Java Programming – Course Description

Overview

This course of study builds on the skills gained by students in Java Fundamentals or Java Foundations to help advance Java programming skills. Students will design object-oriented applications with Java and will create Java programs using hands-on, engaging activities.

Available Curriculum Languages:

- English

Duration

- Recommended total course time: 90 hours*
- Professional education credit hours for educators who complete Oracle Academy training: 30

** Course time includes instruction, self-study/homework, practices, projects and assessment*

Target Audiences

Educators

- Technical, vocational, and 2- and 4-year college and university faculty members who teach computer programming or a related subject
- Secondary and vocational school teachers who teach computer programming

Students

- Students who wish to extend their programming experience in Java and develop more complex Java applications
- This course is a suitable foundational class for computer science majors and non-majors alike, and when taught in sequence with Java Fundamentals or Java Foundations, and may be used to prepare students for the AP Computer Science A exam.

Prerequisites

Required:

- Fundamental knowledge of object-oriented concepts, terminology, and syntax, and the steps required to create basic Java programs.

Suggested:

- Either:
  - Oracle Academy Course - Java Fundamentals
  - Oracle Academy Course – Java Foundations
- Previous experience with at least one programming language

Suggested Next Courses

- Advanced computer programming courses

Lesson-by-Lesson Topics

Java Language – What I Should Know

- Fundamentals of Java – What I Should Know

Class Design and Exceptions

- Working with Pre-Written Code
- Java Class Design – Interfaces
- Java Class Design – Abstract Classes
- Exceptions and Assertions

Data Structures: Generics and Collections

- Generics
- Collections – Part 1
- Collections – Part 2
- Sorting and Searching

Strings, Regular Expressions, and Recursion

- String Processing
- Use Regular Expressions
- Recursion

Input and Output

- Basics of Input and Output
- Input and Output Fundamentals
- Deploying an Application

JDBC

- JDBC Introduction
- JDBC Basics

Java Memory and the JVM

- Introduction to JVM Architecture
- Java Memory Structure

Class File and the JDK

- JDK Tools
- Class File

Bytecode and Class Loader

- Java Bytecode
- ClassLoader