

# Introduction to Java Programming

What You Will Learn.....	1
Getting Started with Java .....	2
Tracing Java’s History .....	2
Exploring Java Programs .....	2
Understanding Java’s Benefits.....	3
Learning an Object-Oriented Language.....	4
Writing Your First Program.....	5
Choosing a Text Editor .....	5
Defining a New Class .....	10
Writing the <i>main</i> Method .....	12
Displaying Output.....	13
Understanding Coding Rules and Conventions .....	14
Adding Comments to Your Programs.....	15
Compiling and Running Java Applications .....	15
Compiling and running our code .....	16
Checking the results.....	16
Interpreting and Correcting Compilation Errors.....	16
Exercise 1: Creating a Simple Java Application.....	18
Working with Variables.....	20
Declaring Variables .....	20
Understanding Primitive Types .....	22
Assigning Values to Variables.....	24
Concatenating Output .....	29
Incrementing and Decrementing Variable Values.....	31
Working with Constants (Final Variables).....	34
Working with String Variables .....	35
Taking Command-Line Arguments .....	38
Exercise 2: Working with Variables .....	42
Using if Statements to Make Decisions .....	44
Writing Simple <i>if</i> Statements .....	44
Writing <i>if-else</i> Statements.....	46
Using <i>boolean</i> Variables (Optional) .....	47
Using the Conditional Operator (Optional) .....	48
Using <i>else if</i> to Handle Multiple Conditions .....	49
Working with Complex Conditions .....	51
Understanding Nested <i>if</i> Statements .....	54
Declaring Variables inside a Block .....	55

Putting It All Together (Optional) .....	57
Exercise 3: Writing if Statements .....	59
Writing switch Statements .....	61
Using a <i>break</i> Statement .....	63
Using a <i>default</i> Statement .....	64
Exercise 4: Using switch Statements .....	65
Combining if and switch Statements (Optional).....	66
Exercise 5: Writing Conditional Statements (Optional) .....	68
Working with Loops .....	69
Writing <i>while</i> Loops .....	69
Using a Counter .....	70
Writing <i>do</i> Loops .....	72
Using <i>for</i> Loops.....	74
Controlling the Flow of Loops .....	77
Nesting Loops .....	79
Exercise 6: Working with Loops .....	81
Working with Numbers.....	83
Using the API Documentation .....	83
Using the <i>Math</i> Methods .....	85
Converting Between Types.....	92
Exercise 7: Working with Numbers.....	94
Working with Strings.....	95
Comparing Two Strings for Equality.....	95
Changing Case .....	97
Performing More String Comparisons (Optional) .....	98
Determining String Length .....	100
Working with Substrings .....	100
Finding a Character in a String.....	102
Exercise 8: Working with Strings.....	103
Using Arrays.....	104
Declaring an Array Variable.....	104
Creating the Array.....	104
Assigning Values to Array Elements.....	105
Testing Array Length.....	107
Working with Command-Line Arguments .....	109
Copying an Array .....	110

Using <i>Arrays</i> Methods .....	111
Designing a Pick 3 Lottery .....	114
Exercise 9: Working with Arrays .....	117
Classes and Objects.....	118
Object Oriented Programming.....	119
Appendix A: Solutions to Exercises .....	120