



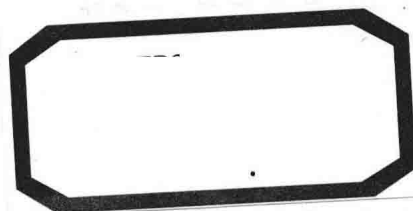
Swift 2面向对象编程 (影印版)

Object-Oriented Programming with Swift 2

Gastón C. Hillar 著

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Gastón C. Hillar

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Cover Work

Nilesh Mohite

About the Author

Gastón C. Hillar is an Italian and has been working with computers since he was 8 years old. In the early 80s, he began programming with the legendary Texas TI-99/4A and Commodore 64 home computers. Gaston has a bachelor's degree in computer science and graduated with honors. He also holds an MBA in which he graduated with an outstanding thesis. At present, Gaston is an independent IT consultant and a freelance author who is always looking for new adventures around the world.

He has been a senior contributing editor at Dr. Dobb's and has written more than a hundred articles on software development topics. Gatson was also a former Microsoft MVP in technical computing. He has received the prestigious Intel® Black Belt Software Developer award seven times.

He is a guest blogger at Intel® Software Network (<http://software.intel.com>). You can reach him at gastonhillar@hotmail.com and follow him on Twitter at <http://twitter.com/gastonhillar>. Gastón's blog is <http://csharpmulticore.blogspot.com>.

He lives with his wife, Vanesa, and his two sons, Kevin and Brandon.

About the Reviewers

Vinod Madigeri is a curious developer with a particular interest in object-oriented programming. He has worked in different industries (telecommunication, game technologies, and consumer electronics) writing software in C, C++, Objective-C, Swift, and C#.

Vinod is a passionate software engineer who writes code for fun. He has been doing this professionally for some 6 years and had been goofing with computers for 10 years before that.

Hugo Solis is an assistant professor in the physics department at University of Costa Rica. His current research interests are computational cosmology, complexity, and the influence of hydrogen on material properties. Hugo has wide experience with languages such as C/C++ and Python for scientific programming and visualization. He is a member of Free Software Foundation and has contributed code to a few free software projects. Hugo has also been a technical reviewer for *Mastering Object-Oriented Python*, *Learning Object-Oriented Programming* and *Kivy: Interactive Applications in Python* and the author of *Kivy Cookbook*, Packt Publishing. Currently, he is in charge of IFT, a Costa Rican scientific nonprofit organization for the multidisciplinary practice of physics (<http://iftucr.org>).

I'd like to thank my beloved mother, Katty Sanchez, for her support and vanguard thoughts.

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To my sons, Kevin and Brandon, and my wife, Vanesa

Preface

Object-oriented programming, also known as OOP, is a required skill in any modern software developer job. It makes a lot of sense because object-oriented programming allows you to maximize code reuse and minimize maintenance costs. However, learning object-oriented programming is challenging because it includes too many abstract concepts that require real-life examples to be easy to understand. In addition, object-oriented code that doesn't follow best practices can easily become a maintenance nightmare.

Swift is a multi-paradigm programming language, and one of its most important paradigms is OOP. If you want to create great applications and apps for Mac, iPhone, iPad, Apple TV, and Apple Watch, you need to master OOP in Swift. In addition, as Swift also grabs the nice features found in functional programming languages, it is convenient to know how to mix OOP code with functional programming code.

This book will allow you to develop high-quality reusable object-oriented code in Swift 2.2. You will learn the object-oriented programming principles and how Swift implements them. You will learn how to capture objects from real-world elements and create object-oriented code that represents them. You will understand Swift's approach towards object-oriented code. You will maximize code reuse and reduce maintenance costs. Your code will be easy to understand, and it will work with representations of real-life elements.

What this book covers

Chapter 1, Objects from the Real World to Playground, teaches you the principles of object-oriented paradigms. We will discuss how real-world objects can become part of the fundamental elements of code. We will translate elements into the different components of the object-oriented paradigm supported in Swift: classes, protocols, properties, methods, and instances.

Chapter 2, Structures, Classes, and Instances, starts generating blueprints to create objects. You will learn about an object's life cycle, and we will work with many examples to understand how object initializers and deinitializers work.

Chapter 3, Encapsulation of Data with Properties, introduces you to organizing data in the blueprints that generate objects. We will understand the different members of a class and how they are reflected by members of the instances generated from a class. You will learn the difference between mutable and immutable classes.

Chapter 4, Inheritance, Abstraction, and Specialization, introduces you to creating a hierarchy of blueprints that generate objects. We will take advantage of inheritance and many related features to specialize behavior.

Chapter 5, Contract Programming with Protocols, discusses how Swift works with protocols in combination with classes. We will declare and combine multiple blueprints to generate a single instance. We will declare protocols with different types of requirements, and then we will create classes that conform to these protocols.

Chapter 6, Maximization of Code Reuse with Generic Code, teaches you how to maximize code reuse by writing code capable of working with objects of different types—that is, instances of classes that conform to specific protocols or whose class hierarchy includes specific superclasses. We will work with protocols and generics.

Chapter 7, Object-Oriented Programming and Functional Programming, teaches you how to refactor existing code to take full advantage of object-oriented code. We will prepare the code for future requirements, reduce maintenance costs, and maximize code reuse. We will also work with many functional programming features included in Swift combined with object-oriented programming.

Chapter 8, Extending and Building Object-Oriented Code, puts together all the pieces of the object-oriented puzzle. We will take advantage of extensions to add features to types, classes, and protocols in which we don't have access to the source code. We will make sure that the code exposes only the things that it has to expose, and you will learn how everything you learned about object-oriented programming is useful in any kind of app we might create.

What you need for this book

In order to work with Xcode and the Swift Playground, you will need a Mac OS computer capable of running OS X 10.10.5 or later with 8 GB of RAM.

In order to work with the Swift open source version on the Linux platform, you will need any computer capable of running Ubuntu 14.04 or later or Ubuntu 15.10 or later. These are the Linux distributions where the Swift open source binaries are built and tested. It is also possible to run the Swift compiler and utilities on other Linux distributions. You must take a look at the latest available documentation at the Swift open source website, <https://swift.org>.

Who this book is for

If you are an iOS developer who has a basic idea of OOP and want to incorporate OOP concepts with Swift to optimize your application's performance, then this book is for you. This is a very useful resource for developers who want to shift from Objective C, C#, Java, Python, JavaScript, or other object-oriented languages to Swift.

Conventions

In this book, you will find a number of text styles that distinguish between different kinds of information. Here are some examples of these styles and an explanation of their meaning.

Code words in text, database table names, folder names, filenames, file extensions, pathnames, dummy URLs, user input, and Twitter handles are shown as follows: "We can assign 20 to `regularHexagon1.lengthOfSide` and 50 to `regularHexagon2.lengthOfSide`."

A block of code is set as follows:

```
let degCUnitFromStr = HKUnit(fromString: "degC")
let degFUnitFromStr = HKUnit(fromString: "degF")
```

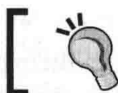
When we wish to draw your attention to a particular part of a code block, the relevant lines or items are set in bold:

```
Animal created
Mammal created
DomesticMammal created
Dog created
TerrierDog created
SmoothFoxTerrier created
I am 7 years old.
I am 14 years old.
I am 21 years old.
I am 4 years old.
I am 5 years old.
```

New terms and **important words** are shown in bold. Words that you see on the screen, for example, in menus or dialog boxes, appear in the text like this: "Start Xcode, navigate to **File | New | Playground....**"



Warnings or important notes appear in a box like this.



Tips and tricks appear like this.

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Questions

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