Updated 05/17/2024

Sign up

Java 22 upgrade training

5 days (35 hours)

Presentation

Are you ready to dive into the world of Java? Become a language maestro, understanding its evolution and exploiting its full potential.

The benefits of Java are many, including :

- Platform independence: Write once, run anywhere
- Object-oriented: Designing robust, scalable applications
- Safety: Trust a language that puts your safety first
- Robustness: Java's robust memory management eliminates problems such as explicit pointers and memory leaks
- Rich standard library: benefit from a wide range of built-in libraries

This course is designed to take Java developers from intermediate to advanced level, by giving them an in-depth understanding of the language and its platform. Emphasis is placed on mastering the latest versions (Java 17+), concurrent programming and best practices, all applied through practical exercises and concrete projects.

Register now and embark on a journey from Java 8 to Java 22, mastering the unique features and capabilities of each version.

As with all our training courses, this one will introduce you to the very latest version of Java (at the time of writing: JDK 22).

Objectives

- Master the latest Java versions (17+) and their new features (records, sealed classes, pattern matching, etc.).
- Learn more about advanced JVM mechanisms (garbage collector, JIT, etc.) for optimizing performances

- Master concurrent programming in Java: threads, synchronization, concurrent data structures, frameworks (java.util.concurrent)
- Apply Java development best practices: testing (JUnit), quality, etc. (SonarQube), dependency management (Maven), etc.
- Develop complete applications using the latest Java APIs and frameworks (JavaFX, JPA, JAX-RS, etc.).

Target audience

- Developers
- Technical architects
- Computer application developers
- Project managers

Prerequisites

- Knowledge of object-oriented programming
- Experience in java language

Technical requirements

- Latest version of Windows, Linux or Mac OS
- Java SDK 21, Intellij, Git and Maven installed

Teaching aids

Our training includes 25% theory (lectures and discussions) and 75% practice (hands-on coding sessions, projects and code exams).

Java 22 Training Program

The foundations of Java

- Understanding the magic of bytecode and the JVM
- Dive into the Garbage Collection and Java's approach to memory management
- Exploring the subtleties of the Java memory model

A journey through Java's history

- Discover its origin and evolution
- Study the changes made to each version

Language features

- Adopt functional programming
  - Lambda
  - API Streams.
- Control the competition
  - Threads
  - Executors
  - In-depth understanding of the memory model
- Putting security first with the Java security model
  - Sandboxing
  - SecurityManager.
- Implement authentication using JAAS

Java 8

- Lambda Expressions
- Functional interfaces
- Streams
- Default methods to ensure interface compatibility
- Method references
- Java Time Optional API
- Nashorn JavaScript engine
- Collectors
- JavaFX

Java 9

- JPMS
- Java REPL interactive
- New HTTP client
- Try-with-resources improved
- JVM Unified logging

Java 10

- Introduction of the 'var' keyword for type inference

Java 12

- Unicode 11 support
- Compact digital formatting

Java 14

- Introduction of records for concise data representation

Java 15

- Introduction of text blocks for multi-line strings

Java 16

- Pattern matching for the instanceof operator

Java 18

- UTF-8 as default character set
- Simple Web server
- Code extracts in the documentation

Java 20

- Foreign Functions
- Virtual Threads
- API Vector

Java 21

- API for Key Encapsulation Mechanisms
- ZGC
- String Templates
  - Security
  - Readability
- Panama Project

Further information

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning on entry to training complies with Qualiopi quality criteria. As soon as

Upon final registration, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the forthcoming training course, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.