



# Beginning Xcode

Swift 3 Edition

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Matthew Knott

Apress®

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ISBN-13 (pbk): 978-1-4302-5004-3  
DOI 10.1007/978-1-4302-5005-0

ISBN-13 (electronic): 978-1-4302-5005-0

Library of Congress Control Number: 2016957886

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*Dedicated to all those who keep going no matter what obstacles life throws at them.*

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# About the Author

**Matthew Knott** has been writing code for as long as he can remember, from marveling at moving pixels on a BBC Micro to writing ridiculous text adventures for his mother on an overheating ZX Spectrum 48k. Knott has been a professional software developer for the past 14 years and now leads a software section in Swansea, Wales. Matthew's work and hobby are basically the same things, but when he's not working, he loves spending time with his wife, Lisa, their two kids, Mikey and Charlotte, and Eva the dog.

# Acknowledgments

Writing a book for the Swift programming language proved to be a blessing and a curse. The rapidly evolving ecosystem meant many a weekend producing code updates to stay relevant. For this book, I'd like to acknowledge all the great people who bought the last book and who sent kind messages and stories of how they're learning and developing their own apps.

Thanks to my family for the encouragement to put in another long shift at the keyboard and for keeping the tea flowing.



# Introduction

Welcome to *Beginning Xcode*, the book that aims to give you all of the knowledge to start writing applications using what is probably the most powerful integrated development environment (IDE) ever, and it's free.

As with many Apple products, Xcode has simplicity and ease of use in abundance, but don't be fooled; the shiny exterior masks a workhorse of a tool, incredibly powerful with an extensive set of integrated tools for every eventuality. Xcode is the development environment that all other IDEs want to be when they grow up.

Xcode hasn't always been this shining Rock God of awesomeness; it used to be a sorry band of ragtag applications. When I first picked up Xcode 3 in 2007, I remember switching through an array of different applications to create an app, such as the very basic Interface Builder, and finding out how to adapt my knowledge of C into Objective-C. Back then what I really wanted was something that would show me how to get the most out of Xcode and would give me the understanding I needed to get going with the hundreds of app ideas I had in my head.

Fast-forward nine years. Xcode and I have both come a long way. I feel as if I've gone from a kid, bumping my leaky paddleboat aimlessly around a boating lake, to a handsome sea captain at the prow of my vessel, gazing forth as I slice through choppy waves with grace and ease. Well, aside from the handsome part, the analogy is a good one. Xcode 7 is more complete and powerful than ever before; an integrated product that puts the same power in your hands as the developers at Apple who write the apps found in iOS and macOS as well as WatchOS and tvOS to boot.

I've always had a mixed experience of development books in the past and was often sick of building the same old apps again and again. What I've aimed to do in this book is take you through almost every facet of Xcode, helping you to understand the capabilities of each of the key areas as you build a number of cool and exciting projects along the way, and begin to get to grips with the new Swift programming language. By the end of the book, you should be ready to turn the ideas in your head into reality, and I can't wait to see what that looks like.

## Prior Assumptions

Before you dive in and start reading this book, it's assumed that you have at least some familiarity with developing for Cocoa Touch and are familiar with the concepts of object-oriented programming. This book is geared toward those developing for iOS; however, it's possible to get a lot out of this book if you're developing macOS applications, because many of the principles presented can be applied to either platform.

It's assumed that you are using a Mac and are preferably running the latest version of macOS. Unlike the Objective-C based equivalent of this title, it's absolutely necessary that you run the latest version of Xcode. There is a common misconception that you need the greatest and latest "souped-up" Mac, but many previous-generation iMacs, MacBooks, Mac Minis, and Mac Pros will work just fine.

It's also assumed that you know how to operate your Mac and how to use macOS. For example, you need to know how to use the Finder, save files, and so forth—all the basics. Finally, a couple of the chapters present scenarios in which an active Internet connection is required, and some features of Xcode perform better when you're connected. Additionally, some later chapters require a physical device and a paid developer account to complete, but for the most part you can use an iOS simulator to run your apps.

It's also worth mentioning that the purpose of this book is not to teach you how to create applications for iOS or teach you how to program in Swift or Objective-C; the purpose of this book is to get you up and running with Xcode so you can apply your current knowledge of Swift and macOS/iOS development and use the latest version of Xcode to its full potential to enable you to work more productively and create fantastic applications.

## What's Covered in This Book

### Part 1: Getting Acquainted

- *Chapter 1:* This chapter starts you on your journey into the world of Xcode and explains how to get Xcode onto your machine and prepare it for first use. You are shown how to sign up as an Apple developer, and you get a look at the wealth of resources provided by Apple to iOS and macOS developers.
- *Chapter 2:* Here, you start a project and get the ball rolling in terms of becoming familiar with Xcode. You learn the basics of how to create projects and build applications, along with how to get around in Xcode.
- *Chapter 3:* Next, the focus shifts to how to choose from Xcode's different project templates. You also get a guided tour of Xcode's interface along with an introduction to many of the menus, inspectors, and panels you should use to work efficiently.
- *Chapter 4:* This chapter focuses solely on how to design your interfaces using Xcode's built-in interface editor, Interface Builder. It gives you an in-depth look at the libraries and inspectors available.
- *Chapter 5:* Next, you're shown how to access the invaluable help resources that are built right in to Xcode and also how to make the most of its intelligent code-completion feature.
- *Chapter 6:* Building on Chapter 4, you see the Auto Layout system and learn how it works with constraints and size classes to create a single layout for any device.

### Part 2: Diving Deeper

- *Chapter 7:* This chapter shows you how to use a key feature for rapid development in Xcode: Storyboards. You see how Storyboards can add a certain degree of logic to how you display and push views in your application.
- *Chapter 8:* This chapter explains how Xcode makes it easy to populate and create table and collection views, with the addition of how to customize their appearance and functionality.
- *Chapter 9:* Here you learn how to add features to your application by adding frameworks and libraries. You also learn how to create a different version of your application in the same project with targets.
- *Chapter 10:* This chapter shows you how to add your own personal touches to Xcode in terms of editing code. In particular, the code editor is the focus of this chapter, and you see how to work more productively and how to customize its appearance and behavior to suit your tastes and requirements.

- *Chapter 11:* This chapter presents the idea of making your application run more efficiently and faster. This is done by looking at the range of different tools and methods included in Xcode. For example, using breakpoints to step through your code systematically. You also learn about the Swift Playground for prototyping and testing your code.

## Part 3: Final Preparations and Releasing

- *Chapter 12:* Here you learn how you can protect your code and work effectively as a team by using Git, Xcode's integrated version control software.
- *Chapter 13:* This chapter examines the idea of localization and how to use Xcode to accurately support multiple languages in your app.
- *Chapter 14:* This chapter looks at the Organizer, what it's for, how to navigate around in it, and how to keep your developer assets in good standing order.
- *Chapter 15:* To conclude, you make final touches to your application, build it for release, and then share it either as an IPA file or via the App Store using either Application Loader or the Organizer.

**PART I**



# **Getting Acquainted**