

iOS 6编程Cookbook (影印版)



# iOS 6 Programming Cookbook

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*Vandad Nahavandipoor* 著

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## iOS 6 Programming Cookbook

*Vandad Nabavandipoor* 著

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# Preface

The long-awaited iOS 6 SDK (Software Development Kit) is finally out, and we need to learn about all the great features that this release offers us. Apple did a great job adding new features to the SDK and, of course, to iOS itself. iOS 6 is much more stable than the previous versions of iOS, as you would expect. Things move very fast in Apple's world, and the iOS SDK is no exception. Obviously, picking up this book is an indication that you are ready to start learning all there is to know about iOS 6 SDK, and that is fantastic.

I've personally worked with companies of various sizes around the world and have been developing software pretty much since I was about seven years old. (I started out on my father's Commodore 64 before moving on to an Intel 80186 machine, an 80286, and then Pentium machines.) I did a lot of assembly development as well as some OS programming, including writing a kernel of a toy operating system. I really enjoy software development and have true passion for it. I can express myself using programming, and that's probably the main reason I enjoy writing apps and software in general. Since 2007, I've solely focused on writing iOS apps, and have been working with some really high-profile companies around the world to help them with their projects. I've worked with Scrum Masters (for whom I have much respect), project managers, delivery managers, release managers, testers, and fellow iOS developers—and have done my best to learn as much as possible from them. This edition of the book is the product of all the knowledge that I have gained in many years writing iOS apps.

This edition of the book is especially exciting for me, because of all the modifications and fine-tuning we have done to it as a result of going through the feedback that we received in the last two editions. In this edition, obviously you will learn all about the new features of iOS 6 SDK. On top of that, you will learn about Pass Kit, Auto Layout constraints, file/folder management, customization of UI components, and much more. Of course, you will also learn about all the cool new features that Apple has added to the LLVM compiler and the runtime, such as autosynthesized properties, expression boxing, and collection subscripting.

## Audience

I assume you are comfortable with the iOS development environment and know how to create an app for the iPhone or iPad. This book does not get novice programmers started, but presents useful ways to get things done for iOS programmers ranging from novices to experts.

## Organization of This Book

In this book, we will discuss frameworks and classes that are available in iOS 6 SDK. This book does its best to teach you the latest and the greatest APIs. As you know, some users of your apps may still be on older versions of iOS, so please consider those users and choose your APIs wisely, depending on the minimum iOS version that you want to target with your apps.

Here is a concise breakdown of the material each chapter covers:

### Chapter 1, *The Basics*

Explains how Objective-C classes are structured and how objects can be instantiated. The chapter talks about properties and delegates as well as memory management in Objective-C. Even if you are competent in Objective-C, I strongly suggest that you read this chapter, even if you only skim through it, to understand the basic material that is used in the rest of the book.

### Chapter 2, *Implementing Controllers and Views*

Describes various approaches to constructing your iOS application's user interface by taking advantage of different tools the SDK provides. This chapter also introduces you to features that are only available on the iPad, such as the popover and split view controllers.

### Chapter 3, *Auto Layout and the Visual Format Language*

Explains how you can take advantage of Auto Layout in the iOS SDK in order to construct your UI in such a way that it can be resized and stretched to pretty much any screen dimension.

### Chapter 4, *Constructing and Using Table Views*

Shows how you can work with table views to create professional-looking iOS applications. Table views are very dynamic in nature, and as a result, programmers sometimes have difficulty understanding how they should work with them. By reading this chapter and trying out the example code, you will gain the knowledge that is required to comfortably work with table views.

### Chapter 5, *Storyboards*

Demonstrates the process of *storyboarding*, the new way to define the connections between different screens in your app. The great thing about storyboarding is that you don't have to know anything about iOS programming to get a simple app running. This helps product analysts, product owners, or designers who work

independently of developers to gain knowledge of the UI components iOS offers and to build more robust products. Programmers can also take advantage of storyboarding to easily create prototypes. Storyboarding is just fun, whether you do it on paper or using Xcode.

#### Chapter 6, *Concurrency*

As humans, we can do many things simultaneously without thinking much about it. With advances in computer technology, mobile devices are also able to multitask, and provide programmers with tools and mechanisms that can accomplish more than one task at the same time. This is called *concurrency*. In this chapter, you will learn about Grand Central Dispatch, Apple's preferred way of achieving concurrency in iOS. You will also learn about timers, threads, and operations.

#### Chapter 7, *Core Location and Maps*

Describes how you should use Map Kit and Core Location APIs to develop location-aware iOS applications. First you will learn about maps, and then you will learn how to detect a device's location and tailor your maps with custom annotations. You will also learn about geocoding and reverse geocoding, as well as some of the methods of the Core Location framework, which are only available in the iOS 4 SDK and later.

#### Chapter 8, *Implementing Gesture Recognizers*

Demonstrates how to use gesture recognizers, which enable your users to easily and intuitively manipulate the graphical interface of your iOS applications. In this chapter, you will learn how to use all available gesture recognizers in the iOS SDK, with working examples tested on iOS 5 on different devices such as the iPhone 3GS, iPhone 4, and iPad.

#### Chapter 9, *Networking, JSON, XML, and Twitter*

Demonstrates how to download data from a URL and parse XML files. You will learn about synchronous and asynchronous connections and their pros and cons. You will also learn about caching files in memory and on disk to avoid consuming the possibly limited bandwidth of an iOS device on which your application could be running.

#### Chapter 10, *Audio and Video*

Discusses the AV Foundation and Media Player frameworks that are available on the iOS SDK. You will learn how to play audio and video files and how to handle interruptions, such as a phone call, while the audio or video is being played in iOS 6. This chapter also explains how to record audio using an iOS device's built-in microphone(s). At the end of the chapter, you will learn how to access the iPod Library and play its media content, all from inside your application.

#### Chapter 11, *Address Book*

Explains the Address Book framework and how to retrieve contacts, groups, and their information from the Address Book database on an iOS device. The Address Book framework is composed entirely of C APIs. Because of this, many Objective-C developers find it difficult to use this framework, as compared to frameworks

that provide an Objective-C interface. After reading this chapter and trying the examples for yourself, you will feel much more confident using the Address Book framework.

#### Chapter 12, *Files and Folder Management*

One of the most important tasks that, as developers, we want to perform in our iOS apps is manipulating files and folders. Whether this means creating, reading from, writing to, or deleting them, this chapter contains enough material to get you up and running with file and folder management in iOS SDK.

#### Chapter 13, *Camera and the Photo Library*

Demonstrates how you can determine the availability of front- and back-facing cameras on an iOS device. Some of the recipes in this chapter are specific to iOS 4 and above. You will also learn how to access the Photo Library using the Assets Library framework, which is available in iOS 4 and later. At the end of the chapter, you will learn about editing videos right on an iOS device using a built-in view controller.

#### Chapter 14, *Multitasking*

Explains, with examples, how to create multitasking-aware applications that run beautifully on iOS 4 and above. You will learn about background processing, including how to play audio and retrieve users' locations in the background, as well as how to download content from a URL while your application is running in the background.

#### Chapter 15, *Core Data*

Describes how to maintain persistent storage for your iOS applications using Core Data. You will learn how to add to, delete from, and edit Core Data objects and how to boost access to data in a table view. In addition, you will learn how to manage relationships between Core Data objects.

#### Chapter 16, *Dates, Calendars, and Events*

Demonstrates the use of the Event Kit and Event Kit UI frameworks, which are available on iOS 4 and later, in order to manage calendars and events on an iOS device. You will see how to create, modify, save, and delete events. You will also learn, through examples, how to add alarms to calendar events and how to set up CalDAV calendars so that you can share a single calendar among multiple devices.

#### Chapter 17, *Graphics and Animations*

Introduces the Core Graphics framework. You will learn how to draw images and text on a graphics context, grab the contents of a graphics context and save it as an image, and much more.

#### Chapter 18, *Core Motion*

Explains the Core Motion framework. Using Core Motion, you will access the accelerometer and the gyroscope on an iOS device. You will also learn how to detect shakes on a device. Of course, not all iOS devices are equipped with an



accelerometer and a gyroscope, so you will also learn how to detect the availability of the required hardware.

#### Chapter 19, *iCloud*

Shows how to use the iCloud service, which ties devices together and allows them to share data to provide a seamless user experience as the user moves from one device to another.

#### Chapter 20, *Pass Kit*

Perhaps one of the most important updates in iOS 6 is the introduction of Passbook: a virtual wallet, if you will, capable of managing your coupons, boarding passes, rail and bus tickets, and much more. In this chapter, you will learn all there is to know in order to be able to create your own digitally signed passes and distribute them to your users easily.

## Additional Resources

From time to time, I refer to official Apple documentation. Some of Apple's descriptions are right on the mark, and there is no point in trying to restate them. Throughout this book, I have listed the most important documents and guides in the official Apple documentation that every professional iOS developer should read.

For starters, I suggest that you have a look at the iOS Human Interface Guidelines (<http://bit.ly/QbdY0B>) for all iOS devices. This document will tell you everything you need to know about developing engaging and intuitive user interfaces for all iOS devices. Every iOS programmer should read this document. In fact, I believe this should be required reading for the product design and development teams of any company that develops iOS applications.

I also suggest that you skim through the “iOS Application Programming Guide” in the iOS Reference Library (<http://bit.ly/Qi7JaZ>) for some tips and advice on how to make great iOS applications:

One of the things you will notice when reading Chapter 14 is the use of block objects. This book concisely explains block objects, but if you require further details on the subject, I suggest you read “A Short Practical Guide to Blocks,” available at this URL: <http://bit.ly/TsSMNU>.

Throughout this book, you will see references to “bundles” and loading images and data from bundles. You will read a concise overview about bundles in this book, but if you require further information, head over to the “Bundle Programming Guide,” available at this URL: <http://bit.ly/XdLKE6>.

## Conventions Used in This Book

The following typographical conventions are used in this book:



### *Italic*

Indicates new terms, URLs, filenames, file extensions, and directories

### **Constant width**

Indicates variables and other code elements, the contents of files, and the output from commands

### **Constant width bold**

Highlights text in examples that is new or particularly significant in a recipe

### *Constant width italic*

Shows text that should be replaced with user-supplied values



This icon signifies a tip, suggestion, or general note.

## Using Code Examples

This book is here to help you get your job done. In general, you may use the code in this book in your programs and documentation. You do not need to contact us for permission unless you're reproducing a significant portion of the code. For example, writing a program that uses several chunks of code from this book does not require permission. Selling or distributing a CD-ROM of examples from O'Reilly books *does* require permission. Answering a question by citing this book and quoting example code does not require permission. Incorporating a significant amount of example code from this book into your product's documentation *does* require permission.

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## We'd Like to Hear from You

Every example and code snippet in this book has been tested on the iPhone 3GS, iPhone 4, iPhone 4S, iPhone 5, iPad, and an iPhone/iPad Simulator, but occasionally you may encounter problems—for example, if you have a different version of the SDK than the version on which the example code was compiled and tested. The information in this book has also been verified at each step of the production process. However, mistakes and oversights can occur, and we will gratefully receive details of any you find, as well

as any suggestions you would like to make for future editions. You can contact the author and editors at:

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We have a web page for this book, where we list errata, examples, and any additional information. You can access this page at:

[http://oreil.ly/iOS6\\_Programming\\_CB](http://oreil.ly/iOS6_Programming_CB)

To access the source codes for this book, please see the author's website at:

<https://github.com/vandadnp/ios-6-programming-cookbook-source-codes>

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I am also grateful to my wonderful reviewers, Chris Devers, Mikhail Madnani, and Niklas Saers, for the fantastic job they did reviewing this edition of the book. When I was a kid, I thought I could do everything on my own. But as I've matured, it has become more and more apparent to me that although we humans are limitless in what we can achieve, without a good support system there is just so much we cannot do. Realizing and constantly reminding myself of this when I am surrounded by my friends, I would like to take this opportunity and thank them for their continuous support and unconditional love.

Last, but not least, big thanks to Alina Rizzoni, Bruno, and Tommy Packham for their continuous support and love. Rambo and Professor TJ, I want to say hello to you, too. Good boys!

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