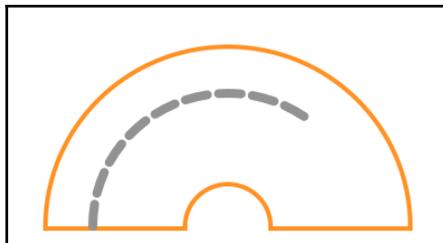
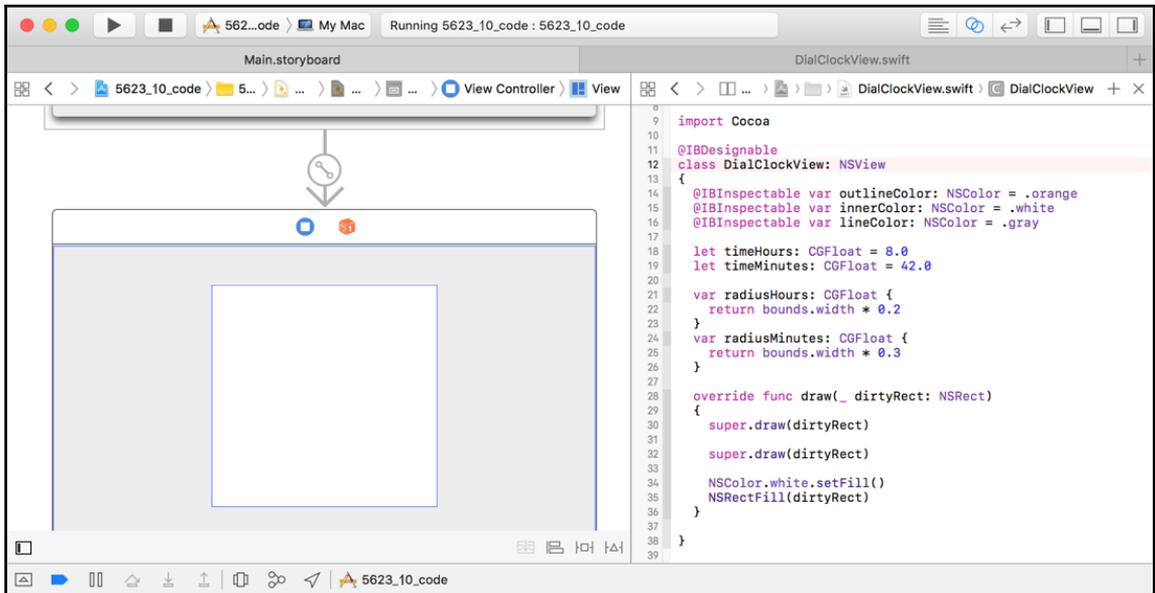
Style

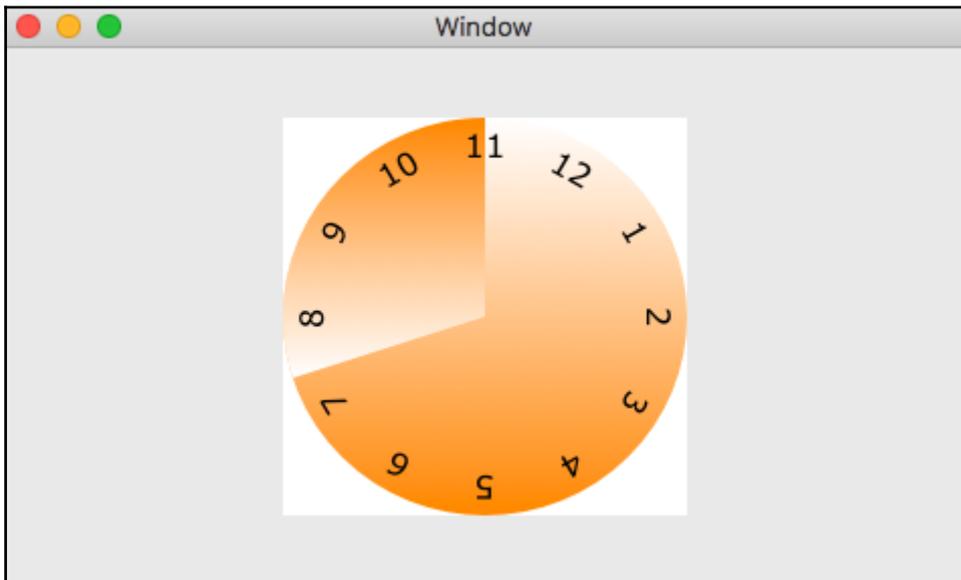
Type

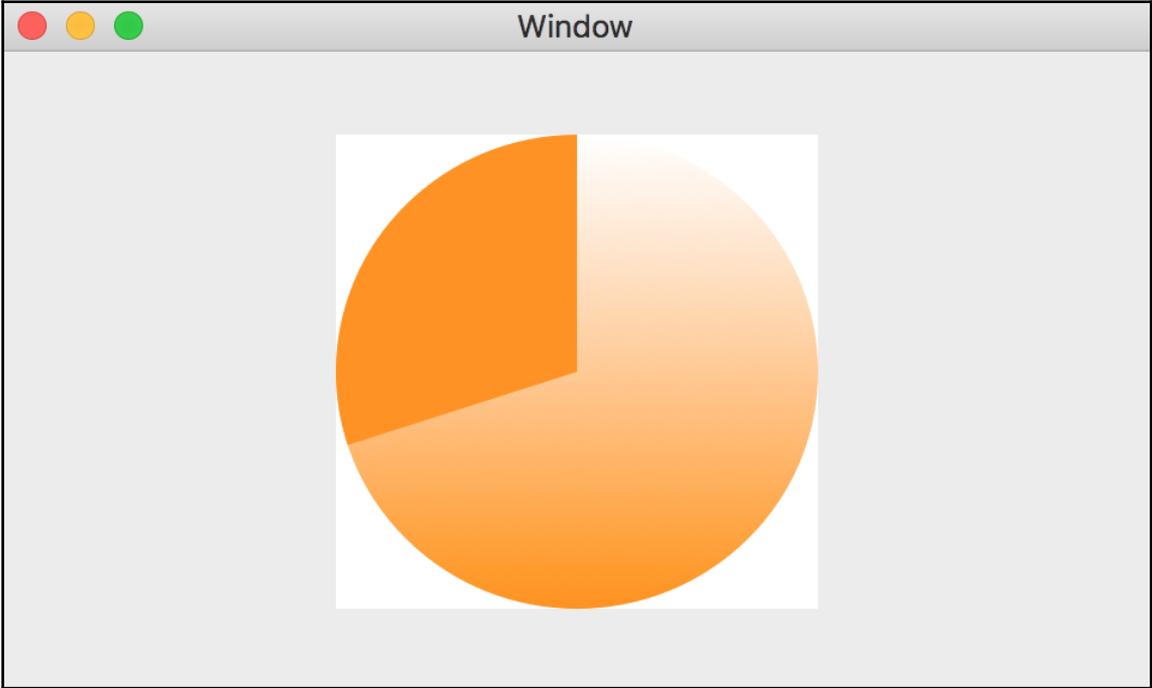
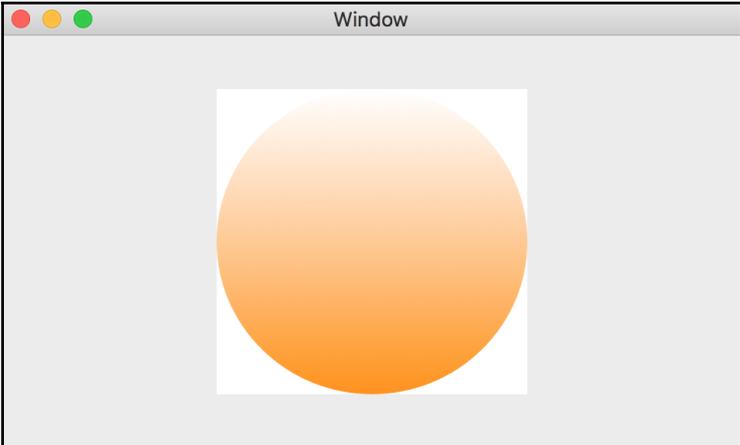
Visual Bordered
 Transparent

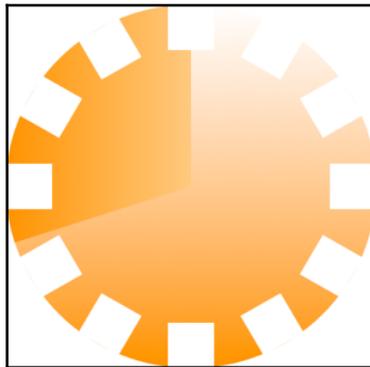
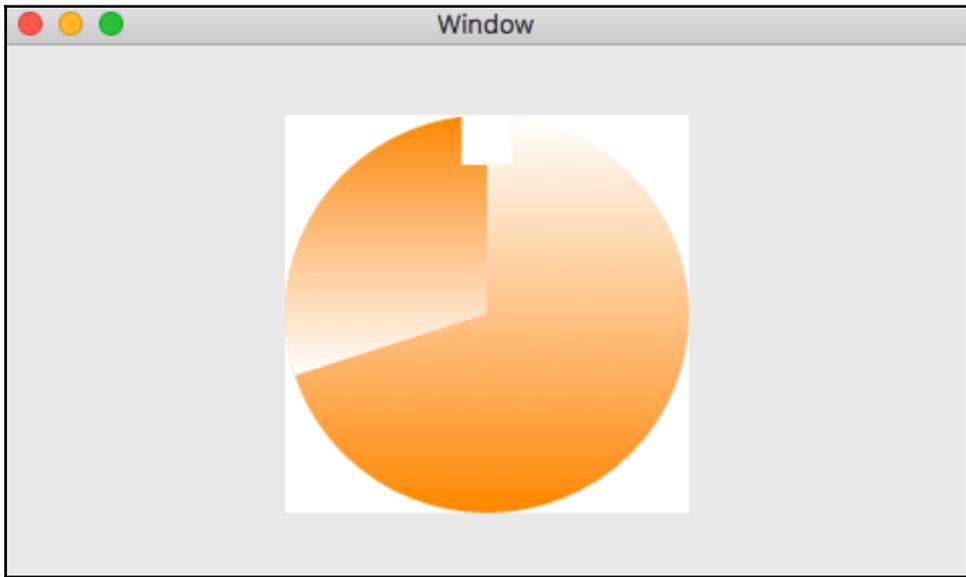
State

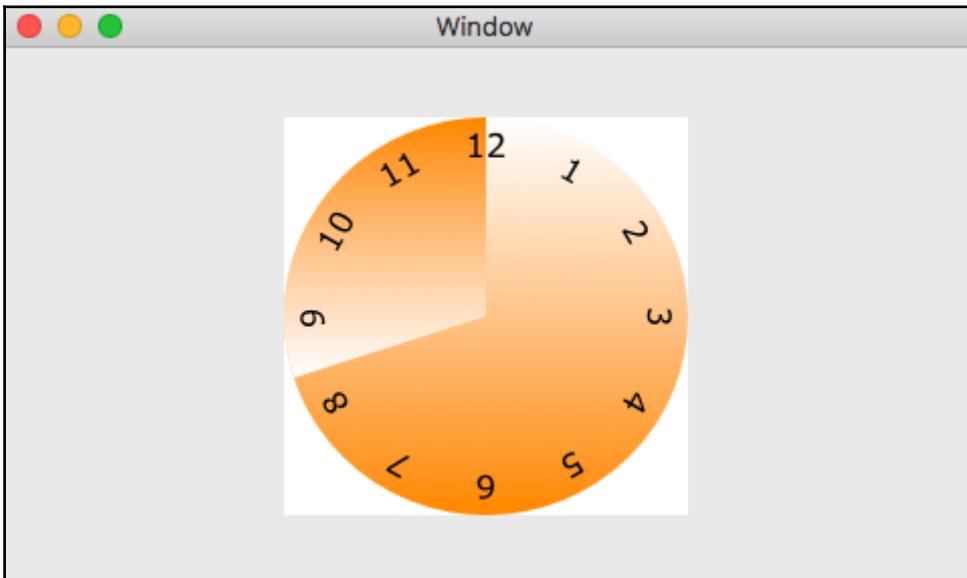
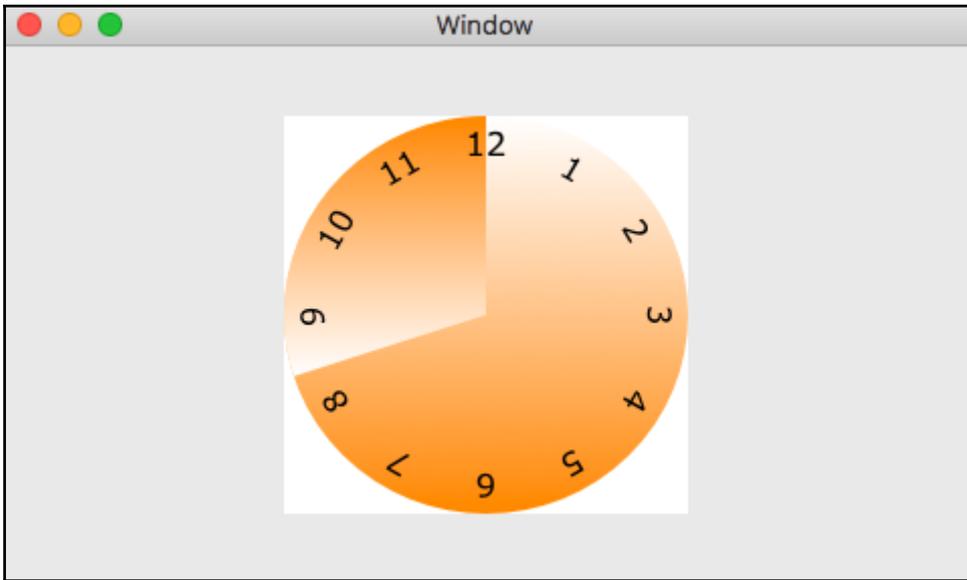


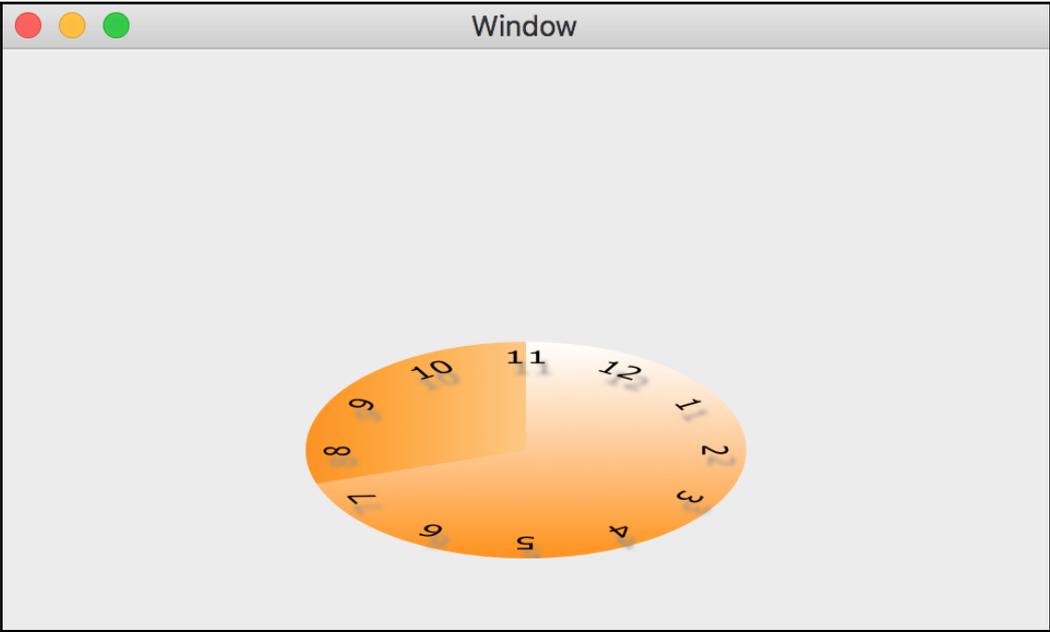




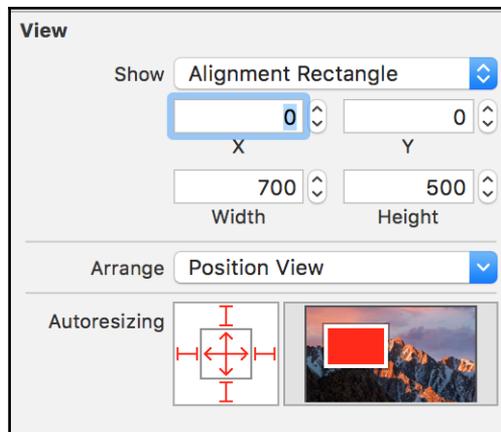
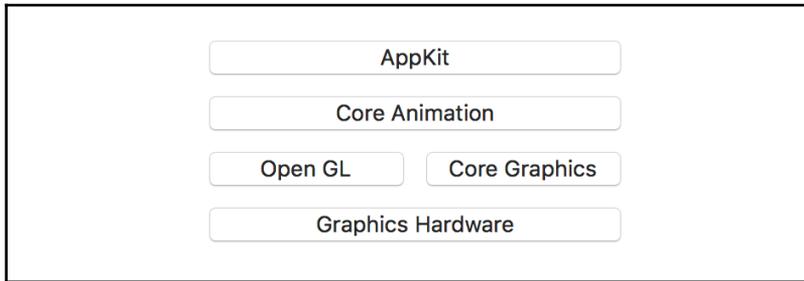


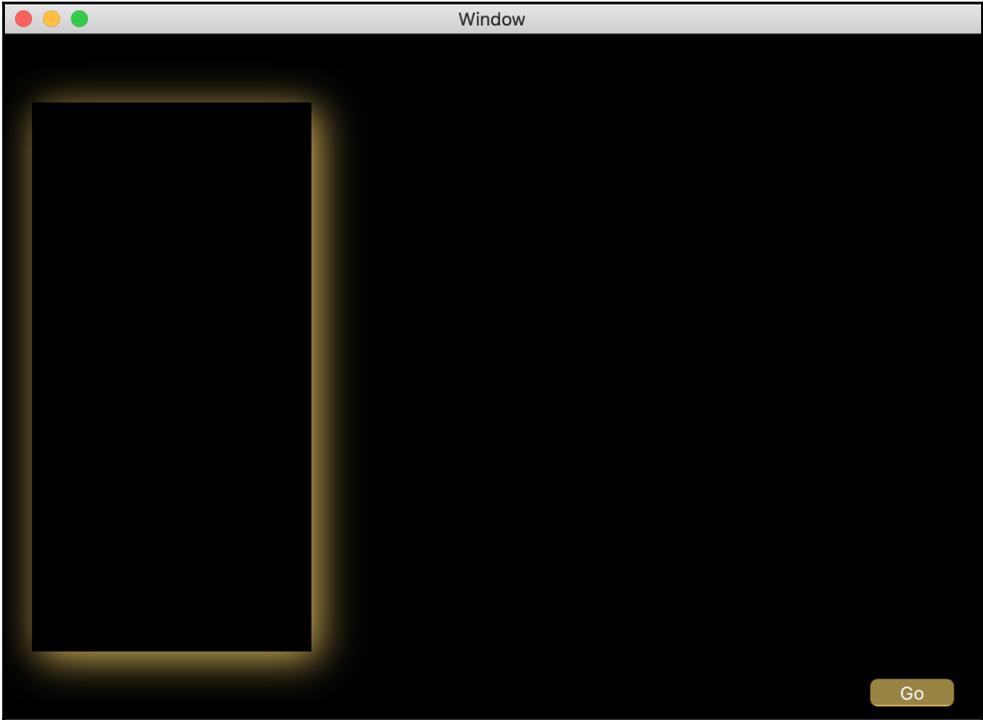


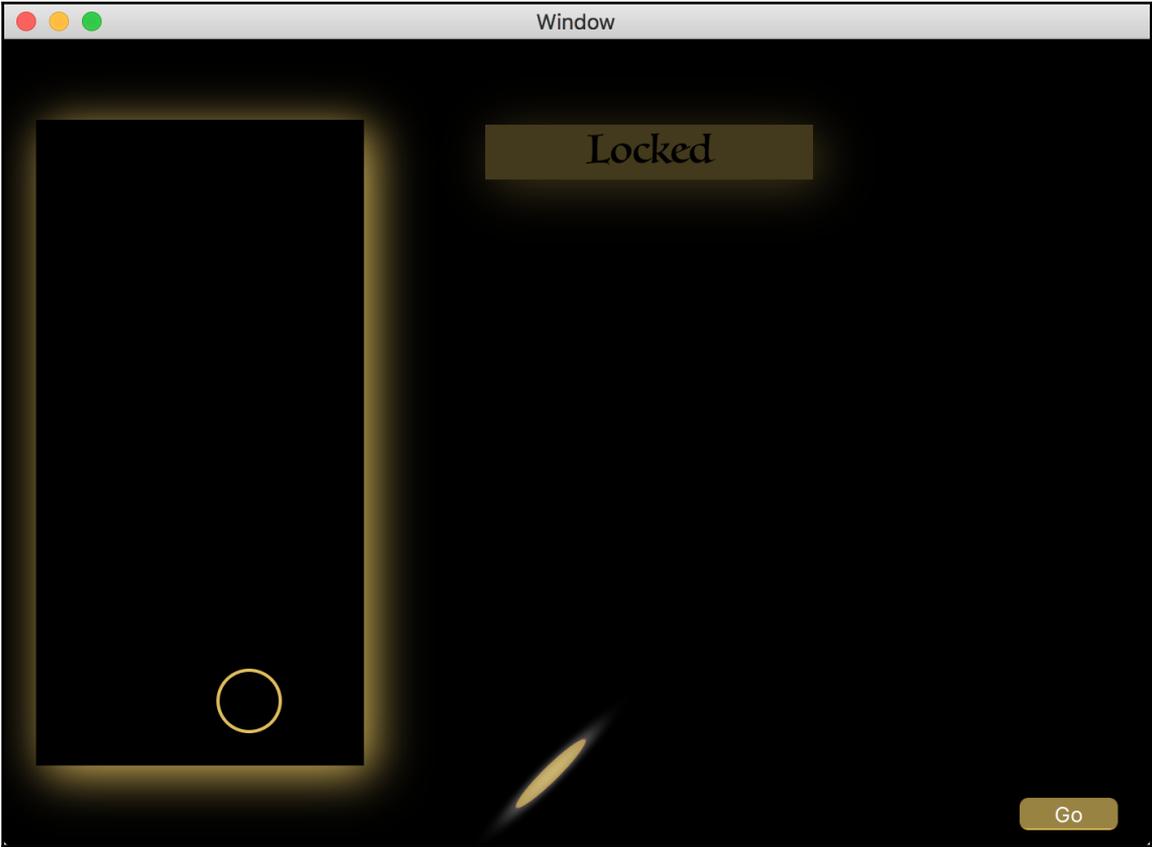


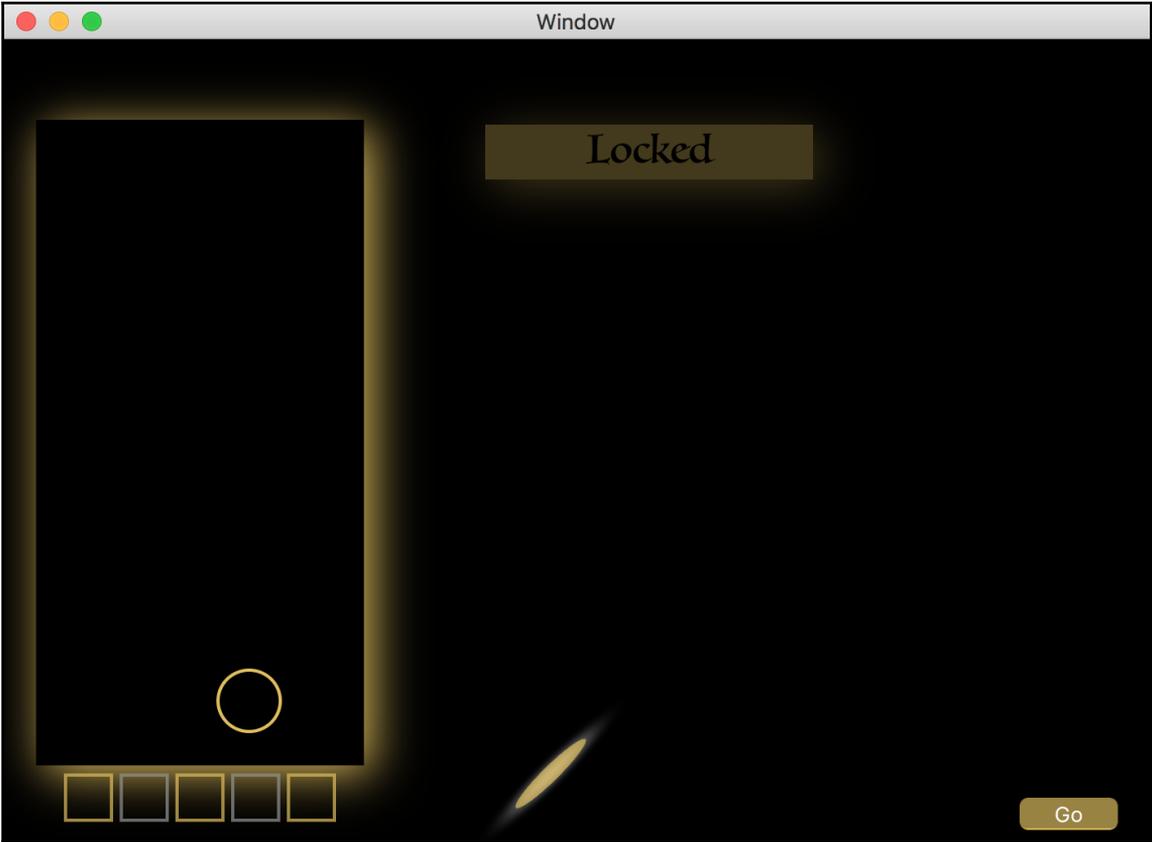


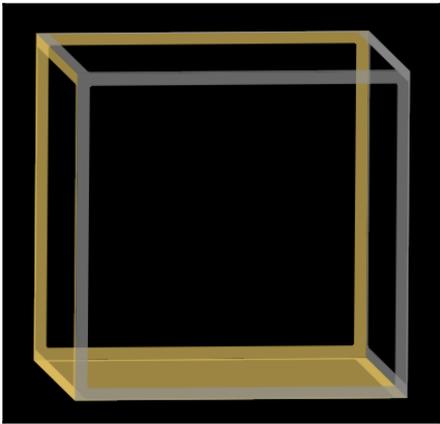
Chapter 11: Core Animation

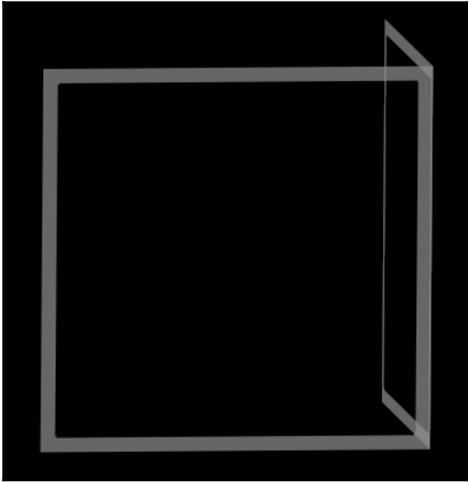
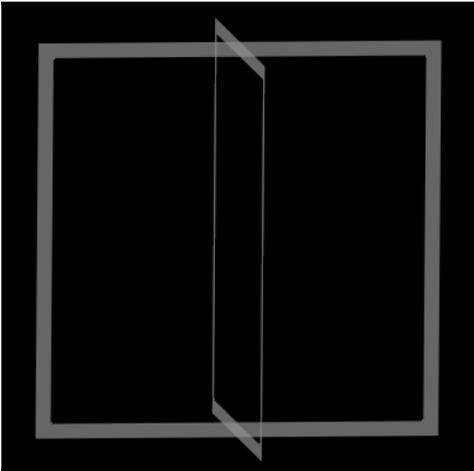


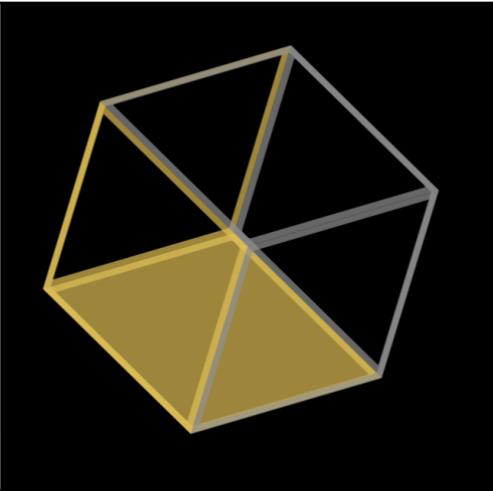




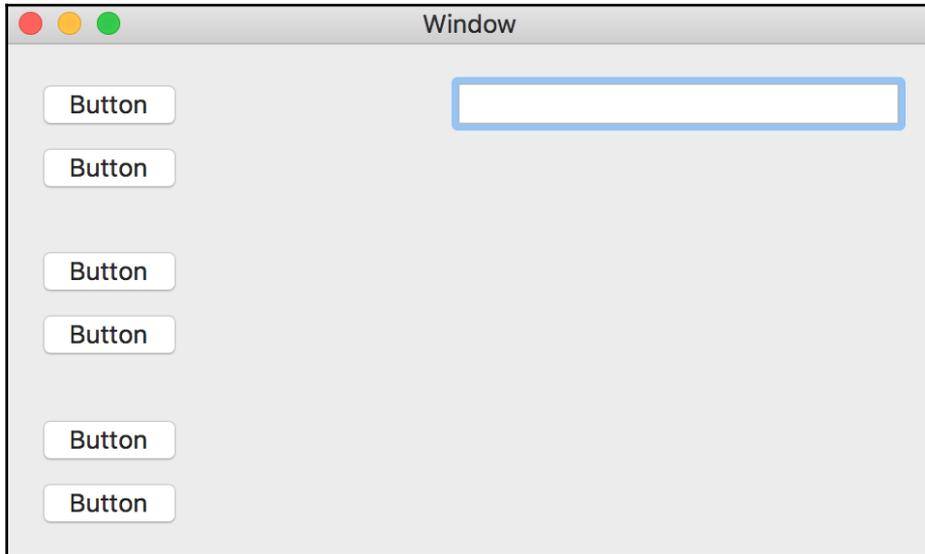






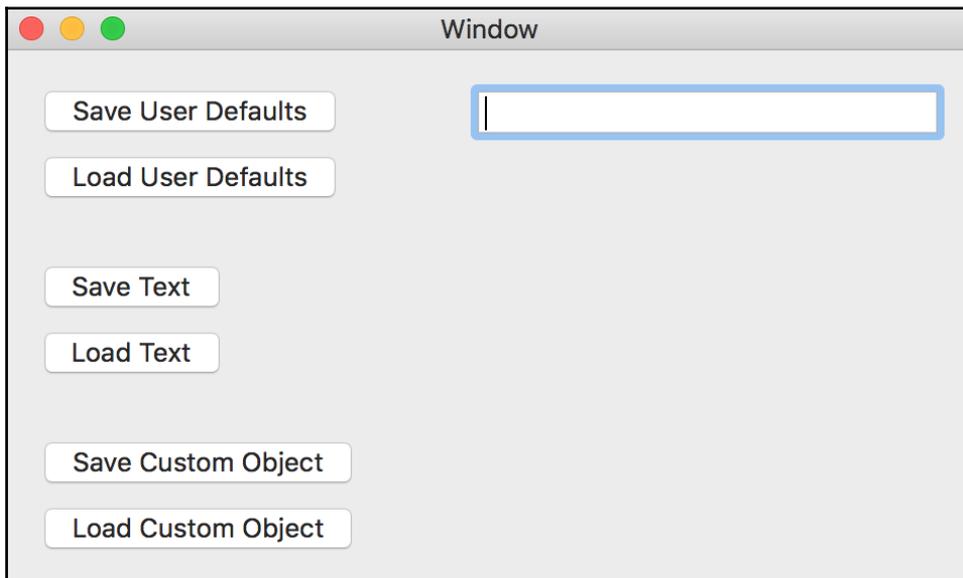
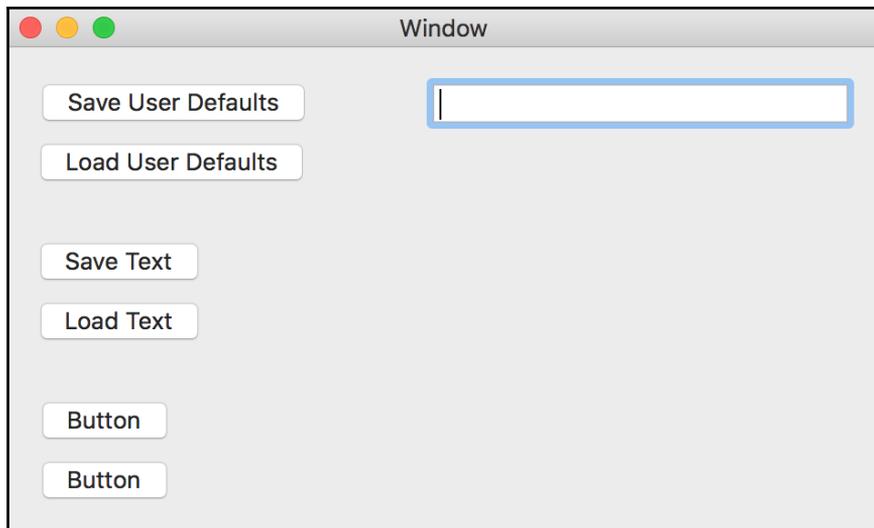


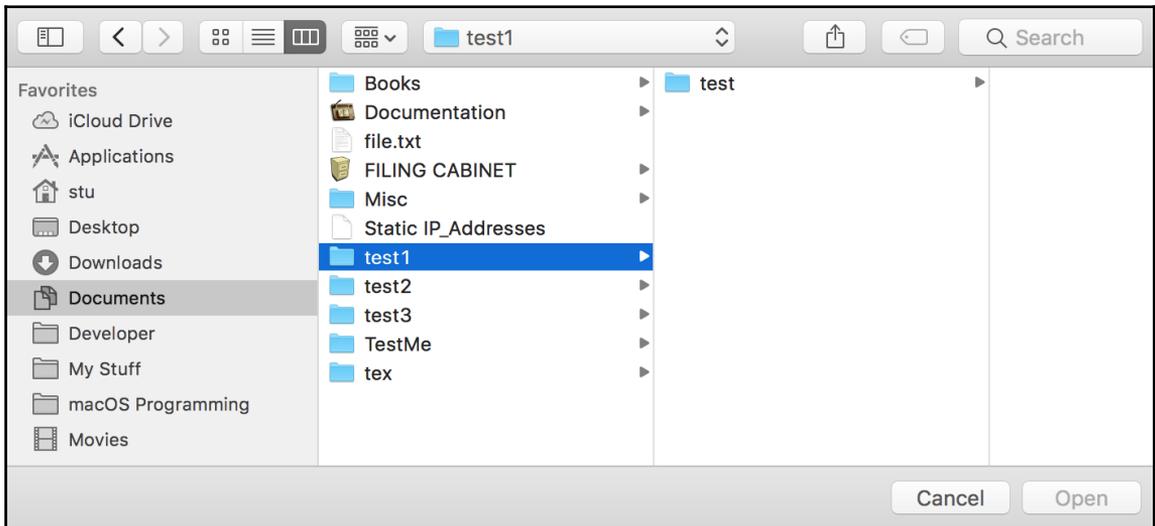
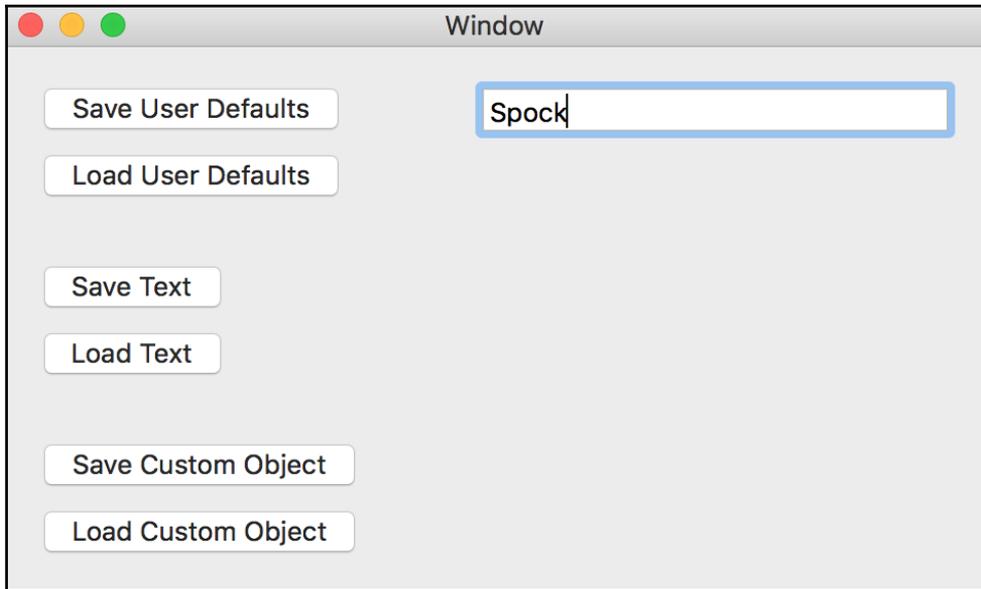
Chapter 13: Persistent Storage



The screenshot shows the Xcode IDE interface. On the left is the Project Navigator showing a hierarchy: Application Scene > Application > Main Menu > App Delegate > First Responder; Window Controller Scene; View Controller Scene > View Controller > View > Text Field > Text Field Cell; and Save User Defaults (selected) > Save User Defaults > Load User Defaults > Load User Defaults > Button > Button > Button > Button > First Responder. The middle pane shows a storyboard with a 'Save User Defaults' button, a 'Load User Defaults' button, and four other buttons. The right pane shows the following Swift code:

```
1 // ViewController.swift
2 // 56233_13_code
3 //
4 // Created by Stuart Grimshaw on 31/12/16.
5 // Copyright © 2016 Stuart Grimshaw. All rights reserved.
6 //
7 //
8
9 import Cocoa
10
11 class ViewController: NSViewController
12 {
13     let customFileManager = CustomFileManager.sharedManager
14
15     @IBAction func saveUserDefaults(_ sender: Any)
16     {
17         customFileManager.saveDefaults()
18     }
19     @IBAction func loadUserDefaults(_ sender: Any)
20     {
21         customFileManager.loadDefaults()
22     }
23
24 }
25
26
```





Chapter 14: The Benefits of Core Data

Choose options for your new project:

Product Name:

Team:

Organization Name:

Organization Identifier:

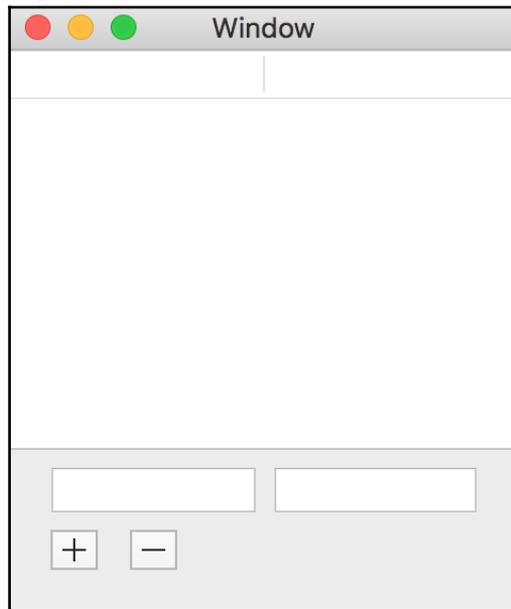
Bundle Identifier:

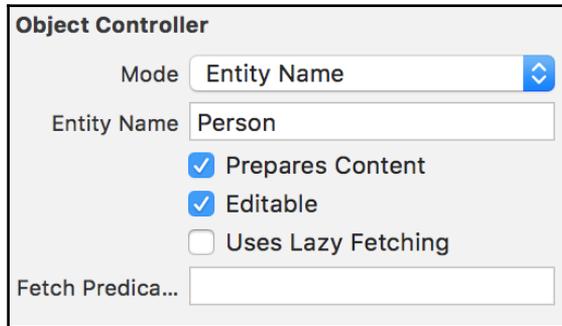
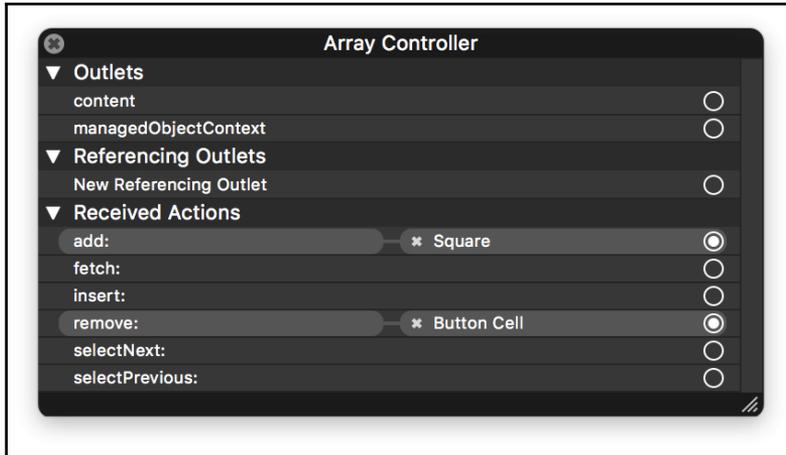
Language:

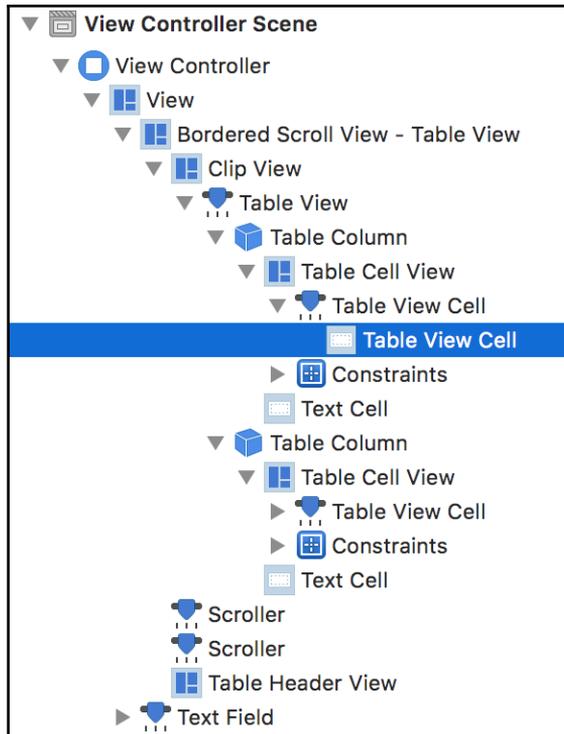
Use Storyboards
 Create Document-Based Application

Document Extension:

Use Core Data
 Include Unit Tests
 Include UI Tests







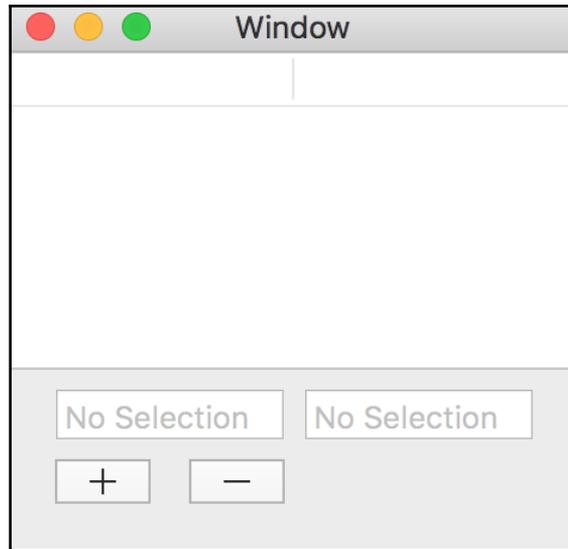
Value

▼ Value (Table Cell View.objectValue.name)

Bind to

Controller Key

Model Key Path



```

5623_14_code Ready | Today at 17:21
AppDelegate.swift

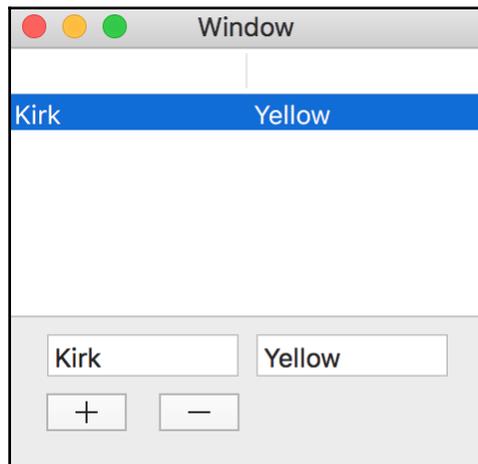
24 lazy var applicationDocumentsDirectory: Foundation.URL = {
25 // The directory the application uses to store the Core Data store file. This code uses a directory named "com.apple.toolsQA.CocoaApp_CD" in the user's Application Support directory.
26 let url = FileManager.default.url(forKey: .applicationSupportDirectory, in: .userDomainMask)
27 let appSupportURL = url!.url!.appendingPathComponent("com.apple.toolsQA.CocoaApp_CD")
28 }()
29
30 lazy var managedObjectContextModel: NSManagedObjectModel = {
31 // The managed object model for the application. This property is not optional. It is a fatal error for the application not to be able to find and load its model.
32 let modelURL = Bundle.main.url(forResource: "623_14_code", withExtension: "momd")!
33 return NSManagedObjectModel(contentsOf: modelURL)!
34 }()
35
36 lazy var persistentStoreCoordinator: NSPersistentStoreCoordinator = {
37 let fileManager = FileManager.default
38 var failError: NSError? = nil
39 var shouldFail = false
40 var failureReason = "There was an error creating or loading the application's saved data."
41
42 // Make sure the application files directory is there
43 do {
44 let properties = try self.applicationDocumentsDirectory.resourceValues(forKeys: [URLResourceKey.isDirectoryKey])
45 if !properties.isDirectory {
46 failureReason = "Expected a folder to store application data, found a file \(self.applicationDocumentsDirectory.path)."
47 shouldFail = true
48 }
49 } catch {
50 let nserror = error as NSError
51 if nserror.code == NSFileNoSuchFileError {
52 do {
53 try fileManager.createDirectory(atPath: self.applicationDocumentsDirectory.path, withIntermediateDirectories: true, attributes: nil)
54 } catch {
55 failureReason = nserror.localizedDescription
56 }
57 } else {
58 failureReason = nserror.localizedDescription
59 }
60 }
61
62 // Create the coordinator and store
63 let coordinator: NSPersistentStoreCoordinator? = nil
64 if failError == nil {
65 coordinator = NSPersistentStoreCoordinator(managedObjectContextModel: self.managedObjectContextModel)
66 let url = self.applicationDocumentsDirectory.appendingPathComponent("623_14_code.storedata")
67 do {
68 try coordinator!.addPersistentStore(ofType: NSMQLStoreType, configurationName: nil, at: url, options: nil)
69 } catch {
70 failureReason = error.localizedDescription
71 }
72 }
73
74 if shouldFail || (failError != nil) {
75 // Report any error we got.
76 if let error = failError {
77 NSApplication.shared().presentError(error)
78 fatalError("Unresolved error: \(error.localizedDescription)")
79 }
80 fatalError("Unresolved error: \(failureReason!)")
81 } else {
82 return coordinator!
83 }
84 }()
85
86 lazy var managedObjectContext: NSManagedObjectContext = {
87 let coordinator = self.persistentStoreCoordinator
88 let managedObjectContext = NSManagedObjectContext(concurrencyType: .mainQueueConcurrencyType)
89 managedObjectContext.persistentStoreCoordinator = coordinator
90 return managedObjectContext
91 }()

```

▼ **Attributes**

Attribute ^	Type
S name	String
N rank	Integer 16
S shirtColor	String

+ -



Relationship

Name

Properties Transient Optional

Destination

Inverse

Delete Rule

Type

Advanced Index in Spotlight
 Store in External Record File

Attributes

Attribute ^	Type
S name	String
N rank	Integer 16
S shirtColor	String

+ -

Relationships

Relationship ^	Destination	Inverse
M subordinates	Person	superior
O superior	Person	subordinates

+ -

Relationship

Name: subordinates

Properties: Transient Optional

Destination: Person

Inverse: superior

Delete Rule: Nullify

Type: To Many

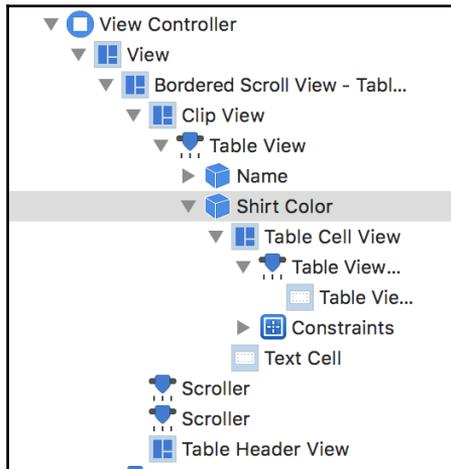
Arrangement: Ordered

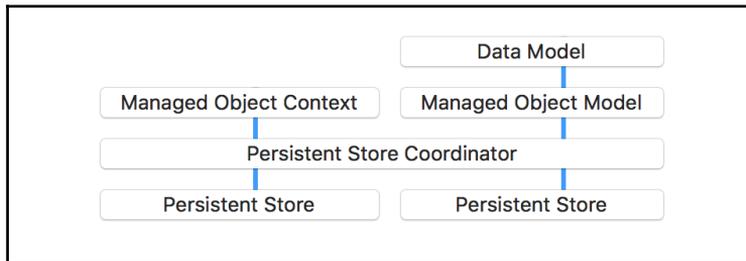
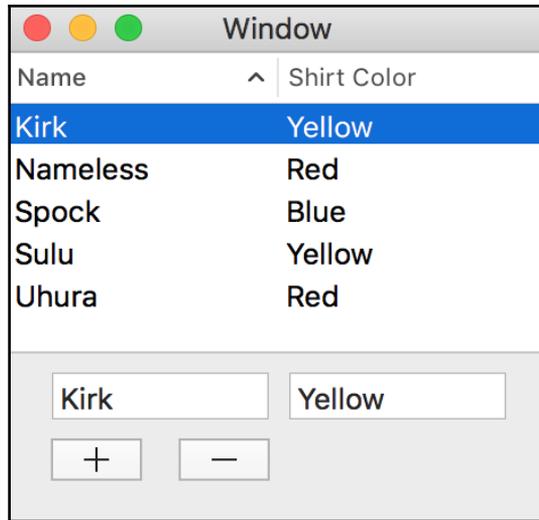
Count: Unbounded Minimum

Unbounded Maximum

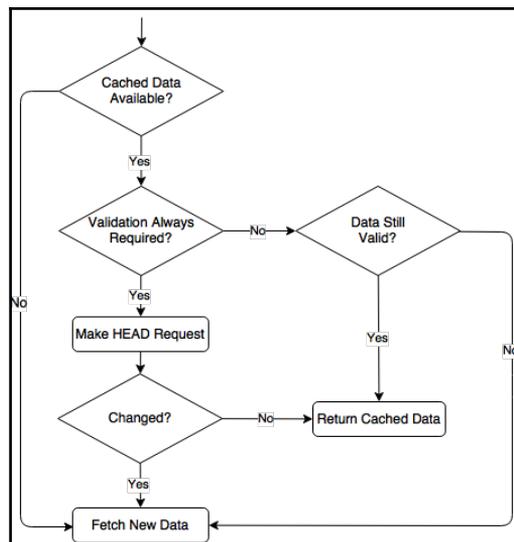
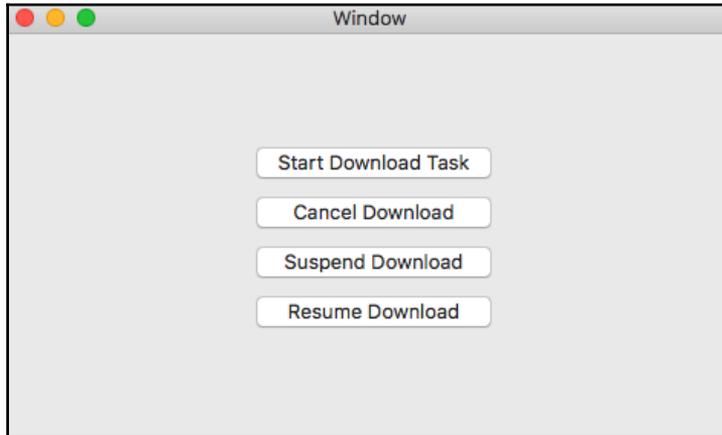
Advanced: Index in Spotlight

Store in External Record File

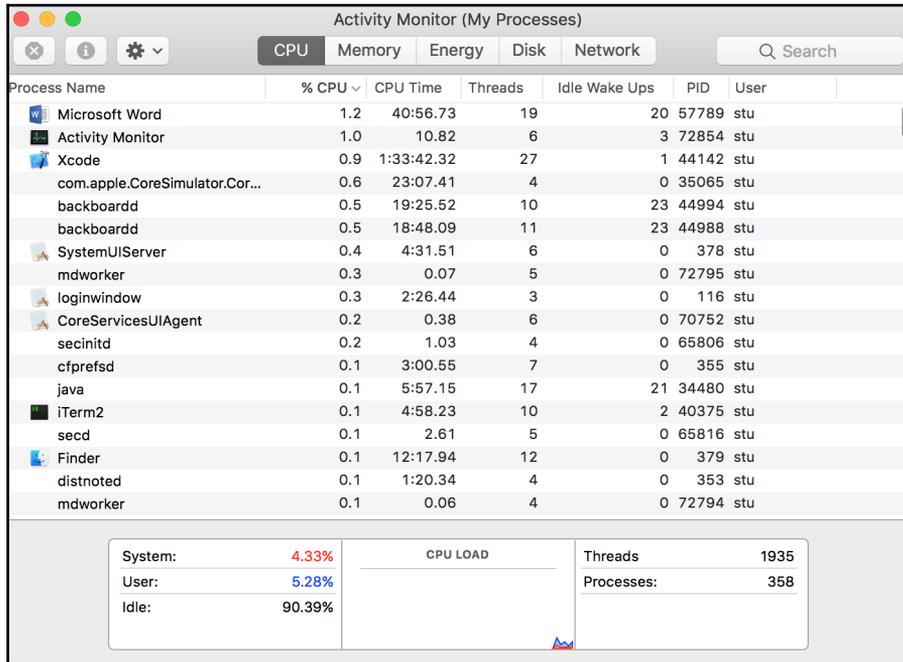




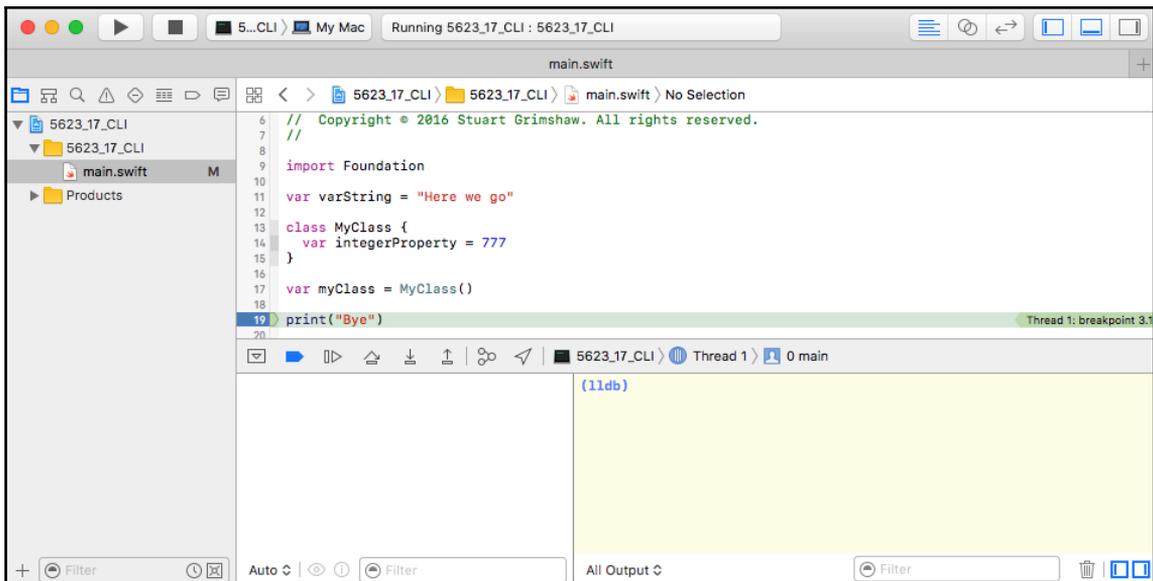
Chapter 15: Connect to the World - Networking

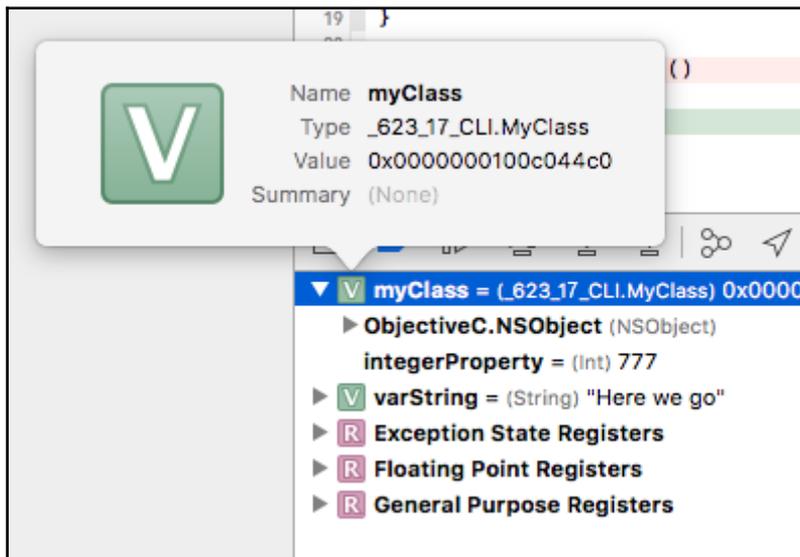
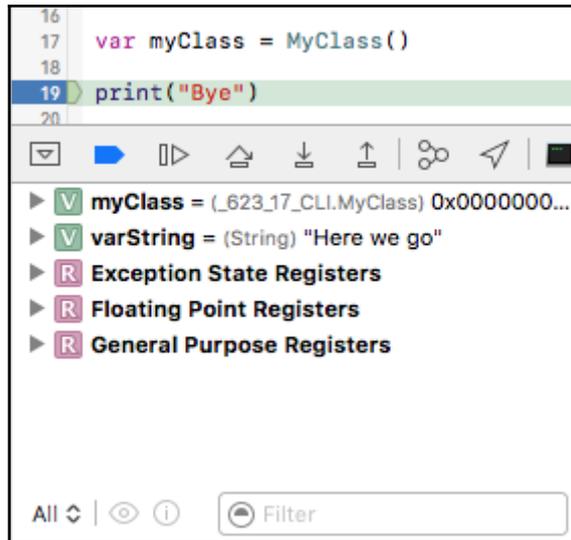


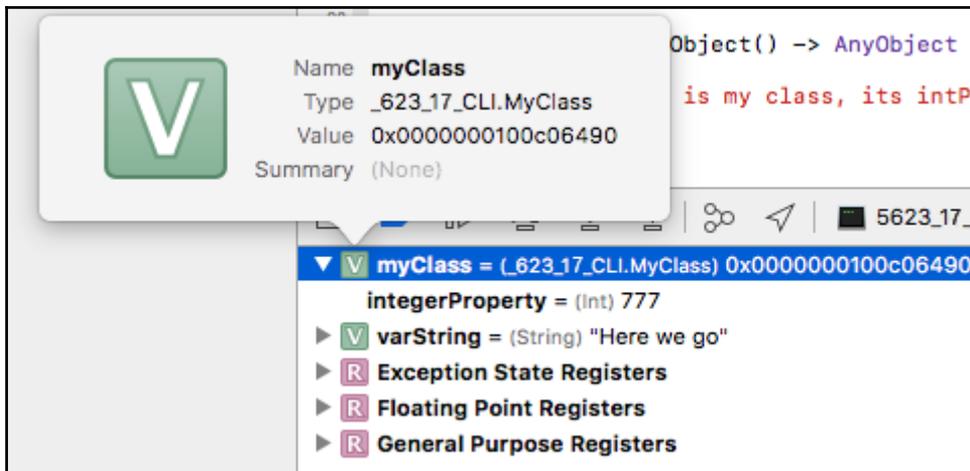
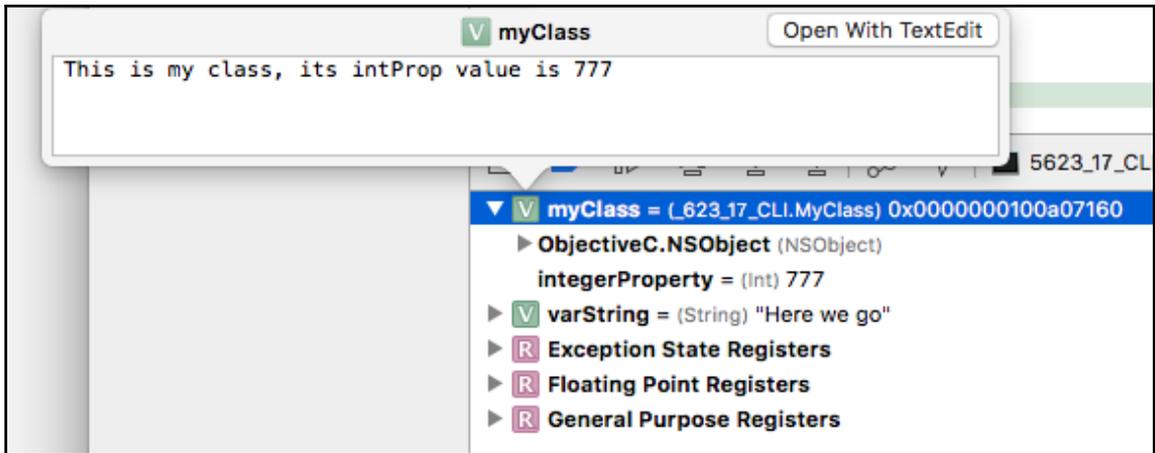
Chapter 16: Concurrency and Asynchronous Programmi ng



Chapter 17: Understanding Xcodes Debugging Tools

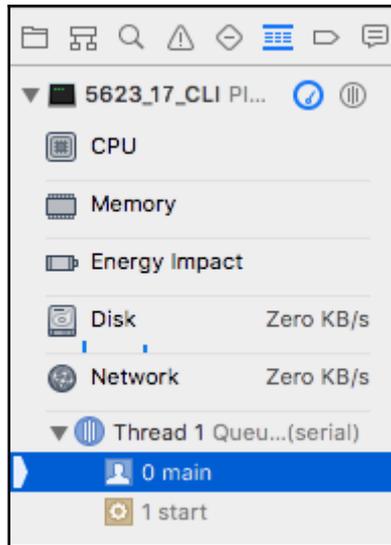






```
28 var myClass = MyClass()
29 print("This is Target Output")
30 |
31 print("Bye")
32
```

```
This is Debugger Output
This is Target Output
(lldb) |
```



Running 5623_17_CLI : 5623_17_CLI

Network Activity Report

Network Report

Bytes | Packets | Profile in Instruments

Direction	Per Second	Total
Receiving	0.0 KB/s	5.5 KB
Sending	0.0 KB/s	0.4 KB

Receiving and Sending Rates

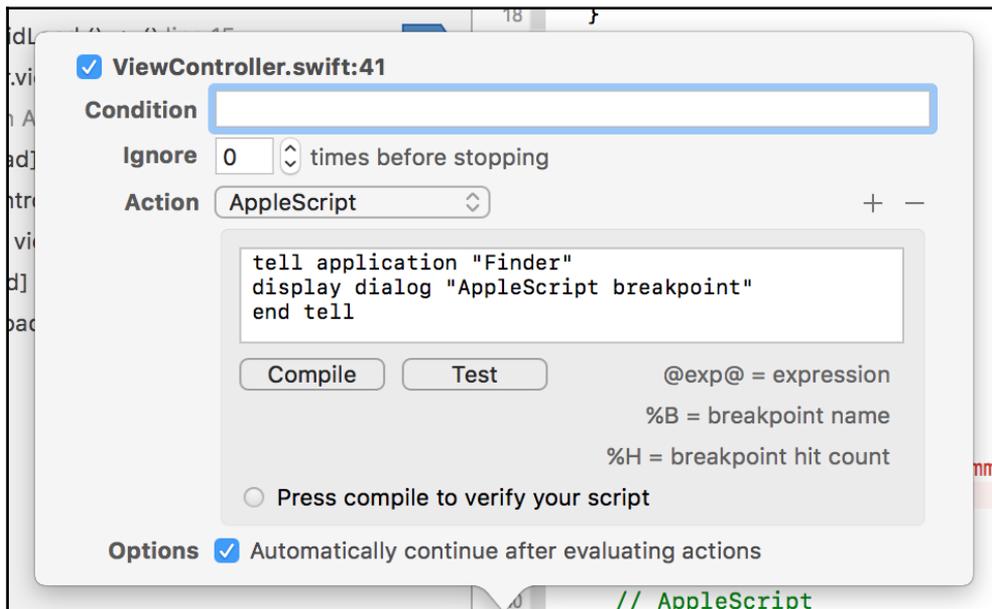
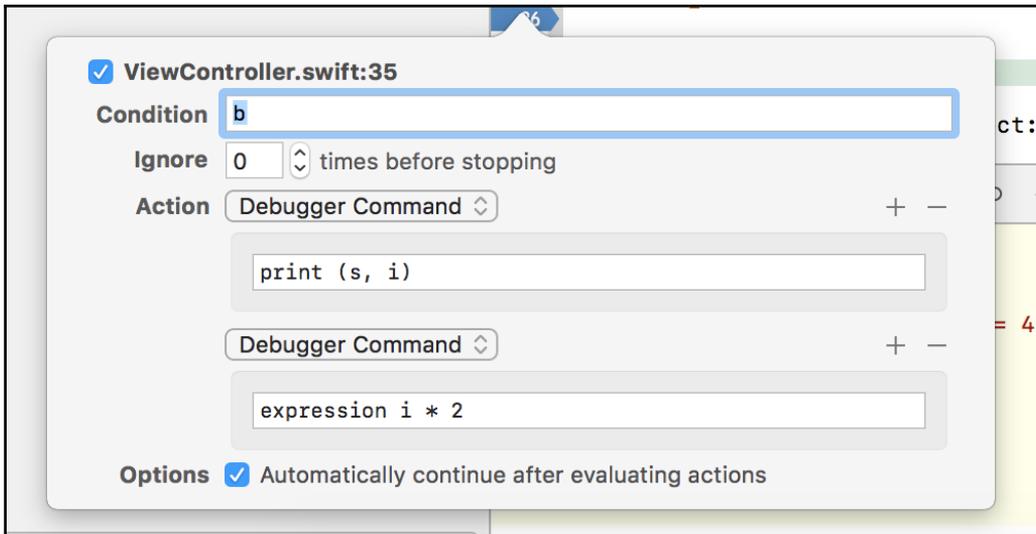
Active Connections

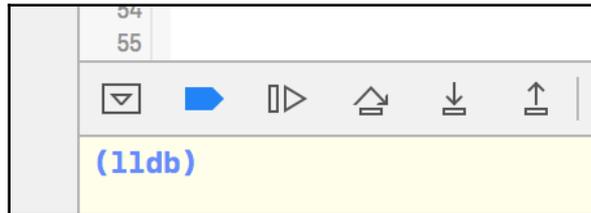
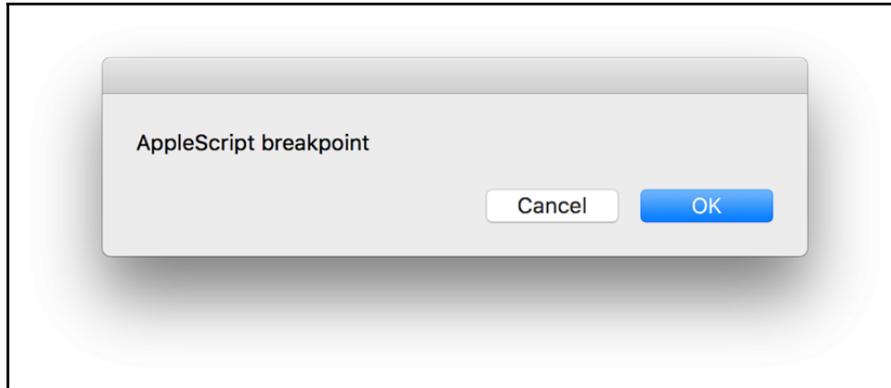
Protocol	Local Address	Local Port	Remote Address	Remote Port	Interface	State	Bytes In	Δ Bytes In	Bytes Out	Δ Bytes
No Active Connections										

```

Optional[<NSHTTPURLResponse: 0x100c44980> { URL: http://www.google.co.nz/?gfe_rd=cr&ei=3XLRv9au0a7r8AfA84wDQ } { status code: 200, headers {
  "Cache-Control" = "private, max-age=0";
  "Content-Encoding" = gzip;
  "Content-Length" = 4613;
  "Content-Type" = "text/html; charset=ISO-8859-1";
  Date = "Wed, 28 Sep 2016 07:35:58 GMT";
  Expires = "-1";
  P3P = "CP=US; This is not a P3P policy! See https://www.google.com/support/accounts/answer/151657?hl=en for more info.\"";
  Server = gms;
  "Set-Cookie" = "NID=87=ppjv4qVFNiJzSjBRkdUpdZTRd-i5XZQD_vUBTsnIfDvH2_1THQYxpvxOVJzrTlpykHUXqfEaK1Zt6qVmmKWd2_DzvVDoOmI5e57D7xVnVvEbp5tj_H9NmV15vV0tnk; expires=Thu, 30-Mar-2017 07:35:58 GMT; path=/; domain=.google.co.nz; HttpOnly";
}
    
```

All Output C

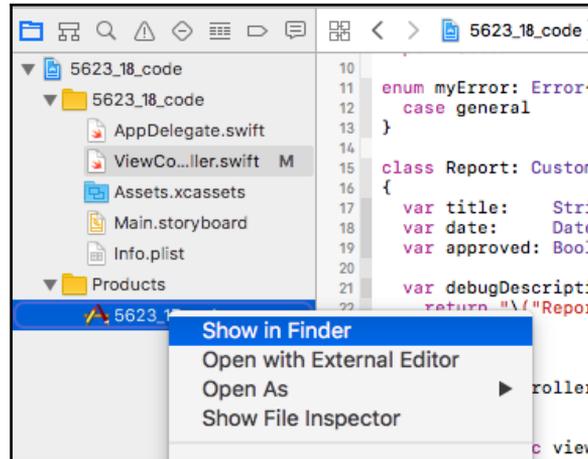




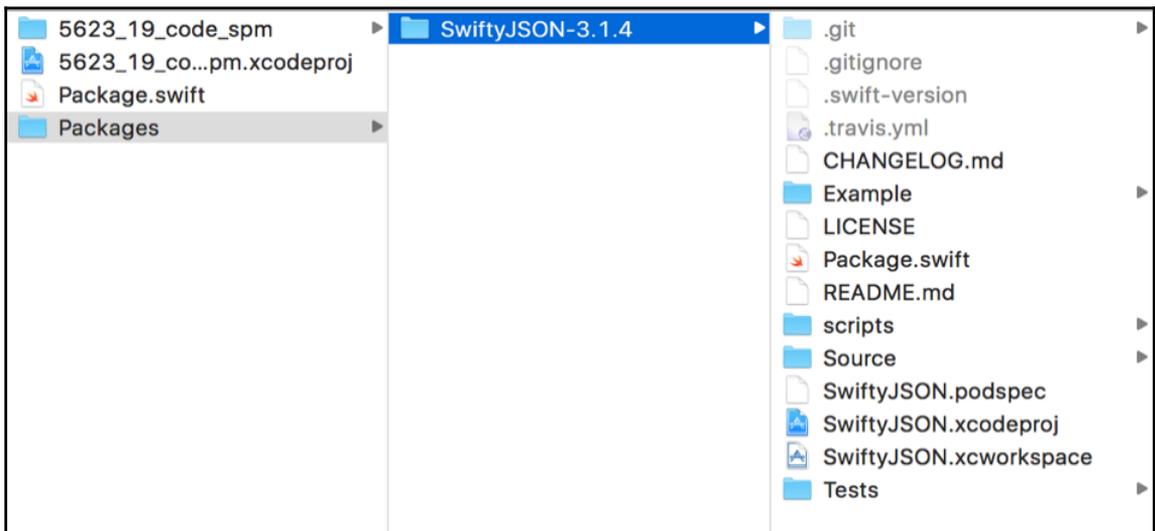
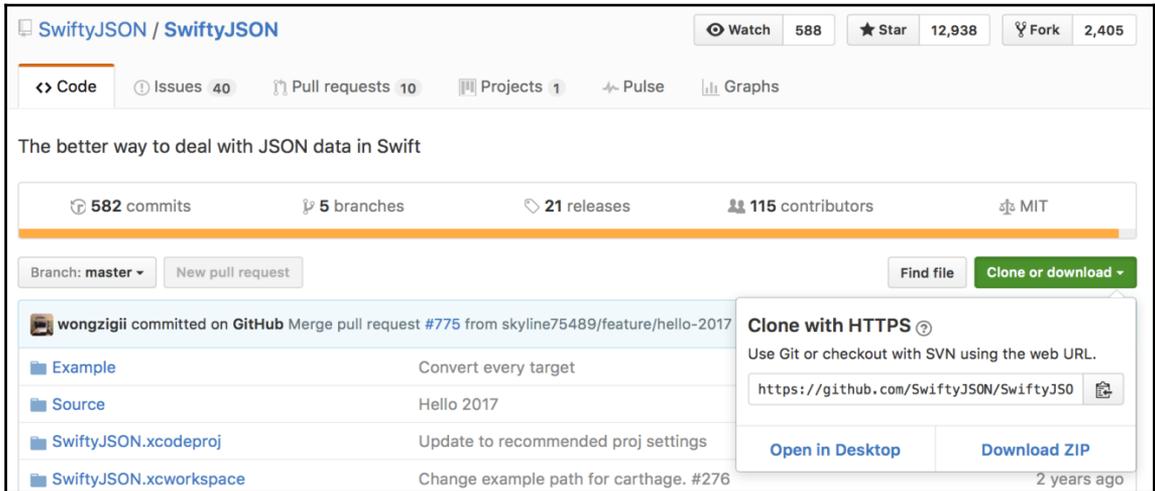
```
46
47 func testStepCommands()
48 {
49     func printObservation()
50     {
51         print("Today you are you!")
52         print("That is truer than true!")
53         print("There is no one alive who is you-er than you!")
54     }
55
56     func printPrediction()
57     {
58         print("And will you succeed?")
59         print("Yes you will indeed!")
60         print("98 and 3/4 percent guaranteed.")
61     }
62
63     printObservation()
64     printPrediction()
65 }
66
```

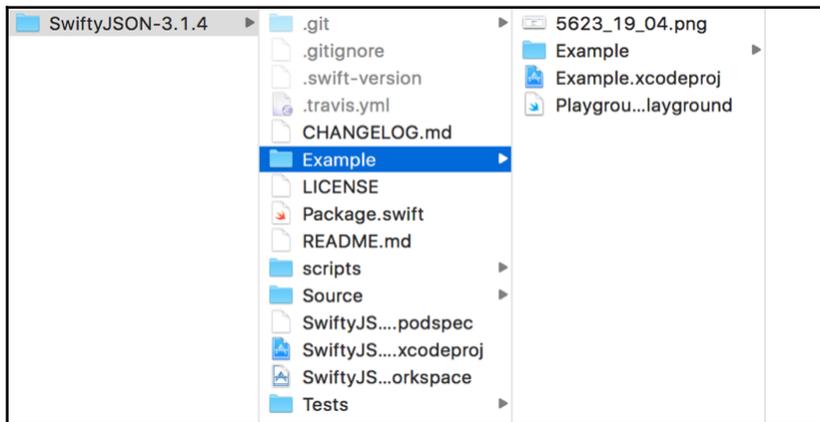
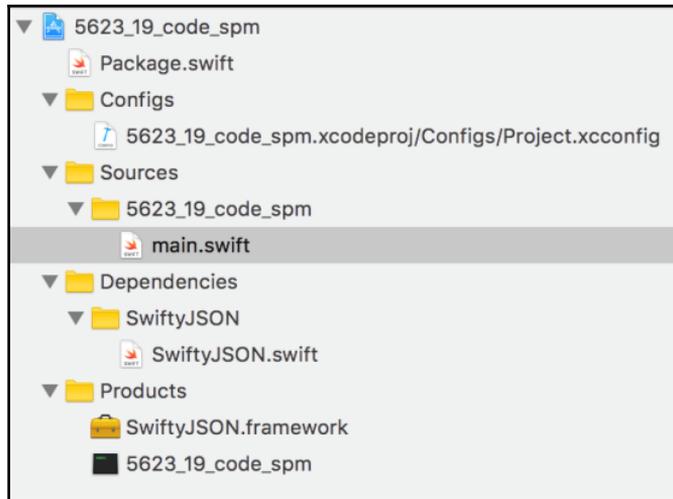
Chapter 18: LLDB and the Command Line

```
28  
29 let report = Report()  
30  
31 report.title = "Weekly Summary"  
32 report.date = Date()  
33 report.approved = true  
34
```



Chapter 19: Deploying Third - Party Code





Chapter 20: Wrapping It Up

