



Optimizing Java with Ben Evans

2-Day Course for Java / JVM Developers

GuruTeam is delighted to launch Ben Evans' *Optimizing Java* course which is adapted from his current O'Reilly book *Optimizing Java*.

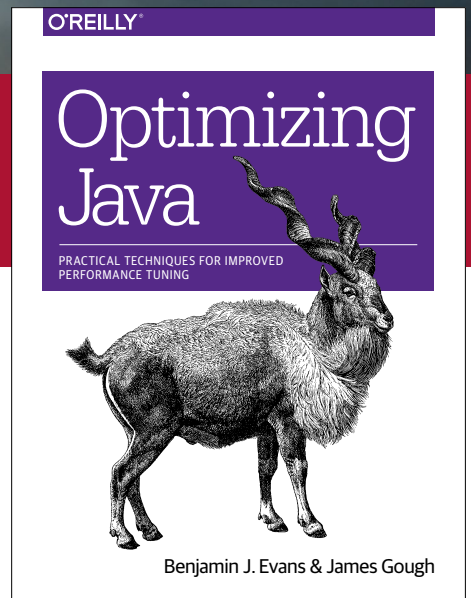


About the Course

Adapted from the brand new O'Reilly book of the same name, this 2-day course is designed for intermediate, advanced and expert Java developers who want to learn the detailed how and why of Java performance and how to diagnose and correct performance problems in a systematic and scientific way.

Ben Evans

Ben Evans is an author, speaker, consultant and educator. He is author of *The Well-Founded Java Developer*, *Java: The Legend*, the new edition of *Java in a Nutshell* and the forthcoming *Optimizing Java*. He is a regular speaker and educator on topics such as the Java platform, systems architecture, security, performance and concurrency.



'Optimizing Java' is currently available as an early release from shop.oreilly.com

Ben is a Java Champion, JavaOne Rockstar Speaker and Java Editor at InfoQ. His career highlights to date include: Chief Architect for Listed Derivatives at DB, performance testing the Google IPO, building award-winning websites for some of Hollywood's biggest hits and building multibillion dollar low-latency trading systems.

Course Outline

Covering JVM internals, bytecode, classloading, garbage collection analysis and tuning as well as JIT compilation, application profiling and language-level techniques; this course also contains hands-on labs and a wealth of directly-applicable knowledge that will allow engineers to gain deep insight into their performance problems and how to fix them.

Day One

Introduction /

Setting the scene

- An overview of JVM structure and subsystems
- Objects at runtime

Lab: Introduction to jmap

Benchmarking

- Why JVM performance analysis is complex
- Simple system model & simple analysis techniques
- Tools and system benchmarking
- Best practices & anti-patterns

Lab: Hands-on introduction to tools

Garbage Collection

- Review of Hotspot's heap
- Basic concepts
- Parallel collectors
- CMS
- G1GC

GC Tuning & Tools

- Trade-offs between collectors
- GC Parameters
- GC Logging
- GC Tools
- Choosing a collector
- GC Tuning

Lab: Spotting GC problems from tools

Day Two

Language-level performance techniques

- JIT compilation
- Overview of JVM bytecode & classloading
- Understanding JIT compilation
- PrintCompilation & LogCompilation
- JITWatch

Lab: Hands-on with JITWatch

Profiling (and Microbenchmarking)

- Large-scale profiling
- Microbenchmarking caveats
- JMH

Lab: JMH Hands-on

Language-level performance techniques

- Java collections
- Immutable objects
- Atomic access
- sun.misc.Unsafe

Lab: Immutable objects

The Future: Java 9 and beyond

- Modules and their impact
- New performance enhancements
- AOTC
- Valhalla, Panama, GPU compute



With improved performance measurements, I was able to make meaningful choices in my code. I got a critical process under production loads from 16 ms for a single item to under 6 ms for 24 concurrent items.

Optimizing Java reviewer, March 2017



Target Audience

Ideally suited for more senior Java developers/architects (with 4+ years of experience). Also suitable for Scala (and other JVM language) developers.

Not suitable for those with less than 2 years Java experience.

Learning Objectives

- To diagnose and fix Java application performance problems
- To understand the underlying architecture of the JVM and some internals
- To understand the causes of common performance problems
- To avoid common misconceptions and traps when performance tuning Java applications
- To gain a basic familiarity with common Java performance tools

Course Prerequisites

- Proficiency in Java development
- A working knowledge of the Java runtime environment

Course Setup

(hardware and software requirements)

- Java 8 (preferred) or 7
- A suitable IDE (e.g. Netbeans, Eclipse, IntelliJ)

Click here for more information on upcoming course dates, or visit www.GuruTeamIRL.com to view our full range of courses.

GuruTeam specialise in delivering on and off-site Learning & Consultancy Services in Linux, Cloud, Big Data, OpenStack, DevOps, Docker, Hadoop, Architecture, Database, and a wide range of Software & Web Development Technologies.

Contact us to learn more...

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