



# Java Programming

Course JAVA-C      Five Days      Instructor-led, Hands on

This five-day, instructor-led course helps any programmer learn Java faster and better than ever before: It's full of practical coding examples that enhance training and that provide starting code for the beginning and experienced programmers to master the Java skills that are essential, whether you're creating desktop, web, or mobile applications. Now revised to cover Java SE 17 and updated throughout, it focuses on today's best practices, covers both NetBeans and Eclipse, and makes it easier than ever to learn Java, even if you've never programmed in any language before.

## At Course Completion

Upon successful completion of this course, students will learn:

- Build realistic applications
- Work more efficiently by using an IDE
- Make sense out of object-oriented programming
- Create user-friendly GUIs
- Master essential professional skills
- Work with databases like a pro
- Time-saving format and practical applications

## Prerequisites

You need to be familiar with the operation of the platform that you're using. That means you should know how to perform tasks like opening, saving, printing, closing, copying and deleting files. You should have an aptitude for problem-solving and some programming experience with another language.

## Course Materials

The student kit includes a comprehensive workbook and other necessary materials for this class.

## Course Outline

### Module 1: An Introduction to Java

- An overview of Java
- Types of Java applications
- An introduction to Java development
- How to get started with NetBeans
- How to get started with Eclipse

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## **Module 2: How to write your first Java applications**

- Basic coding skills
- How to work with numeric variables
- How to work with string variables
- How to use classes, objects and methods
- How to use the console for input and output
- How to code simple control statements
- Two illustrative applications
- How to test and debug an application
- How to view the documentation for a class

## **Module 3: How to work with the primitive data types**

- Basic skills for working with data
- How to code arithmetic expressions
- More skills for working with numbers

## **Module 4: How to code control statements**

- How to code Boolean expressions
- How to code if/else statements
- How to switch statements and expressions
- How to code loops
- How to code break and continue statements

## **Module 5: How to code methods, handle exceptions and validate data**

- How to code and call static methods
- How to handle exceptions
- How to validate data
- The Future Value application with data validation

## **Module 6: How to test, debug an application**

- Basic skills for testing and debugging
- How to use NetBeans to debug an application
- How to use Eclipse to debug an application

## **Module 7: How to code classes**

- An introduction to classes and objects
- How to code a class that defines an object
- How to work with static fields and methods
- More skills for working with objects and methods

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- The Line Item application

## **Module 8: How to work with arrays and array lists**

- How to work with an array
- How to use the Arrays class
- How to work with an array list

## **Module 9: How to work with file I/O and exceptions**

- An introduction to file I/O
- How to work with text files
- How exceptions work
- More skills for working with exceptions

## **Module 10: How to work with inheritance**

- An introduction to inheritance
- Basic skills for working with inheritance
- How to work with abstract, final and sealed classes
- How to work with records
- Inheritance vs composition

## **Module 11: Core skills for object-oriented programming**

- An introduction to interfaces
- How to work with interfaces
- How to work with enumerations
- How to work with packages and libraries
- How to work with modules
- How to use Javadoc to document a package

## **Module 12: How to get started with JavaFX**

- An introduction to GUI programming
- How to start a JavaFX project
- How to create a GUI that accepts user input
- How to create a GUI that handles events
- How to validate user input

## **Module 13: More skills for working with JavaFX**

- Seven more JavaFX controls

## **Module 14: More skills for working with strings**

- How to work with the String class
- The Create Account application
- More skills for working with strings

- How to work with the StringBuilder class

## **Module 15: More skills for working with collections**

- An introduction to collections
- How to work with linked list
- How to sort the items in a collection
- How to work with stacks and queues
- How to work with maps

## **Module 16: How to work lambda expressions and streams**

- How to work with lambda expressions
- How to use functional interfaces from the Java API
- How to work with streams

## **Module 17: How to work with recursion and algorithms**

- An introduction to recursion
- Common recursive algorithms

## **Module 18: How to work with dates and times**

- An introduction to date/time APIs
- How to use the new date/time API

## **Module 19: How to work with a database**

- How a relational database is organized
- How to SQL to work with a database
- How to use DB Browser for SQLite
- An introduction to database drivers

## **Module 20: An introduction to databases with SQLite**

- How a relational database is organized
- How to use SQL to work with a database
- How to use DB Browser for SQLite
- An introduction to database drivers
- How to use JDBC to work with a database