

# **Objective-C for Absolute Beginners**

**iPhone, iPad and Mac  
Programming Made Easy**

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**Apress®**

## ***Objective-C for Absolute Beginners: iPhone, iPad and Mac Programming Made Easy***

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Any source code or other supplementary material referenced by the author in this book is available to readers on GitHub via the book's product page, located at [www.apress.com/978-1-4842-3428-0](http://www.apress.com/978-1-4842-3428-0). For more detailed information, please visit [www.apress.com/source-code](http://www.apress.com/source-code).

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# Table of Contents

<b>About the Authors</b> .....	<b>xi</b>
<b>Introduction</b> .....	<b>xiii</b>
<b>Chapter 1: Becoming a Great Objective-C Developer</b> .....	<b>1</b>
Thinking Like a Developer.....	2
Completing the Development Cycle .....	5
Introducing Object-Oriented Programming.....	7
Working with the Alice Interface.....	11
Summary.....	12
Exercises.....	13
<b>Chapter 2: Programming Basics</b> .....	<b>15</b>
Taking a Tour with Alice .....	15
Application Menu.....	17
Editing a Scene.....	18
Classes, Objects, and Instances in Alice.....	20
Object Tree.....	21
Editor .....	22
Methods Panel.....	23
Creating an Alice App: To the Moon, Alice .....	23
Your First Objective-C Program.....	32
Launching and Using Xcode .....	32
Summary.....	41
Exercises.....	42

TABLE OF CONTENTS

- Chapter 3: It's All About the Data ..... 43**
  - Numbering Systems Used in Programming ..... 43
    - Bits ..... 43
    - Bytes ..... 46
    - Hexadecimal ..... 47
    - Unicode ..... 49
  - Data Types ..... 49
  - Using Variable and Data Types with Alice ..... 50
  - Data Types and Objective-C ..... 64
  - Identifying Problems ..... 71
  - Summary ..... 72
  - Exercises ..... 73
  
- Chapter 4: Making Decisions About and Planning Program Flow ..... 75**
  - Boolean Logic ..... 76
    - Truth Tables ..... 77
    - Comparison Operators ..... 80
  - Designing Apps ..... 80
    - Pseudocode ..... 81
    - Flowcharting ..... 84
    - Designing and Flowcharting an Example App ..... 85
    - The App's Design ..... 87
    - Using Loops to Repeat Program Statements ..... 88
  - Coding the Example App in Alice ..... 91
  - Coding the Example App in Objective-C ..... 92
    - Nested If Statements and Else-If Statements ..... 97
    - Removing Extra Characters ..... 97
    - Improving the Code Through Refactoring ..... 98
    - Running the App ..... 98
  - Moving Forward Without Alice ..... 99
  - Summary ..... 99
  - Exercises ..... 100

<b>Chapter 5: Object-Oriented Programming with Objective-C .....</b>	<b>101</b>
The Object.....	102
What Is a Class?.....	103
Planning Classes.....	104
Planning Properties .....	104
Planning Methods.....	107
Implementing the Classes .....	109
Inheritance .....	116
Why Use OOP?.....	117
It Is Everywhere.....	118
Eliminate Redundant Code .....	118
Ease of Debugging.....	118
Ease of Replacement.....	118
Advanced Topics .....	119
Interface .....	119
Polymorphism.....	119
Summary.....	120
Exercises.....	120
<b>Chapter 6: Learning Objective-C and Xcode .....</b>	<b>121</b>
A Brief History of Objective-C .....	121
Understanding the Language Symbols and Basic Syntax.....	122
Create a Variable .....	123
Begin and End a Section of Code .....	124
Signify the End of a Line of Code.....	124
Write a Comment.....	125
Define a Class.....	126
Define a Method .....	127
Define an Objective-C Variable .....	127

TABLE OF CONTENTS

- Putting the “Objective” into Objective-C..... 128
- Writing Another Program in Xcode..... 133
  - Creating the Project..... 133
- Summary..... 155
- Exercises..... 155
- Chapter 7: Objective-C Classes, Objects, and Methods ..... 157**
- Creating an Objective-C Class..... 157
  - Declaring Interfaces and Properties..... 159
  - Calling Methods..... 160
  - Working with the Implementation File..... 163
  - Coding Your Methods..... 165
- Using Your New Class ..... 167
  - Updating MyFirstApp ..... 168
  - Adding Objects ..... 169
  - Writing the Implementation File ..... 173
  - Updating the User Interface..... 174
  - Hooking Up the Code ..... 177
- Accessing the Xcode Documentation..... 186
- Summary..... 188
- Exercises..... 188
- Chapter 8: Programming Basics in Objective-C ..... 191**
- Collections ..... 191
  - Using NSSet..... 192
  - Using NSArray ..... 194
  - NSDictionary..... 196
- Using the Mutable Container Classes ..... 197
  - NSMutableSet..... 198
  - NSMutableArray ..... 199
  - NSMutableDictionary..... 200

Creating the Bookstore Application.....	201
Introducing Properties .....	208
Accessing Properties.....	209
Custom Getter and Setter .....	211
Finishing the MyBookstore Program.....	212
Creating the Initial View.....	218
The Bookstore Object .....	224
Using the Bookstore Object .....	227
Preparing the Table View .....	228
The Book Detail View .....	231
Setting Up the Outlets.....	246
Plugging in the Book Details .....	250
Summary.....	253
Exercises.....	254
<b>Chapter 9: Comparing Data .....</b>	<b>255</b>
Revisiting Boolean Logic.....	255
Using Relational Operators .....	256
Comparing Numbers.....	257
Creating an Example Xcode App.....	259
Using Boolean Expressions.....	263
Comparing Strings.....	265
Comparing Dates .....	267
Combining Comparisons.....	270
Using the switch Statement.....	271
Summary.....	273
Exercises.....	274

TABLE OF CONTENTS

- Chapter 10: Creating User Interfaces ..... 275**
  - Understanding Interface Builder ..... 276
  - The Model-View-Controller ..... 277
  - Human Interface Guidelines..... 279
  - Creating an Example iPhone App with Interface Builder..... 281
    - Using Interface Builder ..... 287
    - The Document Outline ..... 288
    - The Object Library ..... 289
    - Creating the View ..... 290
    - Using Outlets ..... 291
    - Connecting Actions and Objects ..... 294
    - Implementation File..... 294
  - Summary..... 296
  - Exercises..... 296
  
- Chapter 11: Storing Information..... 297**
  - Storage Considerations..... 297
  - Preferences..... 298
    - Writing Preferences..... 298
    - Reading Preferences ..... 300
  - Databases ..... 301
  - Storing Information in a Database ..... 301
  - Getting Started with Core Data ..... 303
  - The Model ..... 305
    - Managed Object Context ..... 316
    - Setting Up the Interface..... 317
  - Summary..... 331
  - Exercises..... 331



<b>Chapter 12: Protocols and Delegates .....</b>	<b>333</b>
Multiple Inheritance .....	333
Understanding Protocols.....	334
Protocol Syntax.....	335
Understanding Delegates.....	336
Next Steps.....	337
Summary.....	337
Exercise .....	337
<b>Chapter 13: Introducing the Xcode Debugger.....</b>	<b>339</b>
Getting Started with Debugging.....	340
Setting Breakpoints.....	341
Using the Breakpoint Navigator.....	344
Debugging Basics.....	346
Working with the Debugger Controls.....	348
Using the Step Controls.....	350
Looking at the Thread Window and Call Stack.....	352
Debugging Variables.....	353
Dealing with Code Errors and Warnings .....	355
Warnings .....	356
Summary.....	358
Exercise .....	358
<b>Index.....</b>	<b>359</b>

# About the Authors



**Stefan Kaczmarek** has 20 years of software development experience specializing in mobile applications, large-scale software systems, project management, network protocols, encryption algorithms, and audio/video codecs. As chief software architect and cofounder of SKJM, LLC, Stefan developed a number of successful mobile applications including iCam (which has been featured on CNN, Good Morning America, and The Today Show, and which was chosen by Apple to be featured in the “Dog Lover” iPhone 3GS television commercial) and iSpy Cameras (which held the #1 Paid iPhone App ranking in a number of countries around the world including the United Kingdom, Ireland, Italy, Sweden, and South Korea). Stefan resides in Phoenix, Arizona, with his wife, Veronica, and their two children.



**Brad Lees** has more than a decade of experience in application development and server management. He specialized in creating and initiating software programs in real estate development systems and financial institutions. His career has been highlighted by his positions as information systems manager at The Lyle Anderson Company, product development manager for Smarsh, vice president of application development for iNation, and IT manager at The Orcutt/Winslow Partnership, the largest architectural firm in Arizona. A graduate of Arizona State University, Brad and his wife, Natalie, reside in Phoenix with their five children.

ABOUT THE AUTHORS



**Gary Bennett** teaches iPhone/iPad programming courses online. Gary has taught hundreds of students how to develop iPhone/iPad apps, and has several very popular apps on the iTunes App Store. Gary's students have some of the best-selling apps on the iTunes App Store. Gary also worked for 25 years in the technology and defense industries. He served 10 years in the U.S. Navy as a nuclear engineer aboard two nuclear submarines. After leaving the Navy, Gary worked for several companies as a software developer, chief information officer, and resident. As CIO, he helped take VistaCare public in 2002. Gary also co-authored

*iPhone Cool Projects for Apress*. Gary lives in Scottsdale, Arizona with his wife, Stefanie, and their four children.



**Mitch Fisher** is a software developer in the Phoenix, Arizona area. He was introduced to PCs back in the 1980s when 64K was a lot of memory and 1 MHz was considered a fast computer. Over the last 25 years, Mitch has worked for several large and medium-sized companies in the roles of software developer and software architect, and had led several teams of developers on multi-million dollar projects. Mitch now divides his time between writing iOS applications and server-side UNIX technologies.

# Introduction

Over the last two years, we've heard this countless times: "I've never programmed before, but I have a great idea for an iOS app. Can I really learn to program the iPhone or iPad?" We always answer, "Yes, but you have to believe you can." Only you are going to tell yourself you can't do it.

## For the Newbie

This book assumes you may have never programmed before. It is also written for someone who may have never programmed before using object-oriented programming (OOP) languages. There are lots of Objective-C books out there, but all of those books assume you have programmed before and know OOP. We wanted to write a book that takes readers from knowing nothing about programming to being able to program in Objective-C.

Over the last nine years we have taught thousands of students at xcelMe.com to be iOS developers. We have incorporated what we have learned in our first two courses, Introduction to Object Oriented Programming and Logic along and Objective-C for iPhone/iPad developers, into this book.

## For the More Experienced

There are many developers who programmed years ago or programmed in a non-OOP language and need some background in OOP and Logic before they dive into Objective-C. This book is for you. We gently walk you through OOP and how it is used in iPhone/iPad development.

# Why Alice: An Innovative 3D Programming Environment

Over the years, universities have struggled with several issues with their computer science departments:

- High male-to-female ratios
- High drop-out rates
- Longer than average time to graduation

One of the biggest challenges to learning OOP languages like Java, C++, or Objective-C is the steep learning curve from the very beginning. In the past, students had to learn at once the following topics:

- Object-oriented principles
- A complex integrated development environment (IDE)
- The syntax of the programming language
- Programming logic and principles

Carnegie Mellon University received a grant from the U.S. government and developed Alice. Alice is an innovative 3D programming environment that makes it easy for new developers to create rich graphical applications. Alice is a teaching tool for students learning to program in an OOP environment. It uses 3D graphics and a drag-and-drop interface to facilitate a more engaging, less frustrating first programming experience.

Alice enables the students to focus on learning the principles of OOP without having to focus on learning a complex IDE and Objective-C principles all at once. They get to focus on each topic individually. This helps the students feel a real sense of accomplishment as they progress.

Alice removes all of the complexity of learning an IDE and programming language syntax. It is drag-and-drop programming. You'll see that it is actually fun to do, and you can develop really cool and sophisticated apps in Alice.

After the OOP topic has been introduced and readers feel comfortable with the material, we then move into Xcode, where readers get to use their new OOP knowledge to write Objective-C applications. This enables readers to focus on the Objective-C syntax and language without having to learn OOP at the same time.

## How This Book Is Organized

You'll notice that we are all about successes in this book. We introduce the OOP and Logic concepts in Alice and then move those concepts into Xcode and Objective-C. Most students are visual and learn by doing. We use both of these techniques. We'll walk you through topics and concepts with visual examples and then you'll follow step-by-step examples to reinforce it all.

Often we will repeat previous topics to reinforce what you have learned and apply these skills in new ways. This enables new programmers to reapply development skills and feel a sense of accomplishment as they progress.

## The Formula for Success

Learning to program is an interactive process between you and your program. Just like learning to play an instrument, you must practice. You must work through the examples and exercises in this book. Just because you understand the concept doesn't mean you will know how to apply it and use it.

You will learn a lot from this book. You will learn a lot from working through the exercises in this book. *But you will really learn when you debug your programs.* Spending time walking through your code and trying to find out why it is not working the way you want is a learning process that is unparalleled. The downside of debugging is it can be especially frustrating to the new developer. If you have never wanted to throw your computer out the window, you will now. You will question why you are doing this, and whether you are smart enough to solve the problem. Programming is very humbling, even for the most experience developer.

Like a musician, the more you practice the better you get. You can do some amazing things as a programmer. The world is your oyster. One of the most satisfying accomplishments you can have is seeing your app on the iOS App Store. However, there is a price, and that price is time spent coding.

Here is our formula for success:

- Believe you can do it. You'll be the only one who says you can't do this. So don't tell yourself that.
- Work through all the examples and exercises in this book.
- Code, code, and keeping coding. The more you code, the better you'll get.

## INTRODUCTION

- Be patient with yourself. If you were fortunate enough to have been a 4.0 student who can memorize material just by reading it, this will not happen with Objective-C coding. You are going to have to spend time coding.
- DON'T GIVE UP!

## Required Software, Materials, and Equipment

One of the great things about Alice is that it's available on the three main operating systems used today:

- Windows
- Mac
- Linux

The other great thing about Alice is it is free! You can download Alice at <http://www.alice.org/>.

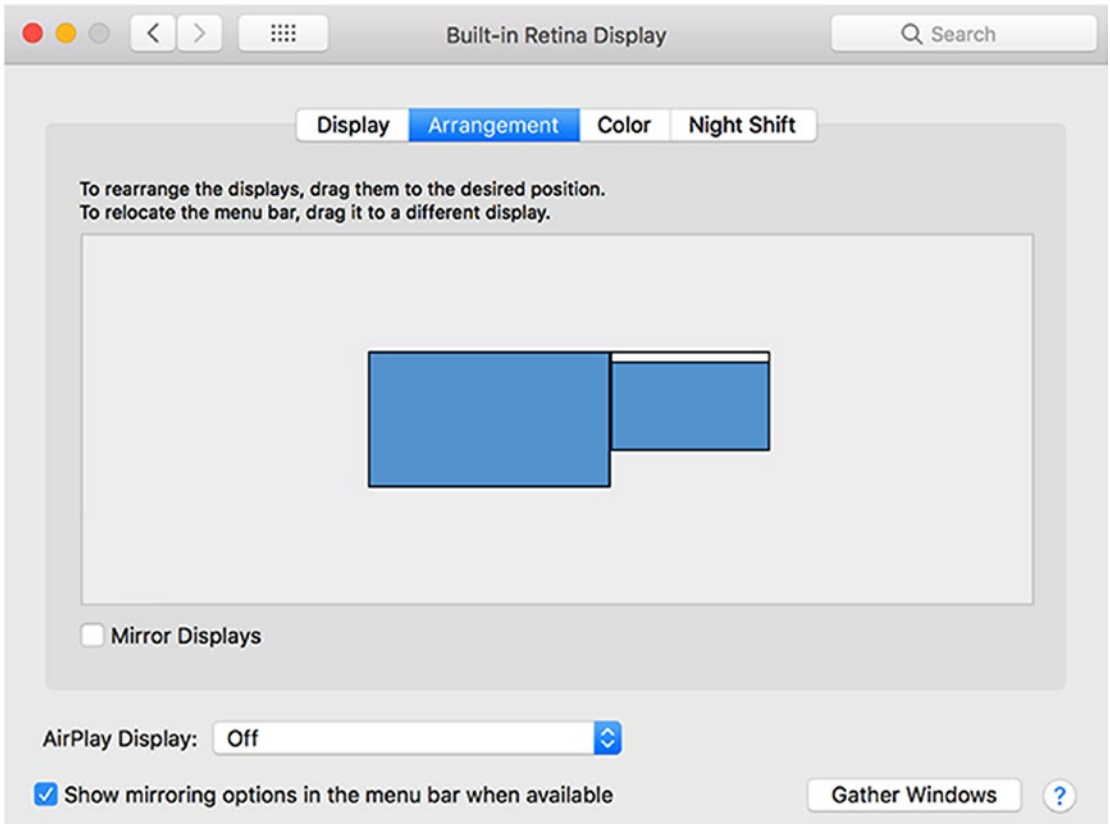
## Operating System and IDE

Although you can use Alice on many platforms, the IDE that developers use to develop iOS apps is Xcode, which is free and is available from the Mac App Store.

## Dual Monitors

It is highly recommended that developers have a second monitor connected to their computer. It is great to step through your code and watch your output window and iOS simulator at the same time on dual, independent monitors. Apple hardware makes this easy. Note that it is **not required** to have dual monitors. You will just have to organize your open windows to fit on your screen if you don't.

1. To access the dual-monitor set-up feature, go to **Apple System Preferences** and select **Displays**, as shown in Figure I-1.



*Figure I-1. Dual monitors*

## Book Forum

We developed an online forum for this book at <http://forum.xcelme.com/> where readers can go to ask questions of the authors while they are learning Objective-C. See Figure I-2.



INTRODUCTION

FORUM	TOPICS	POSTS	LAST POST
<p><b>How To Access Your Course Webinars And How To Use The Forum</b>                      New students need to download the attached pdf and follow instructions to register for your webinars after you purchase the class. Additionally, there are directions and updates on how to access your course and forum, post questions, navigate the message board, watch training videos, etc.                      Moderator: gary.bennett</p>	3	12	by zenith9356 Thu Mar 13, 2014 10:24 am
<p><b>Book -&gt; Swift 3.0 for Absolute Beginners: iPhone and Mac Programming Made Easy 3rd Edition</b>                      This forum contains answers readers may have for each chapter as well as any corrections to the book. The forum also contains the Source Code for the book.                      Moderator: gary.bennett</p>	17	22	by schurms Wed Jan 17, 2018 6:04 pm
<p><b>Book -&gt; Swift 2.0 for Absolute Beginners: iPhone and Mac Programming Made Easy 2nd Edition</b>                      This forum contains answers readers may have for each chapter as well as any corrections to the book. The forum also contains the Source Code for the book.                      Moderator: gary.bennett</p>	17	96	by zany76 Thu Aug 31, 2017 3:11 pm
<p><b>Book -&gt; Developing for Apple TV using tvOS and Swift</b>                      This forum contains answers readers may have for each chapter as well as any corrections to the book. The forum also contains the Source Code for the book.                      Moderator: gary.bennett</p>	10	12	by mdstebel Mon Jun 13, 2016 11:26 am
<p><b>Book -&gt; Objective-C for Absolute Beginners: (2nd Edition) iPhone and Mac Programming Made Easy</b>                      This forum contains all the assignments and questions readers may have for each chapter.                      Moderator: gary.bennett</p>	20	224	by Drago Mon Jun 16, 2014 9:27 pm
<p><b>Free Live Webinars for iPhone Developers</b>                      This forum lists the schedule for upcoming live webinars for iPhone developers. Webinars are live and have limited seats. Current and former students get first notifications. Seats for all others is first-come-first serve.                      The sessions are recorded and will be made available to current and former students on this forum.                      Moderator: gary.bennett</p>	1	9	by Miptinguaw Tue Nov 29, 2011 3:48 am

*Figure I-2. The Reader Forum for accessing answers to exercises and posting questions for authors*