

Java Multithreading and Concurrency

Learn how to implement multithreading and manage concurrency in Java applications effectively.

Category: Programming · Duration: 1 day

WHO IT IS FOR

- Java developers
- Practitioners who already use it daily and want to go further

This comprehensive training program focuses on teaching participants the fundamentals of Java multithreading and concurrency. Through hands-on exercises and real-world examples, students will learn how to effectively implement multithreading to improve application performance and manage concurrent tasks. Prerequisites for this course include a strong understanding of Java programming and object-oriented concepts.

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Syllabus

- Introduction to Multithreading
- Thread Creation and Management
- Synchronization and Locks
- Race Conditions and Deadlocks
- Thread Safety and Volatile
- Thread Pools and Executors
- Concurrent Collections
- Atomic Operations
- Thread Communication and Signaling
- Parallel Programming with ForkJoin
- Concurrency Utilities
- Thread Interference and Memory Consistency
- Thread Local Variables

- Advanced Concurrency Topics
- Testing and Debugging Multithreaded Applications
- Best Practices for Multithreading
- Performance Optimization Techniques
- Design Patterns for Concurrency
- Practical Application of Multithreading
- Real-World Case Studies