



J-Xtrm - Version: 4
22 September 2021

Java for Experts



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 4 days Course

Description:

This advanced course is focused on java and JVM internal. The course deep dives into the internal mechanism of java & JVM and focuses on practical tools in java which are based on these internals for writing better and more optimized code. The course explores several advanced features of java in area of concurrency and I/O. In addition we will learn advanced topics such as class loader, script engine manager and garbage collector. We will also learn the byte code language of the JVM and what we can do to use this knowledge. ?

Intended audience:

This course is designed for Java programmers, team leaders, and software project managers.

Prerequisites:

Highly experienced java programmers minimum 3 years

Objectives:

JVM internal mechanisms and optimization
efficient error management and data storage
Thread management

Topics:

Inside the java virtual machine

- JVM overview

- Class Loader
 - Class Loader overview
 - Implementing your class loader
 - Class loader & namespace
 - Class loader lab
- The new module system
- Reducing java footprint
- Class loader lab

Java under the hood

- Just in time compiling
- Bytecode functions
- Instrumentation & java assist
- AOT and Graal project
- Dynamic proxy + Lab

Manipulating your Java code

- Reflection overview
- Dynamic proxy
- Instrumentation
- Compiler plugins

Memory and GC

- Garbage collections and java memory model
- The reference framework
- Java pitfalls
- Serialization
- Lab building the perfect cache

NIO

- Buffers



- Channels
- Selectors
- NIO2
- Lab

Concurrency in Java

- Java util concurrent
- Java Streams
- Future and CompletableFuture
- more topics
- Lab

Optimization and profiling

- 10 Rules of optimizations
- JMX
- VisualVM
- Mission control
- lab