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iOS 6
Foundations

Jesse Feiler

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About the Author

JESSE FEILER is a developer, consultant, and author specializing in Apple technologies. He is the creator of Minutes Machine for iPad, the meeting management app available in Apple's App Store. He is also Software Architect for PlattInfo, the network of walk-up touch-screen kiosks in downtown Plattsburgh, New York. As a consultant, he has worked with small businesses and nonprofits on projects such as production control, publishing, and project management, usually involving FileMaker.

His books include:

- *iWork For Dummies*
- *Dashcode For Dummies*
- *FileMaker Pro in Depth*
- Sams *Teach Yourself Core Data in 24 Hours*
- Sams *Teach Yourself Objective-C in 24 Hours*
- *The Bento Book*

He is heard regularly on WAMC Public Radio for the Northeast's *The Roundtable*. He is a member of the City of Plattsburgh Planning Board and the Saranac River Trail Advisory Committee. A native of Washington DC, he has lived in New York City and currently lives in Plattsburgh, NY.

He can be reached at northcountryconsulting.com.

The photos in Chapter 17 show one of the City of Plattsburgh's PlattInfo kiosks. PlattInfo is a network of walk-up touch-screen kiosks powered by FileMaker. Jesse Feiler is Software Architect for PlattInfo. PlattInfo artwork by Kelly Chilton (`hey@kellychilton.com` or `www.kellychilton.com`). You can find out more about PlattInfo at PlattInfo.com.

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Introduction

GETTING STARTED WITH iOS 6 is easier than ever. Long-time iOS programmers who started programming with iPhone OS all those years ago (in 2007) might scarcely recognize the tools at their disposal. Some people thought that programming iPhone—and later, iPad—was just too hard. And maybe it was, but the engineers at Apple were working feverishly to transfer major aspects of app development from external developers to in-house Apple engineers. The process accelerated with iOS 5 and, with iOS 6, newcomers to iOS development have a wealth of riches in the frameworks and tools at your command.

Who Should Read This Book?

This book is for people who want to learn about developing iOS apps. It provides a hands-on tutorial for you to develop your first app. Some people will use the book to launch themselves on a career as an app developer. For others, the book will serve to introduce the basics of iOS. This means that managers, clients, marketers, and others who need to work with iOS can get up to speed.

The assumption in this book is that you know a programming language and the basics of computer programming and software development. You don't need an in-depth knowledge of a programming language, and, in some cases, that may actually be a disadvantage. It doesn't particularly matter which programming language you're familiar with, although if it is a modern object-oriented programming language such as C++,

C#, Java Python, and Ruby, that's great. If you are familiar with the object-oriented features of Perl and PHP, that knowledge will help you along the way.

What about "the basics of computer programming and software development"? Many people (including many people in the technology world) don't understand how software is developed today. Unfortunately, you can still find many books and courses that begin by teaching you how to develop a basic program to do something like balance a checkbook. Leaving aside for the moment the fact that most people don't balance a checkbook manually any more (online banking has changed all that), if your goal is to build the next killer app in the music world or to manage a recycling center or whatever, that checkbook-balancing app may not be relevant. However, if you want to write innovative apps for the 21st Century and the great iOS operating system, this book is for you.

What You Will Learn

The first thing that you'll learn is right here in this paragraph. iOS is the operating system of iPhone, iPad, and iPod touch. It is written in Objective-C. The iOS software is developed with the Xcode integrated development environment (IDE). iOS (as well as OS X) is a product of Apple, as is Xcode. Although Objective-C is not an Apple product (there are several implementations), most people refer to Apple's documentation for the last word on Objective-C and its features. (There is no single published standard other than the Apple documentation.)

As a result of these three points, it is sometimes hard to discern where the operating system and its frameworks end and the language begins, not to mention which features are implemented in Xcode and which features are part of the framework or even the language. They all work together in a seamless fashion. Don't try to tear them apart and learn the language separately from the frameworks or Xcode. Just remember that they are all part of an extraordinary whole. As you work through the book, you'll see how things fit together.

In Part I, "Introducing iOS 6," you'll see how the key components of your development environment fit together. You'll learn about the structure of iOS 6, and you'll see how to use Xcode. You'll walk through the process of thinking about an app and see how to begin defining it.

In Part II, "Storyboards: The Building Blocks of iOS Apps," you get to work designing your app's interface. Some people think of the interface as an add-on, thinking that the code you write is the real thing. Don't fall into that trap; the interface *is* your app. It's what people see and use. The interface comes first, and the code is used to support it. This is particularly important with iOS because, as noted previously, the functionality can be implemented in the iOS framework itself, in the Objective-C language, in Xcode, or in some combination of

them. But the storyboard—a step-by-step walk through the interface—brings them all together.

And, yes, if you're wondering if these storyboards are anything like storyboards for movies or games, you're right. Today's storyboards can be traced to the Walt Disney studios in the 1930s. Look up storyboards in Wikipedia and you'll see that long before iOS, they were used to plan *Gone with the Wind* (1939). You'll also find earlier references such as Constantin Stanislavski's use of storyboarding in theatrical productions in the 1890s.

In Part III, "Building the Party Planner App," you'll use the Core Data Model editor in Xcode to build your data store using graphical tools. From there, you'll move on to customize the Xcode template that will become your app. In this section, you also learn how to save and restore data and how to use the debugger.

In Part IV, "Using Tables and Collection Views," you'll see how to use a critical component of iOS. Structuring data and allowing users to edit it is a common task for developers and users. With the built-in table functionality, much of your work is already done for you.

Finally, in Part V, "Interacting with Users," you circle back to the world of storyboards. There are a number of specific user interface elements that need to be covered so that you can complete your app. Here is where you find them.

How to Use This Book

There are no "reading police;" you can read this (or any) book when, where, and how you want to. (Actually, there is one generally accepted taboo with regard to reading a book — do not look at the last page of a murder mystery until you've read everything that comes before.)

That said, it's important to note that the practical example in this book—the Party Planner app— is built, chapter-by-chapter, as you read through the book. However, if you spot something that you want to explore out of sequence, it's easy to do so. The example code in each chapter is posted at `wiley.com/go/treehouse/ios6foundations` as well as on my website at `northcountryconsulting.com`. If you want to jump into Chapter 12, for example, you can download the code from Chapter 11 and modify it as you read on. (Note that the code posted on the web for each chapter represents the code as it is at the *end* of the chapter.)

This book describes iOS 6. Many of the concepts have been introduced in previous versions, but there also are new features that make their debut in iOS 6. This badge identifies those new features.

Using This Book with Treehouse

Just to be clear, you don't have to be a Treehouse member to use this book. However, the online videos at `teamtreehouse.com` do supplement the content quite nicely. When there is a video that covers the same content that is being covered in the book, you will see the Video icon in the margin and a link to the relevant video. Viewing all the videos and completing badges is a good way of testing what you have learned in the book (and of showing off your new skills to others).

If you ever get stuck on a concept in the book, Treehouse has a great community of members who would be more than happy to help you. You can find them in the official Treehouse members group on Facebook.

Ready to go? Let's get started.

part 1

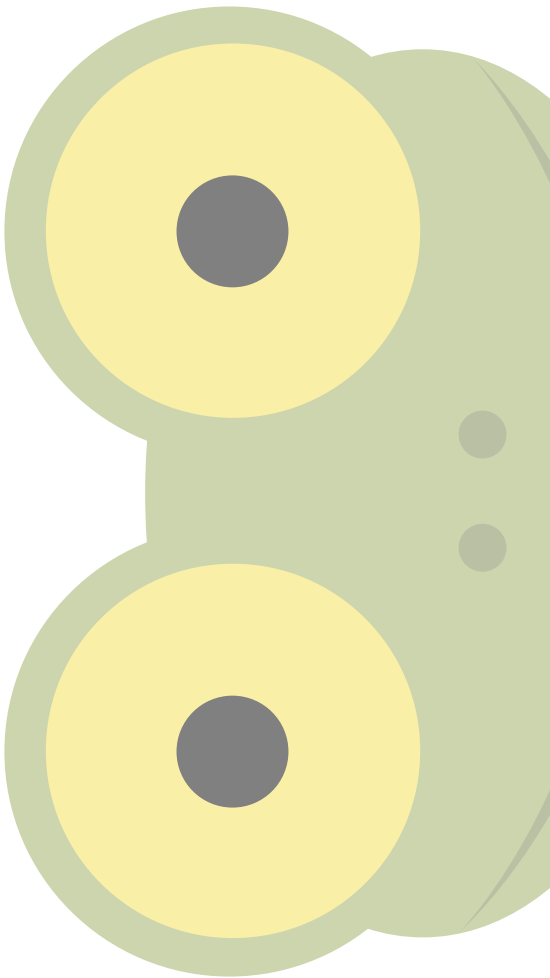
Introducing iOS 6

chapter one Getting Started with iOS 6

chapter two Getting Up to Speed with Xcode

chapter three Looking Ahead—Planning Your App

chapter four Designing the Party Planner App



chapter one

Getting Started with iOS 6

WELCOME! IT'S GREAT to welcome new developers to the world of iOS 6, and I'm happy to help you get started. For most developers with experience on other platforms, iOS is unlike the development environments they are used to. For starters, it lets you build apps for some of the most exciting products today (and, indeed, for many, many days). When you build an app for iPhone, iPod touch, or iPad you become part of the exciting ecosystem centered on Apple's extraordinary technologies and designs. You can find many books, articles, and media stories about Apple, its products, and their designs. There is analysis and prognostication; there are books and training materials for users. And there are books and training materials for that special cadre of people who extend Apple's handiwork: the developers.

This chapter gets you started as quickly as possible. You'll see how to register as a developer. After that, you'll be able to download tools and documentation from `developer.apple.com`. In this chapter you learn the basics of the Objective-C programming language and the highlights of the history of iOS 6—how we got here. Then you'll find a high-level overview of the Xcode integrated development environment (IDE). Before you know it, you'll be following the steps at the end of the chapter to build your first iOS 6 app.

Doing Your Homework

How did you decide to start developing for iOS? Some people use iOS devices and just want to find out more about what makes them tick. Other people have an idea for a great app and would like to build it themselves. Still others are IT professionals who want to expand their skills to this new platform. And others are IT professionals who have been asked to find out how to port an existing or planned project to iOS devices.

Getting Yourself Ready

No matter which category you find yourself in, you probably need to do a bit of homework before you start. You should have some background in programming. It can be long ago or recent, and it can be in advanced languages derived from C or in scripting languages such as PHP. (As noted in the Introduction, some experience with object-oriented programming can definitely help.)

You should be familiar with iOS from a user's perspective. If you plan to develop for only one of the devices (iPhone or iPad, perhaps), you can just explore that device and its features. However, to fully understand the iOS ecosystem, it's good to have both devices and to share data between them using iCloud.

Apple has fairly aggressively pushed out new versions of its devices on roughly an annual basis. It has followed a pattern of dramatically lowering the prices on the previous version of each device as a new one becomes available. You may be able to find a model that is several years old (you may even know someone who can give you one) that you can use for testing. As long as you can install iOS 6 on it, you'll have a test device and not have to worry about mixing up your actual data with test data.

Adopting a Developer's Point of View

When people use computers, they usually focus on a task that they need to accomplish. As a developer, you need to learn a secondary focus: watch *how* people do things rather than *what* they do. Develop this skill and use it to observe how people behave with iOS devices. You have a perfect test subject: yourself.

When something goes wrong or doesn't work the way you expect it to, don't just push on to try it another way. Take a moment to think back not so much about *what* you did wrong but *why* you did it. Did you mistake one icon for another? (Perhaps the icon's meaning wasn't clear.) Did you assume that an action would be carried out differently than it actually was? It doesn't matter if you made a mistake or if the app has a bug in it; in either case, something broke the chain of logic in the user interface and the app. Get used to spotting and analyzing these little glitches. Each one is a learning experience if you just pay attention to it before moving on with the task at hand.

Exploring the App Store

As of this writing, Apple's App Store has surpassed three quarters of a million apps. There are all kinds of apps for all kinds of purposes. Explore the App Store to see what people are writing. If you have an idea for an app, look to see how other people are approaching the topic.

Even if you have an idea for your own app, continue browsing in the App Store in other genres. Many apps are free, so download and install any that seem interesting in any way. If you are planning to build an app for people to use for keeping track of livestock breeding, you may spot an interface element in a game or other app that would be useful in your own app. You can't see every app in the App Store, but keep yourself up to date.

Reading Reviews

Read reviews on the App Store as well as reviews in the media, including blogs. Remember at this point that you're looking for points that reviewers pick up on, both good and bad. Listen to friends as they point out what they like and dislike about the apps they use.

Understanding the App World—Past, Present, and Future

For most people, the app world began in the summer of 2008. On July 10, the App Store opened (it's part of iTunes which received an update). The next day, July 11, the iPhone 3G went on sale. It ran iOS 2.0.1. The phrase "there's an app for that" was a key part of the marketing of the new iPhone 3G. Before long, people around the world understood the basics of apps that could be downloaded from iTunes directly onto an iPhone.

The app world is just a few years old. Every day, new people join it as they get their first iOS device or, as in your case, they decide to start developing apps. As you explore this world, keep a few critical milestones in mind to help you to make sense of information that you find in your studies:

- As noted, the first release of iOS to developers was iOS 2 in July of 2008.
- iOS 3 in June of 2009 added new features such as copy-and-paste. (Yes, in case you didn't know or have forgotten, you didn't have them at the start.)
- iOS 4 was released in June of 2010. iOS 4.2.1 in November supported the iPad.
- iOS 5, released in October of 2011 was the first unified release for iPhone, iPad, and iPod touch.
- iOS 6 (the subject of this book) was released in September 2012.

Along with new versions of the iOS operating system, the engineers at Apple were updating OS X as well as Xcode, the tool for developers of both operating systems as well as third-party apps. (Xcode is discussed later in this chapter and in Chapter 2, "Getting Up to Speed with Xcode.")

Xcode changes less frequently than the operating systems, but there have been very significant changes accompanying the unification of iOS for all the iOS devices, as well as major changes to the structure of Xcode itself.

Looking at the Master-Detail Application Template

All of this background information matters because, as you browse the web and discussion groups, it's important that you know what version you're looking at. Here's an example of how the evolution has taken shape. Xcode contains a number of templates that you can use as the basis for your apps. One of the commonly used templates today is the Master-Detail Application template for iOS (discussed more later in this chapter). It often serves as the basis of apps, and it will serve as the foundation of the app that you will build throughout this book. When you build the app, you can run it on the iPad simulator. Figure 1-1 shows it running in the simulator in landscape mode.

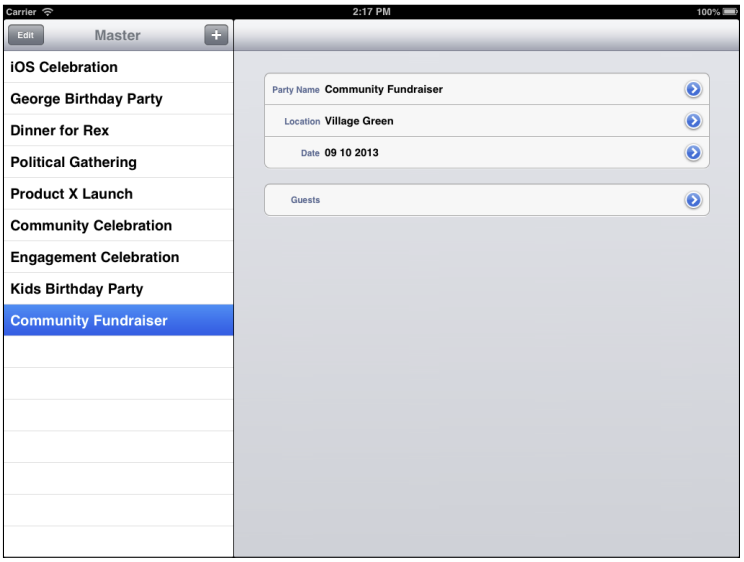


FIGURE 1-1 Master-Detail Application template running on the iPad simulator in landscape mode.

What you see in Figure 1-1 is an iPad feature called a *split view*. It combines two views in one. (Settings uses this architecture so you may recognize the bare bones of the design.) On the