CONTENTS IN DETAIL

ACKNOWLEDGMENTS xvii

INTRODUCTION: WHAT IS RUBY? xix
Acquiring and Configuring Ruby ................................................................. xx
   On a Unix or Unix-like System .............................................................. xx
   On a Windows System ...................................................................... xxi
Motivations for the Book ..................................................................... xxi
Conventions ......................................................................................... xxii
Summary of Chapters ........................................................................ xxii

1 INTERACTIVE RUBY AND THE RUBY ENVIRONMENT 1
Starting irb ............................................................................................ 2
Using irb ............................................................................................... 2
   Expressions ....................................................................................... 2
   Everything Is an Object .................................................................... 2
   Integers, Fixnums, and Bignums ...................................................... 3
   Addition, Concatenation, and Exceptions ....................................... 4
   Casting ............................................................................................ 4
   Arrays ............................................................................................ 5
   Booleans ......................................................................................... 6
   Flow Control .................................................................................. 6
   Methods .......................................................................................... 8
   Variables ....................................................................................... 9
   Constants ...................................................................................... 10
Using the Ruby Interpreter and Environment ........................................ 10

2 AMUSEMENTS AND SIMPLE UTILITIES 13
#1 Is It Payday? (check_payday.rb) ...................................................... 14
   The Code ....................................................................................... 14
   How It Works ............................................................................... 14
   The Results .................................................................................. 16
#2 Random Signature Generator (random_sig.rb and random_sig-windows.rb) 16
   The Code ....................................................................................... 16
   How It Works ............................................................................... 16
   Running the Script ...................................................................... 19
   The Results .................................................................................. 19
   Hacking the Script ....................................................................... 19
#3 The 99 Bottles of Beer Song (99bottles.rb) .................................... 20
   The Code ....................................................................................... 20
   How It Works ............................................................................... 21
#3 PROGRAMMER UTILITIES 33

#5 What Is Truth? (boolean_golf.rb) ................................................................. 33
  The Code ........................................................................................................ 34
  How It Works ................................................................................................. 34
  Hacking the Script ...................................................................................... 36
  Running the Script ..................................................................................... 36
  The Results .................................................................................................. 36

#6 Making a List (array_join.rb) .................................................................... 36
  The Code ........................................................................................................ 37
  How It Works ................................................................................................. 37
  Running the Script ..................................................................................... 39
  Hacking the Script ...................................................................................... 39

#7 Command-Line Interface (uses_cli.rb and simple_cli.rb) ......................... 39
  The Code ........................................................................................................ 40
  How It Works ................................................................................................. 42
  Running the Script ..................................................................................... 44
  Hacking the Script ...................................................................................... 45

#8 Palindromes (palindrome.rb and palindrome2.rb) ...................................... 45
  The Code ........................................................................................................ 45
  How It Works ................................................................................................. 46
  Hacking the Script ...................................................................................... 46
  Running the Script ..................................................................................... 47
  The Results .................................................................................................. 48

Chapter Recap .................................................................................................. 49

#4 Sound File Player (shuffle_play.rb) ......................................................... 25
  The Code ........................................................................................................ 26
  How It Works ................................................................................................. 27
  Running the Script ..................................................................................... 29
  The Results .................................................................................................. 29
  Hacking the Script ...................................................................................... 30

Chapter Recap .................................................................................................. 31

4 TEXT MANIPULATION 51

#9 End-of-Line Conversion (dos2unix.rb) ........................................................... 51
  The Code ........................................................................................................ 52
  How It Works ................................................................................................. 52
  Running the Script ..................................................................................... 55
  The Results .................................................................................................. 56
  Hacking the Script ...................................................................................... 56

#10 Showing Line Numbers (line_num.rb) ....................................................... 57
  The Code ........................................................................................................ 57
  How It Works ................................................................................................. 57
  Running the Script ..................................................................................... 58
  The Results .................................................................................................. 58
#11 Wrapping Lines of Text (softwrap.rb) ................................................................. 59
   The Code ................................................................................................. 59
   Running the Script ..................................................................................... 62
   The Results ............................................................................................... 62
   Hacking the Script ..................................................................................... 62

#12 Counting Words in a File (word_count.rb) .......................................................... 62
   The Code ................................................................................................. 63
   How It Works ........................................................................................... 64
   Running the Script ..................................................................................... 64
   The Results ............................................................................................... 64

#13 Word Histogram (most_common_words.rb) ........................................................ 65
   The Code ................................................................................................. 65
   How It Works ........................................................................................... 65
   Running the Script ..................................................................................... 67
   The Results ............................................................................................... 67
   Hacking the Script ..................................................................................... 67

#14 Rotating Characters in a String (rotate.rb) .......................................................... 68
   The Code ................................................................................................. 68
   How It Works ........................................................................................... 68
   Running the Script ..................................................................................... 69
   The Results ............................................................................................... 69
   Chapter Recap ....................................................................................................... 70

5
NUMBER UTILITIES 71

#15 Computing Powers (power_of.rb) ...................................................................... 72
   The Code ................................................................................................. 72
   How It Works ........................................................................................... 73
   Running the Script ..................................................................................... 74
   The Results ............................................................................................... 75

#16 Adding Commas to Numbers (commify.rb) ........................................................ 75
   Inheritance ............................................................................................... 75
   Modules ................................................................................................... 76
   The Code ................................................................................................. 76
   How It Works ........................................................................................... 78
   Running the Script ..................................................................................... 81
   The Results ............................................................................................... 81

#17 Roman Numerals (roman_numeral.rb) ................................................................ 81
   The Code ................................................................................................. 82
   How It Works ........................................................................................... 83
   Running the Script ..................................................................................... 86
   The Results ............................................................................................... 86
   Hacking the Script ..................................................................................... 87

#18 Currency Conversion, Basic (currency_converter1.rb) ........................................ 87
   The Code ................................................................................................. 88
   How It Works ........................................................................................... 89
   Running the Script ..................................................................................... 90
   The Results ............................................................................................... 90
   Hacking the Script ..................................................................................... 90
#19 Currency Conversion, Advanced (currency_converter2.rb) ................................... 90
  The Code ................................................................................................. 91
  How It Works ......................................................................................... 93
  Running the Script ............................................................................... 97
  The Results ........................................................................................... 97
  Hacking the Script ............................................................................... 98
Chapter Recap ............................................................................................ 98

6
FUNCTIONALISM WITH BLOCKS AND PROCS 99
#20 Our First lambda (make_incrementer.rb) ......................................................... 100
  The Code ............................................................................................... 100
  How It Works ......................................................................................... 101
  The Results ........................................................................................... 101
#21 Using Procs for Filtering (matching_members.rb) .............................................. 102
  The Code ............................................................................................... 102
  How It Works ......................................................................................... 102
  Running the Script ............................................................................... 103
  The Results ........................................................................................... 103
#22 Using Procs for Compounded Filtering (matching_compound_members.rb) ........... 103
  The Code ............................................................................................... 104
  How It Works ......................................................................................... 105
  The Results ........................................................................................... 107
  Hacking the Script ............................................................................... 108
#23 Returning Procs as Values (return_proc.rb) ..................................................... 108
  The Code ............................................................................................... 108
  The Results ........................................................................................... 109
#24 Nesting lambdas ....................................................................................... 111
  The Code ............................................................................................... 111
  How It Works ......................................................................................... 112
#25 Procs for Text (willow_and_anya.rb) ................................................................ 112
  The Code ............................................................................................... 112
  How It Works ......................................................................................... 115
  Running the Script ............................................................................... 118
  The Results ........................................................................................... 118
  Hacking the Script ............................................................................... 119
Chapter Recap ............................................................................................ 119

7
USING, OPTIMIZING, AND TESTING FUNCTIONAL TECHNIQUES 121
#26 Basic Factorials and Fibonacci (factorial1.rb through fibonacci5.rb) ................ 122
  The Code ............................................................................................... 122
  How It Works ......................................................................................... 123
  The Results ........................................................................................... 123
  Hacking the Script ............................................................................... 124
MORE COMPLEX UTILITIES AND TRICKS, PART I  

#34 Finding Codes in the Bible or Moby-Dick (els_parser.rb) .................................... 161
  The Code ............................................................................................... 162
  How It Works ......................................................................................... 164
  Running the Script ................................................................................... 167
  The Results ............................................................................................. 167
  Hacking the Script ................................................................................... 168

#35 Mutating Strings into Weasels (methinks.rb) ...................................................... 168
  The Code ............................................................................................... 168
  How It Works ......................................................................................... 171
  Running the Script ................................................................................... 174
  The Results ............................................................................................. 174
  Hacking the Script ................................................................................... 175

#36 Mutating the Mutation of Strings into Weasels (methinks_meta.rb) ....................... 176
  The Code ............................................................................................... 177
  How It Works ......................................................................................... 179
  Running the Script ................................................................................... 181
  The Results ............................................................................................. 181
  Hacking the Script ................................................................................... 182

Chapter Recap ..................................................................................................... 183

MORE COMPLEX UTILITIES AND TRICKS, PART II  

#37 Overnight DJ (radio_player1.rb) ...................................................................... 186
  The Code ............................................................................................... 186
  How It Works ......................................................................................... 187
  The Results ............................................................................................. 189
  Hacking the Script ................................................................................... 190

#38 Better Overnight DJ (radio_player2.rb) ............................................................. 190
  The Code ............................................................................................... 190
  How It Works ......................................................................................... 191
  The Results ............................................................................................. 192
  Hacking the Script ................................................................................... 193

#39 Numbers by Name (to_lang.rb) ...................................................................... 193
  The Code ............................................................................................... 194
  How It Works ......................................................................................... 198
  The Results ............................................................................................. 201
  Hacking the Script ................................................................................... 202

#40 Elegant Maps and Injects (symbol.rb) ............................................................... 203
  The Code ............................................................................................... 203
  How It Works ......................................................................................... 203
  The Results ............................................................................................. 204
  Hacking the Script ................................................................................... 204

Chapter Recap ..................................................................................................... 204
#11
CGI AND THE WEB

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Gateway Interface</td>
<td>206</td>
</tr>
<tr>
<td>Preparation and Installation</td>
<td>206</td>
</tr>
<tr>
<td>#41 A Simple CGI Script (simple_cgi.rb)</td>
<td>207</td>
</tr>
<tr>
<td>The Code</td>
<td>207</td>
</tr>
<tr>
<td>How It Works</td>
<td>208</td>
</tr>
<tr>
<td>The Results</td>
<td>210</td>
</tr>
<tr>
<td>Hacking the Script</td>
<td>210</td>
</tr>
<tr>
<td>#42 Mod Ruby (mod_ruby_demo.rhtml and mod_ruby_demo.conf)</td>
<td>211</td>
</tr>
<tr>
<td>The Code</td>
<td>211</td>
</tr>
<tr>
<td>How It Works</td>
<td>213</td>
</tr>
<tr>
<td>The Results</td>
<td>214</td>
</tr>
<tr>
<td>Hacking the Script</td>
<td>214</td>
</tr>
<tr>
<td>#43 CSS Stylesheets, Part I (stylesheet.rcss)</td>
<td>215</td>
</tr>
<tr>
<td>The Code</td>
<td>215</td>
</tr>
<tr>
<td>How It Works</td>
<td>216</td>
</tr>
<tr>
<td>The Results</td>
<td>217</td>
</tr>
<tr>
<td>Hacking the Script</td>
<td>218</td>
</tr>
<tr>
<td>#44 CSS Stylesheets, Part II (stylesheet2.rcss)</td>
<td>218</td>
</tr>
<tr>
<td>The Code</td>
<td>218</td>
</tr>
<tr>
<td>How It Works</td>
<td>220</td>
</tr>
<tr>
<td>The Results</td>
<td>220</td>
</tr>
<tr>
<td>Hacking the Script</td>
<td>221</td>
</tr>
<tr>
<td>Chapter Recap</td>
<td>221</td>
</tr>
</tbody>
</table>

#12
RUBYGEMS AND RAILS PREPARATION

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RubyGems</td>
<td>223</td>
</tr>
<tr>
<td>Installing RubyGems</td>
<td>224</td>
</tr>
<tr>
<td>Using RubyGems</td>
<td>224</td>
</tr>
<tr>
<td>Rails Preparation</td>
<td>227</td>
</tr>
<tr>
<td>What Is Rails?</td>
<td>228</td>
</tr>
<tr>
<td>Other Options for Installing Rails</td>
<td>228</td>
</tr>
<tr>
<td>Databases</td>
<td>229</td>
</tr>
<tr>
<td>The Structure of a Rails Application</td>
<td>229</td>
</tr>
<tr>
<td>Chapter Recap</td>
<td>235</td>
</tr>
</tbody>
</table>

#13
A SIMPLE RAILS PROJECT

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating the Application</td>
<td>237</td>
</tr>
<tr>
<td>Initial Creation</td>
<td>238</td>
</tr>
<tr>
<td>Preparing the Database</td>
<td>238</td>
</tr>
<tr>
<td>Adding Data</td>
<td>238</td>
</tr>
<tr>
<td>Creating the Model and Controllers</td>
<td>240</td>
</tr>
</tbody>
</table>
Contents in Detail

Dissecting the Application ................................................................. 241
  Dissecting the Photo Model ............................................................. 241
  Dissecting the Controllers ............................................................... 242
  Dissecting the Helpers ................................................................. 245
  Dissecting the Album Controller’s Views ........................................ 251
  Dissecting the Feed Controller’s images View ............................... 254
  Dissecting the Album Controller’s Layout ...................................... 256
Using CSS .......................................................................................... 257
Using the Application .......................................................................... 257
Learning More About Rails ................................................................. 260
Chapter Recap ..................................................................................... 260

APPENDIX
H ow Does Ruby Compare to Other Languages? 261
  C ........................................................................................................ 261
  Haskell .............................................................................................. 262
  Java ................................................................................................. 262
  Lisp ..................................................................................................... 263
  Perl ................................................................................................. 264
  PHP ................................................................................................. 264
  Python ............................................................................................ 265
  Smalltalk ......................................................................................... 265
  Summary of Ruby vs. Other Languages ........................................... 266

INDEX .................................................................................................... 267