

## Programming in Objective-C

Fourth Edition

Developer's Library

# Programming in Objective-C

Fourth Edition

## **Programming in Objective-C**

## **Table of Contents**

#### Contents

1 Introduction

What You Will Learn from This Book

How This Book Is Organized

Support

Acknowledgments

Preface to the Fourth Edition

2 Programming in Objective-C

Compiling and Running Programs

Using Xcode

Using Terminal

Explanation of Your First Program

Displaying the Values of Variables

Summary

**Exercises** 

3 Classes, Objects, and Methods

What Is an Object, Anyway?

Instances and Methods

An Objective-C Class for Working with Fractions



The @interface Section

**Choosing Names** 

Class and Instance Methods

The @implementation Section

The program Section

Accessing Instance Variables and Data Encapsulation

Summary

**Exercises** 

#### 4 Data Types and Expressions

**Data Types and Constants** 

Type int

Type float

Type char

Qualifiers: long, long long, short, unsigned, and signed

Type id

#### Arithmetic Expressions

Operator Precedence

Integer Arithmetic and the Unary Minus Operator

The Modulus Operator

Integer and Floating-Point Conversions

The Type Cast Operator

**Assignment Operators** 

A Calculator Class

**Exercises** 

5 Program Looping



#### The for Statement

Keyboard Input

Nested for Loops

For Loop Variants

The while Statement

The do Statement

The break Statement

The continue Statement

Summary

**Exercises** 

#### 6 Making Decisions

#### The if Statement

The if-else Construct

Compound Relational Tests

Nested if Statements

The else if Construct

The switch Statement

**Boolean Variables** 

The Conditional Operator

**Exercises** 

#### 7 More on Classes

Separate Interface and Implementation Files

Synthesized Accessor Methods

Accessing Properties Using the Dot Operator



#### Multiple Arguments to Methods

Methods Without Argument Names

Operations on Fractions

#### Local Variables

Method Arguments

The static Keyword

The self Keyword

#### Allocating and Returning Objects from Methods

Extending Class Definitions and the Interface File

Exercises

#### 8 Inheritance

It All Begins at the Root

Finding the Right Method

#### Extension Through Inheritance: Adding New Methods

A Point Class and Object Allocation

The @class Directive

Classes Owning Their Objects

#### Overriding Methods

Which Method Is Selected?

**Abstract Classes** 

**Exercises** 

#### 9 Polymorphism, Dynamic Typing, and Dynamic Binding

Polymorphism: Same Name, Different Class

Dynamic Binding and the id Type



Compile Time Versus Runtime Checking

The id Data Type and Static Typing

Argument and Return Types with Dynamic Typing

**Asking Questions About Classes** 

Exception Handling Using @try

**Exercises** 

#### 10 More on Variables and Data Types

**Initializing Objects** 

Scope Revisited

Directives for Controlling Instance Variable Scope

More on Properties, Synthesized Accessors, and Instance Variables

Global Variables

Static Variables

**Enumerated Data Types** 

The typedef Statement

**Data Type Conversions** 

Conversion Rules

#### Bit Operators

The Bitwise AND Operator

The Bitwise Inclusive-OR Operator

The Bitwise Exclusive-OR Operator

The Ones Complement Operator

The Left Shift Operator

The Right Shift Operator

**Exercises** 



#### 11 Categories and Protocols

Categories

Class Extensions

Some Notes About Categories

Protocols and Delegation

Delegation

Informal Protocols

Composite Objects

**Exercises** 

#### 12 The Preprocessor

The #define Statement

More Advanced Types of Definitions

The #import Statement

**Conditional Compilation** 

The #ifdef, #endif, #else

The #if and #elif Preprocessor Statements

The #undef Statement

**Exercises** 

#### 13 Underlying C Language Features

Arrays

Initializing Array Elements

Character Arrays

Multidimensional Arrays

**Functions** 



Arguments and Local Variables

Returning Function Results

Functions, Methods, and Arrays

#### **Blocks**

#### Structures

Initializing Structures

Structures Within Structures

Additional Details About Structures

Dont Forget About Object-Oriented Programming!

#### **Pointers**

Pointers and Structures

Pointers, Methods, and Functions

Pointers and Arrays

Constant Character Strings and Pointers

Operations on Pointers

Pointers and Memory Addresses

#### Theyre Not Objects!

#### Miscellaneous Language Features

Compound Literals

The goto Statement

The null Statement

The Comma Operator

The sizeof Operator

Command-Line Arguments

How Things Work



Fact #1: Instance Variables Are Stored in Structures

Fact #2: An Object Variable Is Really a Pointer

Fact #3: Methods Are Functions, and Message Expressions Are

**Function Calls** 

Fact #4: The id Type Is a Generic Pointer Type

Exercises

#### 14 Introduction to the Foundation Framework

Foundation Documentation

#### 15 Numbers, Strings, and Collections

**Number Objects** 

String Objects

More on the NSLog Function

The description Method

Mutable Versus Immutable Objects

Mutable Strings

Array Objects

Making an Address Book

Sorting Arrays

**Dictionary Objects** 

**Enumerating a Dictionary** 

Set Objects

**NSIndexSet** 

**Exercises** 

#### 16 Working with Files



Managing Files and Directories: NSFileManager

Working with the NSData Class

Working with Directories

Enumerating the Contents of a Directory

Working with Paths: NSPathUtilities.h

Common Methods for Working with Paths

Copying Files and Using the NSProcessInfo Class

Basic File Operations: NSFileHandle

The NSURL Class

The NSBundle Class

Exercises

## 17 Memory Management and Automatic Reference Counting

**Automatic Garbage Collection** 

Manual Reference Counting

Object References and the Autorelease Pool

The Event Loop and Memory Allocation

Summary of Manual Memory Management Rules

Automatic Reference Counting (ARC)

Strong Variables

Weak Variables

@autoreleasepool Blocks

Method Names and Non-ARC Compiled Code

18 Copying Objects



The copy and mutableCopy Methods
Shallow Versus Deep Copying
Implementing the <NSCopying> Protocol
Copying Objects in Setter and Getter Methods
Exercises

#### 19 Archiving

Archiving with XML Property Lists
Archiving with NSKeyedArchiver
Writing Encoding and Decoding Methods
Using NSData to Create Custom Archives
Using the Archiver to Copy Objects
Exercises

#### 20 Introduction to Cocoa and Cocoa Touch

Framework Layers

Cocoa Touch

#### 21 Writing iOS Applications

The iOS SDK

Your First iPhone Application

Creating a New iPhone Application Project

**Entering Your Code** 

Designing the Interface

#### An iPhone Fraction Calculator

Starting the New Fraction\_Calculator Project
Defining the View Controller



The Fraction Class A Calculator Class That Deals with Fractions Designing the UI Summary **Exercises** A: Glossary Α В С D Ε F G Н Μ Ν 0 Р R S U



Χ

Ζ

B: Address Book Example Source Code Index

