



## Java Performance Tuning

Oracle

- **Nível:**
  - **Duração:** 18h
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### Sobre o curso

In this course, you will learn how to **Monitor, profile and tune your Java applications, to use command line and visual tools to perform profiling. You will learn to get hands on practice with Visual VM, Java Mission Control, Flight Recorder and the NetBeans IDE. You will also learn to effectively use the profiling tools and techniques to analyze JVM.**

#### Benefits to You:

- Learn how Java garbage collection works and how it affects your applications.
  - Learn how to select the appropriate garbage collector and performance goal for your applications.
  - Finally, use the Mission Control and Java Flight Recorder tools to monitor and analyze your applications.
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### Destinatários

- Administrator
  - Developer
  - Implementer
  - Systems Administrator
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### Objetivos

- Monitor operating system performance on Solaris, Linux, and Windows
- Describe basic principles of performance
- Describe the operation of generational garbage collection
- List the garbage collectors available in Java including the G1 collector
- Monitor performance at the JVM and application level

- Monitor and analyze Java application performance using Java Mission Control and Flight Recorder
  - Profile the performance of a Java application
  - Tune garbage collection in a Java application
  - Apply basic performance tuning principles to a Java application
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## Pré-requisitos

### **Suggested Prerequisites:**

- Java SE Programming
  - Developing Applications for the Java EE 7 Platform
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## Programa

- Introduction
- Java Virtual Machine and Performance Overview
- The JVM and Java Garbage Collection
- Java Garbage Collectors
- Command Line JVM Monitoring
- Mission Control and JVM Monitoring Tools
- Java Flight Recorder
- Monitoring Operating System Performance
- Basics of Profiling
- Profiling Performance Issues
- Garbage-Collection Tuning
- Application-Level Concerns and Garbage Collection

### **Course Overview**

- Introduce course

### **Java Virtual Machine and Performance Overview**

- JVM Overview
- What is Performance?
- Performance Methodology

### **The JVM and Java Garbage Collection**

- HotSpot GC Basics

- The GC Aging Process
- G1 GC

## **Java Garbage Collectors**

- Garbage Collecting Algorithms
- Types of GC Collectors
- JVM Ergonomics

## **Command Line JVM Monitoring**

- GC Monitoring Options
- JIT Monitoring Options

## **Mission Control and JVM Monitoring Tools**

- Monitoring with VisualVM
- Monitoring with Mission Control

## **Java Flight Recorder**

- Creating Flight Recordings
- Analyze a Flight Recording

## **Monitoring Operating System Performance**

- Monitoring CPU Usage
- Monitoring Memory Usage
- Monitoring Network I/O
- Monitoring Disk I/O
- Monitoring Processes

## **Performance Profiling Tools**

- Overview of Profiling Tools
- CPU Profiling
- Heap Profiling

## **Troubleshooting Performance Issues by Profiling**

- Memory Leak Profiling
- Detecting Memory leaks
- Detecting Contention and Locking Issues

## **Garbage Collection Tuning**

- Tuning with Serial GC
- Tuning with Parallel GC
- Tuning with Concurrent GC
- Tuning with G1 GC

## **Language Level Concerns and Garbage Collection**

- Object Allocation
- Working with Large Objects
- Explicit Garbage Collection
- Finalizers
- Memory Leak Detection Tools
- Object References