

# Java Training: Programming Techniques & Performance Tuning (JAV201, 4 jours)

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## Description

The course Programming Techniques & Performance Tuning (Java Training) explores Java development from architecture to implementation. The training covers everything from the internal architecture of the JVM to Java performance tuning. Inheritance, polymorphism, data structures, algorithms & multi-threading are also discussed. The course concludes with an overview of refactoring techniques and of the use and design of design patterns in Java.

## Tarifs

- Tarification: \$3,750/person
- Rabais de 10% lorsque vous inscrivez 3 personnes.

## Plan de cours

### Java Architecture

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Symptoms and Root Causes of Software Development Problems

Choosing a Methodology

The Rational Unified Process

Symptoms and Root Causes of Software Development Problems

The Application Tiers: 1, 2 and 3-tiered applications

Distributed Applications: Technology and Infrastructure

Web Applications: Technology and Infrastructure.

Packages and Files

Logging with Java

Exception Handling

Performance Implications

Performance Tuning Considerations

### JVM Architecture

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The Java Runtime: Internal Architecture

Java Internal Architecture

Memory Architecture

Object Allocation

Garbage Collection

Reference Types

### Inheritance and Polymorphism

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Inheritance

Polymorphism

Abstract Functions and Classes

Interfaces

Performance Implications

### Data Structures and Algorithms

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About Java Collections

Hashtables and Hashmaps

Cached Access

Working with Strings

Generics

### Java Threading

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About Java Threads

Race Conditions

Deadlocks and Synchronization

Thread Pools

Load Balancing

Tools and Utilities

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Overview of JDK Tools

Monitoring, Management and Troubleshooting Tools

Summary of Post-Mortem Diagnostic Tools

Summary of Tools for Hung Processes

Eclipse Debugging

Performance Tuning Details

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Tuning Compilation in Rational Developer

Tuning the Application Server

Configuring the JVM

Useful Management Tools

Using JStat

Using JConsole

Using HProf

The Java Heap Analysis Tool (JHAT)

Object Query Language (OQL)

Using jdb

Refactoring Applications

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The Refactoring Process

Code Smells Overview

Duplicated Code

Long Method

Large Class

Long Parameter List

Divergent Change

Shotgun Surgery

Feature Envy

Data Clumps

Primitive Obsession

Switch Statements

Lazy Class

Speculative Generality

Temporary Field

Message Chains

Middle Man

Alternative Classes with Different Interfaces

Data Classes

Refused Bequest

Comments

Design Patterns

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Utility Classes

Template Method

Class Factory

Singleton Pattern

Composite

Inversion of Control

J2EE Security

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Authorization vs Authentication

Adding Groups

Adding Users

Creating Roles

Creating Policies

Implementing Declarative Security

Client Application Security