

ELOQUENT RUBY

0...

Foreword by Obie Fernandez, Series Editor

RUSS OLSEN

Praise for Eloquent Ruby

"Reading *Eloquent Ruby* is like programming in Ruby itself: fun, surprisingly deep, and you'll find yourself wishing it was always done this way. Wherever you are in your Ruby experience from novice to Rails developer, this book is a must read."

—Ethan Roberts Owner, Monkey Mind LLC

"Eloquent Ruby lives up to its name. It's a smooth introduction to Ruby that's both well organized and enjoyable to read, as it covers all the essential topics in the right order. This is the book I wish I'd learned Ruby from."

—James Kebinger Senior Software Engineer, PatientsLikeMe www.monkeyatlarge.com

"Ruby's syntactic and logical aesthetics represent the pinnacle for elegance and beauty in the ALGOL family of programming languages. *Eloquent Ruby* is the perfect book to highlight this masterful language and Russ's blend of wit and wisdom is certain to entertain and inform."

—Michael Fogus Contributor to the Clojure programming language and author of *The Joy of Clojure*

Eloquent Ruby

Table of Contents

\boldsymbol{c}	١,	\sim	n	t	Δ	n	ts
l	,	()	П	ш	H	ı	15

Foreword

Preface

Acknowledgments

About the Author

PART I: The Basics

Chapter 1: Write Code That Looks Like Ruby

The Very Basic Basics

Go Easy on the Comments

Camels for Classes, Snakes Everywhere Else

Parentheses Are Optional but Are Occasionally Forbidden

Folding Up Those Lines

Folding Up Those Code Blocks

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 2: Choose the Right Control Structure

If, Unless, While, and Until

Use the Modifier Forms Where Appropriate

Use each, Not for

A Case of Programming Logic

Staying Out of Trouble

In the Wild



Wrapping Up

Chapter 3: Take Advantage of Rubys Smart Collections

Literal Shortcuts

Instant Arrays and Hashes from Method Calls

Running Through Your Collection

Beware the Bang!

Rely on the Order of Your Hashes

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 4: Take Advantage of Rubys Smart Strings

Coming Up with a String

Another API to Master

The String: A Place for Your Lines, Characters, and Bytes

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 5: Find the Right String with Regular Expressions

Matching One Character at a Time

Sets, Ranges, and Alternatives

The Regular Expression Star

Regular Expressions in Ruby

Beginnings and Endings

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 6: Use Symbols to Stand for Something

The Two Faces of Strings



Not Quite a String

Optimized to Stand for Something

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 7: Treat Everything Like an ObjectBecause Everything Is

A Quick Review of Classes, Instances, and Methods

Objects All the Way Down

The Importance of Being an Object

Public, Private, and Protected

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 8: Embrace Dynamic Typing

Shorter Programs, But Not the Way You Think

Extreme Decoupling

Required Ceremony Versus Programmer-Driven Clarity

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 9: Write Specs!

Test::Unit: When Your Documents Just Have to Work

A Plethora of Assertions

Dont Test It, Spec It!

A Tidy Spec Is a Readable Spec

Easy Stubs

. . . And Easy Mocks



In the Wild

Staying Out of Trouble

Wrapping Up

PART II: Classes, Modules, and Blocks

Chapter 10: Construct Your Classes from Short, Focused Methods

Compressing Specifications

Composing Methods for Humans

Composing Ruby Methods

One Way Out?

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 11: Define Operators Respectfully

Defining Operators in Ruby

A Sampling of Operators

Operating Across Classes

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 12: Create Classes That Understand Equality

An Identifier for Your Documents

An Embarrassment of Equality

Double Equals for Everyday Use

Broadening the Appeal of the == Method

Well-Behaved Equality

Triple Equals for Case Statements

Hash Tables and the eql? Method



Building a Well-Behaved Hash Key

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 13: Get the Behavior You Need with Singleton and Class Methods

A Stubby Puzzle

A Hidden, but Real Class

Class Methods: Singletons in Plain Sight

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 14: Use Class Instance Variables

A Quick Review of Class Variables

Wandering Variables

Getting Control of the Data in Your Class

Class Instance Variables and Subclasses

Adding Some Convenience to Your Class Instance Variables

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 15: Use Modules as Name Spaces

A Place for Your Stuff, with a Name

A Home for Those Utility Methods

Building Modules a Little at a Time

Treat Modules Like the Objects That They Are

Staying Out of Trouble

In the Wild



Wrapping Up

Chapter 16: Use Modules as Mixins

Better Books with Modules

Mixin Modules to the Rescue

Extending a Module

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 17: Use Blocks to Iterate

A Quick Review of Code Blocks

One Word after Another

As Many Iterators as You Like

Iterating over the Ethereal

Enumerable: Your Iterator on Steroids

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 18: Execute Around with a Block

Add a Little Logging

When It Absolutely Must Happen

Setting Up Objects with an Initialization Block

Dragging Your Scope along with the Block

Carrying the Answers Back

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 19: Save Blocks to Execute Later

Explicit Blocks



The Call Back Problem

Banking Blocks

Saving Code Blocks for Lazy Initialization

Instant Block Objects

Staying Out of Trouble

In the Wild

Wrapping Up

PART III: Metaprogramming

Chapter 20: Use Hooks to Keep Your Program Informed

Waking Up to a New Subclass

Modules Want To Be Heard Too

Knowing When Your Time Is Up

. . . And a Cast of Thousands

Staving Out of Trouble

In the Wild

Wrapping Up

Chapter 21: Use method_missing for Flexible Error Handling

Meeting Those Missing Methods

Handling Document Errors

Coping with Constants

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 22: Use method_missing for Delegation

The Promise and Pain of Delegation

The Trouble with Old-Fashioned Delegation

The method_missing Method to the Rescue



More Discriminating Delegation

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 23: Use method_missing to Build Flexible APIs

Building Form Letters One Word at a Time

Magic Methods from method_missing

Its the Users That CountAll of Them

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 24: Update Existing Classes with Monkey

Patching

Wide-Open Classes

Fixing a Broken Class

Improving Existing Classes

Renaming Methods with alias_method

Do Anything to Any Class, Anytime

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 25: Create Self-Modifying Classes

Open Classes, Again

Put Programming Logic in Your Classes

Class Methods That Change Their Class

In the Wild

Staying Out of Trouble

Wrapping Up



Chapter 26: Create Classes That Modify Their Subclasses

A Document of Paragraphs

Subclassing Is (Sometimes) Hard to Do

Class Methods That Build Instance Methods

Better Method Creation with define method

The Modification Sky Is the Limit

In the Wild

Staying Out of Trouble

Wrapping Up

PART IV: Pulling It All Together

Chapter 27: Invent Internal DSLs

Little Languages for Big Problems

Dealing with XML

Stepping Over the DSL Line

Pulling Out All the Stops

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 28: Build External DSLs for Flexible Syntax

The Trouble with the Ripper

Internal Is Not the Only DSL

Regular Expressions for Heavier Parsing

Treetop for Really Big Jobs

Staying Out of Trouble

In the Wild

Wrapping Up

Chapter 29: Package Your Programs as Gems



Consuming Gems

Gem Versions

The Nuts and Bolts of Gems

Building a Gem

Uploading Your Gem to a Repository

Automating Gem Creation

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 30: Know Your Ruby Implementation

A Fistful of Rubies

MRI: An Enlightening Experience for the C Programmer

YARV: MRI with a Byte Code Turbocharger

JRuby: Bending the J in the JVM

Rubinius

In the Wild

Staying Out of Trouble

Wrapping Up

Chapter 31: Keep an Open Mind to Go with Those Open

Classes

Appendix: Going Further

Index

