

## **Java Programmer**

Course Hours: 100 hours

Duration: 6 months

### **Summary**

If you're ready to learn Java, this training course is the perfect place to start. Taking an introductory approach, this Java training course covers most Java syntax elements, concentrating on fundamental and universally useful elements, while providing an overview of many more advanced elements. You will learn to write useful Java classes, applying Object-Oriented concepts such as inheritance, and create Java programs that work with these classes. Early in the course, the concept of objects is introduced so that later concepts can be discussed from the perspective of object orientation. This course prepares you for entry into the job market as an entry-level Java programmer or allows you to continue your education by learning other programming languages. This course is entirely online and is completed at your own pace.

### **Details + Objectives**

#### What You Will Learn

- Understand the "write once, run anywhere" concept
- Understand and learn how to create basic Java objects
- Learn how to implement flow-control concepts in Java
- Understand Java's package concept and create packages of Java classes
- Understand Java arrays and write code to create and use arrays
- Learn how to write Java classes using inheritance
- Understand and use the concept of polymorphism in an application
- Understand how Java's exception-handling mechanism works and learn how to apply exception-handling to Java applications
- Learn how to use elements from the Java API library, including the Collections classes

#### How the Course is Taught

- Self-paced, online course
- 6 months to complete
- Open enrollment, begin anytime
- 100 course hours

#### How you will benefit

- Prepare yourself for an entry-level position as a Java programmer
- Further your career in coding by learning a new programming language
- Set yourself apart from competitors by refining your skills in a regulated environment
- Create Java programs that can be shown to prospective employers or used as a portfolio piece

### **Outline**

INTRODUCTION TO JAVA

Cover the fundamentals of Java needed to grasp the program. Understand how to write a Java program, create a class, basic Java syntax, mathematics in Java, and objects in Java.

#### COMPARISONS AND FLOW CONTROL STRUCTURES

Learn about controlling program flow. During this section of the course you'll understand additional loop control, classpath, code libraries, and Jar files.

#### ARRAYS AND INHERITANCE

Explore arrays, how to enhance arrays for loops, multi-dimensional arrays, and typecasting with arrays of primitives. You'll also learn about inheritance, polymorphism, how to create a derived class, typecasting with object references, and methods inherited from object.

#### INTERFACES AND EXCEPTIONS

Learn about interfaces, including how to create an interface definition, implementation, reference variables, inheritance, and additional uses for interfaces. You'll also learn about exceptions. Your coverage of exceptions encompasses attempting to catch risky code, guaranteeing the execution of code, and how to create and use your own exception classes.

#### GENERICS AND COLLECTIONS

Understand the fundamental collections of sets, lists, and maps. Learn about iterators and how to create collectible classes.

#### INNER CLASSES

Master inner classes, a.k.a. nested classes, before taking the course's final exam. You will also complete a project regarding a hotel reservations case study prior to completion of the course.

#### DETAILS

- I. Java Introduction
  1. Conventions in These Notes
  2. The Java Environment - Overview
  3. Writing a Java Program
  4. Obtaining The Java Environment
  5. Setting up your Java Environment
  6. Creating a Class That Can Run as a Program
  7. Useful Stuff Necessary to go Further
  8. Using the Java Documentation
- II. Java Basics
  1. Basic Java Syntax
  2. Data
  3. Mathematics in Java
  4. Creating and Using Methods
- III. Java Objects
  1. Objects
  2. String, StringBuffer, and StringBuilder

3. Creating Documentation Comments and Using javadoc
- IV. Mid-term exam
- V. Comparisons And Flow Control Structures
  1. Controlling Program Flow
  2. Additional Loop Control: break and continue
  3. Classpath, Code Libraries, and Jar files
- VI. Arrays
  1. Arrays
  2. Enhanced for Loops - the For-Each Loop
  3. Multi-Dimensional Arrays
  4. Typecasting with Arrays of Primitives
- VII. Inheritance
  1. Inheritance
  2. Polymorphism
  3. Creating a Derived Class
  4. Example - Factoring Person Out of Employee and Dependent
  5. Typecasting with Object References
  6. Other Inheritance-Related Keywords
  7. Methods Inherited from Object
- VIII. Interfaces
  1. Interfaces
  2. Creating an Interface Definition
  3. Implementing Interfaces
  4. Reference Variables and Interfaces
  5. Interfaces and Inheritance
  6. Some Uses for Interfaces
- IX. Exceptions
  1. Exceptions
  2. Attempting Risky Code - try and catch
  3. Guaranteeing Execution of Code - the finally Block
  4. Letting an Exception be Thrown to the Method Caller
  5. Throwing an Exception
  6. Exceptions and Inheritance
  7. Creating and Using Your Own Exception Classes
  8. Rethrowing Exceptions
  9. Initializer Blocks
- X. Generics and Collections
  1. Fundamental Collections: Sets, Lists, and Maps
  2. Iterators
  3. Creating Collectible Classes
  4. Generics
- XI. Inner Classes
  1. Inner Classes, aka Nested Classes
- XII. Final Exam

### XIII. Project: Hotel Reservations Case Study

#### **Instructors & Support**

Nat Dunn founded Webucator in 2003 to combine his passion for technical training with his business expertise and to help companies benefit from both. His previous experience was in sales, business and technical training, and management. Nat has an MBA from Harvard Business School and a BA in International Relations from Pomona College.

#### **Requirements**

Prerequisites:

There are no prerequisites for this course, however prior knowledge of any programming language is helpful.

Requirements:

Hardware Requirements:

- This course can be taken on a PC or a Mac.
- Dual monitors are helpful but not required.

Software Requirements:

- PC: Windows 8 or later.
- Mac: OS X Mountain Lion 10.8 or later.
- Browser: The latest version of Google Chrome or Mozilla Firefox are preferred. Microsoft Edge and Safari are also compatible.
- Java (download and installation instructions are provided in course).
- Visual Studio Code (download and installation instructions are provided in course).
- Adobe Acrobat Reader. [Click here](#) to download the Acrobat Reader.

Other:

- Email capabilities and access to a personal email account.

#### **Instructional Materials**

The instructional materials required for this course are included in enrollment and will be available online.