

Java â 6-Month Course

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What is Java?

Java is a statically-typed, object-oriented language that runs on the JVM â one of the most widely deployed runtimes in enterprise software and large-scale backend systems. Its strict typing and mature tooling make it a common choice for teams that need code many people can maintain for years.

What you'll learn

- Design classes with proper encapsulation, inheritance and interfaces
- Use the Collections framework and streams instead of hand-written loops
- Write and run unit tests with JUnit as part of every feature, not after it
- Build and deploy a real REST API with Spring Boot

6-month curriculum

Month 1: Foundations

Get productive with Java's syntax and the JVM.

- Variables, types and control flow
- Methods and classes
- Compiling and running with javac/java
- Reading a stack trace

Month 2: Object-Oriented Java

Java's whole design is built around this.

- Classes, constructors and this
- Inheritance and interfaces
- Polymorphism and abstract classes
- Encapsulation and access modifiers

Month 3: Collections & Generics

Stop writing your own list and map implementations.

- ArrayList, HashMap, HashSet

- Generics
- The Collections framework
- Lambdas and the Stream API

Month 4: Exceptions & I/O

Handle failure and files the way real Java code does.

- try/catch/finally and custom exceptions
- Reading and writing files
- Streams and buffered I/O
- Input validation

Month 5: Concurrency & Tooling

Move beyond a single-threaded toy program.

- Threads and the executor framework
- Build tools: Maven or Gradle
- Unit testing with JUnit
- Logging basics

Month 6: Capstone Project

Ship a real backend service.

- Design a small Spring Boot REST API
- Connect it to a database
- Write tests for it
- Deploy it