

Java for Beginners

From JShell experiments to a small Java application

FA-0632 · 3 days

Software Development

Learn Java fundamentals, methods, objects, files and basic database access through short exercises and a guided project.

Introduction

This three-day beginner course develops the foundations for writing and understanding small Java programs. Participants begin with JShell experiments, then compile and run code in a selected IDE and practise object-oriented programming.

The final day combines basic file and database access in a prepared small application. Libraries, packaging and deployment are introduced at demonstration or guided-exercise level; framework selection, enterprise applications and independent production deployment are not promised after three days.

Learning outcomes

The course teaches participants to:

- Describe common Java uses and recognise that platforms and frameworks have different requirements.
- Experiment with variables, expressions, operators and control flow in JShell.
- Write reusable methods and compile, run and debug a small Java program.
- Create classes and objects using constructors, encapsulation and simple abstractions.
- Use a prepared external library and inspect a simple packaged Java library.
- Apply basic file and database operations in a guided project.
- Explain and demonstrate the build, test and local-run workflow for the project.

Prerequisites

- No prior Java experience is required; familiarity with using a computer and basic problem-solving is helpful.
- A prepared compatible JDK with JShell, a selected IDE and the supplied project dependencies.
- A disposable training database for the guided database-access example.

Training outline

1. Day 1 — Java and Programming Foundations

Java Uses and Platform Choices

- Overview of Java

Compare Java application contexts and their platform/framework requirements at awareness level.

- Java for application development
- Java in Android development: recognise that mobile tools and runtime requirements differ from a standard desktop JDK.
- Java for Web Application development
- Java as in integration tool

Coding Principles

- Algorithms
- Flow
- Logic
- Subroutines
- Dependencies
- Variables, object references and automatic memory management at introductory level.

JShell Exercises

- Hello World
- Arithmetic operations.
- Basic I/O
- Simple value and text manipulation.
- Expressions

- Variables
- Data Types
- Operators
- Conditions
- Loops

2. Day 2 — Methods, Tools and Objects

Methods

- Creation
- Reusability
- Arguments
- Expressions

Build and Run Workflow

- Compiling
- Simple Deployment

IDE

- Overview of Eclipse tooling.
- Overview of IntelliJ IDEA tooling.
- Use one selected IDE for the exercises; compare tool choices briefly.

Integration and Object-Oriented Programming

- Use a prepared external library and inspect a simple library package.
- Introduction to OOP
- Practise a small class design rather than advanced object-oriented patterns.
- Refactoring
- Creating Objects from Classes

3. Day 3 — Objects, Data and Guided Project

- I/O within Classes
- Encapsulation in coding
- Getters and Setters

- Properties and methods
- Simple abstractions illustrated by a small interface or class example.
- Constructors
- File access
- Basic database access in a prepared disposable environment.

Project and Assessment

Complete one prepared small application, use a supplied library, inspect its packaging and demonstrate a local build/run workflow. Review selected code and diagnose a prepared error.