

Head First iPhone & iPad Development

深入浅出iPhone和iPad开发 (影印版)

Master
iOS design
principles



Create
top-selling
apps



Tap into the iPhone's
GPS and camera



See how Marco
saved his restaurant
with an iPhone app



Easily manage
big data in
your apps

東南大學 出版社

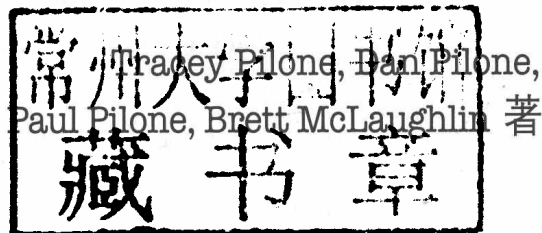
Tracey Pilone, Dan Pilone,
Paul Pilone, Brett McLaughlin 著

深入浅出iPhone和iPad开发 (影印版)

Head First iPhone & iPad Development

第3版

Wouldn't it be dreamy if I could get my
App idea out there? I think I have the
next Angry Birds all figured out...



O'REILLY®

Beijing • Cambridge • Farnham • Köln • Sebastopol • Tokyo

O'Reilly Media, Inc. 授权东南大学出版社出版

南京 东南大学出版社

图书在版编目 (CIP) 数据

深入浅出 iPhone 和 iPad 开发:第 3 版:英文/(美)皮隆
(Pilone, T.)等著. —影印本. —南京:东南大学出版社,
2014.10

书名原文: Head First iPhone and iPad development, 3E
ISBN 978-7-5641-5003-7

I. ①深… II. ①皮… III. ①移动电话机—应用程序—
程序设计—英文 ②便携式计算机—应用程序—程序设计—
英文— IV. ① TP929.53 ② TP368.32

中国版本图书馆 CIP 数据核字 (2014) 第 115563 号

江苏省版权局著作权合同登记

图字: 10-2012-166 号

©2013 by O'Reilly Media, Inc.

Reprint of the English Edition, jointly published by O'Reilly Media, Inc. and Southeast University Press,
2014. Authorized reprint of the original English edition, 2012 O'Reilly Media, Inc., the owner of all rights
to publish and sell the same.

All rights reserved including the rights of reproduction in whole or in part in any form.

英文原版由 O'Reilly Media, Inc. 出版 2013。

英文影印版由东南大学出版社出版 2014。此影印版的出版和销售得到出版权和销售权的所有者——O'Reilly
Media, Inc. 的许可。

版权所有, 未得书面许可, 本书的任何部分和全部不得以任何形式复制。

深入浅出 iPhone 和 iPad 开发 第 3 版 (影印版)

出版发行: 东南大学出版社

地 址: 南京四牌楼 2 号 邮编: 210096

出 版 人: 江建中

网 址: <http://www.seupress.com>

电子邮件: press@seupress.com

印 刷: 常州市武进第三印刷有限公司

开 本: 787 毫米 × 980 毫米 12 开本

印 张: 30.5

字 数: 510 千字

版 次: 2014 年 10 月第 1 版

印 次: 2014 年 10 月第 1 次印刷

书 号: ISBN 978-7-5641-5003-7

定 价: 98.00 元

本社图书若有印装质量问题, 请直接与营销部联系。电话 (传真): 025-83791830

➤ **Advance Praise for *Head First iPhone and iPad Development***

“*Head First iPhone and iPad Development* is a great introduction to iOS development. It doesn’t teach you everything (that would take several thousand of pages), but teaches you plenty to get you started and become enthusiastic to want to learn more. You’ll already have a decent app running in the first chapters. This book teaches you in a nice visual way, not textbook style pages filled with dry theory.”

— **Rene Janssen, Multimedia designer and owner of Ducklord Studios**

“This is another great book from the *Head First* franchise, using its characteristic sense of humor to explain deep concepts such as Core Data or Localization. From the idea to the store, this edition is a must for those who are starting the development apps for the iOS ecosystem.”

— **Roberto Luis, Computer Science Engineer at Autonoma de Madrid University in Spain**

“The great thing about this book is its simple, step-by-step approach. It doesn’t try to teach everything—it just launches you right into building iOS applications in a friendly, conversational way. It’s a fantastic book for people who already know how to write code and just want to get straight into the meat of building iOS applications.”

— **Eric Shephard, owner of Syndicomm**

“*Head First iPhone and iPad Development* was clearly crafted to get you easily creating, using, and learning iOS technologies without needing a lot of background with Macintosh development tools.”

— **Joe Heck, Seattle Xcoders founder**

“This book is infuriating! Some of us had to suffer and learn iOS development ‘the hard way,’ and we’re bitter that the jig is up.”

— **Mike Morrison, Stalefish Labs founder**

“*Head First iPhone and iPad Development* continues the growing tradition of taking complex technical subjects and increasing their accessibility without reducing the depth and scope of the content. iOS development is a steep learning curve to climb by any measure, but with *Head First iPhone and iPad Development*, that curve is accompanied with pre-rigged ropes, a harness, and an experienced guide! I recommend this book for anyone who needs to rapidly improve their understanding of developing for this challenging and exciting platform.”

— **Chris Pelsor, snogboggin.com**

Praise for other *Head First* books

“*Head First Object-Oriented Analysis and Design* is a refreshing look at subject of OOAD. What sets this book apart is its focus on learning. The authors have made the content of OOAD accessible, usable for the practitioner.”

— **Ivar Jacobson, Ivar Jacobson Consulting**

“I just finished reading HF OOA&D and I loved it! The thing I liked most about this book was its focus on why we do OOA&D—to write great software!”

— **Kyle Brown, Distinguished Engineer, IBM**

“Hidden behind the funny pictures and crazy fonts is a serious, intelligent, extremely well-crafted presentation of OO Analysis and Design. As I read the book, I felt like I was looking over the shoulder of an expert designer who was explaining to me what issues were important at each step, and why.”

— **Edward Sciore, Associate Professor, Computer Science Department, Boston College**

“All in all, *Head First Software Development* is a great resource for anyone wanting to formalise their programming skills in a way that constantly engages the reader on many different levels.”

— **Andy Hudson, Linux Format**

“If you’re a new software developer, *Head First Software Development* will get you started off on the right foot. And if you’re an experienced (read: long-time) developer, don’t be so quick to dismiss this...”

— **Thomas Duff, Duffbert’s Random Musings**

“There’s something in *Head First Java* for everyone. Visual learners, kinesthetic learners, everyone can learn from this book. Visual aids make things easier to remember, and the book is written in a very accessible style—very different from most Java manuals...*Head First Java* is a valuable book. I can see the *Head First* books used in the classroom, whether in high schools or adult ed classes. And I will definitely be referring back to this book, and referring others to it as well.”

— **Warren Kelly, Blogcritics.org**

“Is it possible to learn real web design from a book format? *Head First Web Design* is the key to designing user-friendly sites, from customer requirements to hand-drawn storyboards to online sites that work well. What sets this apart from other ‘how to build a web site’ books is that it uses the latest research in cognitive science and learning to provide a visual learning experience rich in images and designed for how the brain works and learns best. The result is a powerful tribute to web design basics that any general-interest computer library will find an important key to success.”

— **Diane C. Donovan, California Bookwatch: The Computer Shelf**

Praise for other *Head First* books

“Another nice thing about *Head First Java, 2nd Edition* is that it whets the appetite for more. With later coverage of more advanced topics such as Swing and RMI, you just can’t wait to dive into those APIs and code that flawless, 100000-line program on java.net that will bring you fame and venture-capital fortune. There’s also a great deal of material, and even some best practices, on networking and threads—my own weak spot. In this case, I couldn’t help but crack up a little when the authors use a 1950s telephone operator—yeah, you got it, that lady with a beehive hairdo that manually hooks in patch lines—as an analogy for TCP/IP ports...you really should go to the bookstore and thumb through *Head First Java, 2nd Edition*. Even if you already know Java, you may pick up a thing or two. And if not, just thumbing through the pages is a great deal of fun.”

— **Robert Eckstein, Java.sun.com**

“Of course it’s not the range of material that makes *Head First Java* stand out, it’s the style and approach. This book is about as far removed from a computer science textbook or technical manual as you can get. The use of cartoons, quizzes, fridge magnets (yep, fridge magnets...). And, in place of the usual kind of reader exercises, you are asked to pretend to be the compiler and compile the code, or perhaps to piece some code together by filling in the blanks or...you get the picture. The first edition of this book was one of our recommended titles for those new to Java and objects. This new edition doesn’t disappoint and rightfully steps into the shoes of its predecessor. If you are one of those people who falls asleep with a traditional computer book then this one is likely to keep you awake and learning.”

— **TechBookReport.com**

“*Head First Web Design* is your ticket to mastering all of these complex topics, and understanding what’s really going on in the world of web design...If you have not been baptized by fire in using something as involved as Dreamweaver, then this book will be a great way to learn good web design.”

— **Robert Pritchett, MacCompanion**

Other related books from O'Reilly

Learning iOS Programming
Building iPhone Apps with HTML, CSS, and Javascript
iPhone 3D Programming
Developing Enterprise iOS Applications
iOS7 Programming Cookbook
iOS7 Programming Fundamentals

Other books in O'Reilly's *Head First* series

Head First Java™
Head First Object-Oriented Analysis and Design (OOA&D)
Head First HTML with CSS and XHTML
Head First Design Patterns
Head First Servlets and JSP
Head First EJB
Head First PMP
Head First SQL
Head First Software Development
Head First JavaScript
Head First Ajax
Head First Physics
Head First Statistics
Head First Rails
Head First PHP & MySQL
Head First Algebra
Head First Web Design
Head First Javascript
Head First Data Analysis
Head First Mobile Web

To my entire family: the Chadwicks, the Pilonés, and Element84,
who have surrounded me with support both at home and at work.
And to my husband who is always there with me, and without
whom it wouldn't be fun.

—Tracey

To my wife, my cofounder, and best friend. She inspired me to
write the first edition, then just handled it for this one. :)

—Dan

Authors of Head First iPhone and iPad Development

Tracey ↗



Tracey Pilone is co-founder (along with Dan Pilone) and operations director at Element 84, a high value outsourcing and consulting company specializing in highly scalable web and mobile software development. In addition to handling the business development work for the company, she works with Element 84's agile development teams to manage and deliver projects to customers.

Prior to starting Element 84, she spent several years working in and around the Washington, D.C., area for two of Engineering News Record's top 20 contractors as a construction manager in commercial construction. This is her fourth *Head First* book, including the two earlier editions of this book and *Head First Algebra*.

She has a civil engineering degree from Virginia Tech and a Master's of Education from the University of Virginia, and holds a professional engineer's license in Virginia. You can follow Tracey on Twitter: @traceypilone.



↖ Dan

Dan Pilone is the founder and Managing Partner of Element 84. He has designed and implemented systems for NASA, Hughes, ARINC, UPS, and the Naval Research Laboratory. He currently serves as technical lead for projects with NASA as well as all of Element 84's projects. He speaks frequently in the community most recently at ESIP, AGU, and the DC Ruby Users Group.

He has taught project management, software design, and software engineering at The Catholic University in Washington, D.C. Dan has been an instructor for the D.C. iPhone Bootcamp and has written several books on software development, including *Head First Software Development*, *UML 2.0 in a Nutshell*, and *UML 2.0 Pocket Reference*. You can follow Dan on Twitter: @danpilone.

Coauthors of Head First iPhone and iPad Development

Paul →



Paul Pilone is an iOS and Rails developer with Element 84. He's the author of iHomework, an iPhone, iPad, and Mac app for managing homework assignments. Paul has developed software for the Naval Research Labs, Lockheed Martin, NASA, and Cengage Learning. You can follow Paul on Twitter: @paulpilone.



← Brett

Brett McLaughlin is a software developer at Element84. He's also a developer who's got his hands into cognitive theory. That means that he sees HTML5, CSS, JavaScript, Java, and Rails as the means to tell interesting stories to users rather than just a load of boring technology and protocols. He's also really interested in the next generation of communication technologies, ranging from ePub to ebooks to mobile devices. And in his free time (what free time?), he's usually playing with video and writing projects and playing guitar... really expensive acoustic ones, if he can manage.

Table of Contents (Summary)

	Intro	xxi
1	Getting started: <i>Getting mobile with iOS</i>	1
2	Basic iOS patterns: <i>Building from scratch</i>	31
2.5	Interlude: <i>Syntax</i>	79
3	Tables, views, and data: <i>A table with a view</i>	95
4	Multiview applications: <i>It's all about the details</i>	141
5	The review process, design, and devices: <i>How to live with Apple</i>	179
6	Basic core data and table view cells: <i>Reruns are hard to find</i>	207
7	Implementing search with Core Data: <i>Looking for info</i>	245
8	Core Data, map kit, and core location: <i>Finding a phone booth</i>	269

Table of Contents (the real thing)

Intro

Your brain on iOS Development. Here you are trying to learn something, while here your brain is doing you a favor by making sure the learning doesn't stick. Your brain's thinking, "Better leave room for more important things, like which wild animals to avoid and whether naked snowboarding is a bad idea." So how do you trick your brain into thinking your life depends on knowing enough to develop your own iPhone and iPad apps?

Who is this book for?	xxii
We know what you're thinking	xxiii
Metacognition	xxv
Bend your brain into submission	xxvii
Read me	xxviii
The technical review team	xxx
Acknowledgments	xxxi

*getting started***Getting mobile with iOS****1****The iPhone changed everything.**

When Steve Jobs said that's what would happen at the unveiling of the iPhone, people were skeptical. Six years later, iPhones and iPads are being used in business and medicine as enterprise devices, and the App Store is a platform for every developer to use, from one-man shows to big-name companies. Apple provides the software and we'll help you with the knowledge—we're sure you've got the enthusiasm covered.

So you want to build an iOS app...	2
Welcome to the Apple universe!	3
iOS apps are written in Objective-C	4
It all starts with the SDK	5
Meet Sue, your new boss	6
Xcode and Git...new best friends	7
Xcode is the hub of your iOS project	9
The iOS simulator	11
Your code is stored in source files	15
Code Editor, Hub...and debugging, too	20
One iPhone, two iPhones, red iPhone, blue iPhone...	22
Your iPhone Development toolbox	29

basic iOS patterns

Building from scratch

2

Now that you've gotten your feet wet, it's time to start fresh.

You should have a good idea of the tools you'll be working with and how to get around Xcode a bit. Now it's time to dig a little deeper and start your own project. How do you set up an iOS project, how do the pieces of the app really work together, and what are the interaction patterns you can count on? Turn the page, 'cause you're ready to find out...

iOS apps run full screen, but there's a lot going on	32
Model-View-Controller is a design pattern	33
Get started with Xcode and Git	37
Design time!	39
Design time...redux	41
Cosmetic changes are easy in Xcode	46
iOS controls are more than skin deep	47
You'll create the action using the Xcode GUI editor	49
Connect your controls to your actions	51
So how do we get to that text?	60
Properties handle creating getters and setters	61
Create a property for that text field	63
You connect your controls to outlets	65
Twitter, the easy way...	68
Your iOS Basics toolbox	78

interlude

Syntax**2.5****It's time to get into some details.**

You've written a couple apps and gotten some of the big picture stuff sorted out. Now it's time to get into some line by line details. Why are there @ symbols everywhere? What's the difference between a method and a message? What exactly do properties do? It's time to take a quick dive into the syntax of Objective-C; then we can get back into building apps.

Classes: Interface and Implementation	80
Header files describe the interface to your class	81
Properties are about efficiency	84
Message passing: How Objective-C gets around	87
Speaking of messages....	91
Your Syntax toolbox	93

tables, views, and data

A table with a view

3

Most iOS apps have more than one view.

We've written a cool app with one view, but anyone who's used a smartphone knows that most apps aren't like that. Some of the more impressive iOS apps out there do a great job of working with complex information by using multiple views. We're going to start with navigation controllers and table views, like the kind you see in your Mail and Contacts apps. Only we're going to do it with a twist...

Congratulations!	96
SpinCity browsing app overview	97
The way iOS apps work	98
Hierarchical data—get out your table view	100
We need to hook these views together...	103
Three views in one template	106
Use MVC to separate your concerns...	111
Adding a new class	112
Properties expose class attributes	114
Data Access Objects hide low-level data access	117
You've built your DAO!	121
A table is a collection of cells	127
Your View toolbox	139

multiview applications

It's all about the details**4****Most iOS apps have more than one view.**

We've gotten this app off to a quick start using built-in templates and doing some really nice updates to the table view. Now it's time to dive into the details, setting up the new view and working with the navigation between them. Because most of the widely used apps up on the store are giving you a good and easy way to work through a lot of data. Spin City is doing just that—giving users an easier way to get through the records than flipping through boxes!

An app with a view...	142
Table views don't always look like...tables	144
Change your UIViewController to a UITableView Controller	146
Layout for the new detail view	148
Layout your view within the storyboard	149
Segues connect view controllers	153
Connect your scenes in your storyboard	154
Segues let you prepare for a new scene	163
Update your prepareForSegue callback	164
There's an app for that	167
Create a new property list	168
You need to load each album from the plist	170
Convert your data to plists in one easy step	171
Your View toolbox	177

5

The review process, design, and devices

How to live with Apple

iOS development comes with some strings.

Everybody has heard the war stories. The Apple review process is famous for being painful and having tons of rules you'll have to follow. Yes, there are some hoops to jump through, but once you know what you're doing, it's not nearly so bad. And besides, once you've gotten your app approved, the massively popular App Store is waiting for you... full of eager device owners with a few bucks to burn. So what's not to love?

It's Apple's world...you're just living in it	181
Device checking... it's not optional	187
Device checking case study: the camera	188
iOS handles the heavy lifting	188
Hmmm... supported device, missing feature	189
The HIG helps, rather than hurting you	191
You've already gotten used to the HIG...	192
iOS 7 Top 5	195
More to think about: Your iPad is not your iPhone	196
Your Apple toolbox	205