

Advanced Java

(5 days hands-on)

This course is aimed at existing Java developers who wish to obtain a deeper understanding of advanced Java programming techniques. The course also explores the new features introduced in Java SE 7.

Contents:

- **Multithreading Techniques:** Java synchronization language features; Designing thread-safe classes; Recommendations for synchronizing resource access
- **Additional Multithreading Issues:** Using concurrent collections; Thread pooling techniques; Exception handling in a multithreaded environment; Avoiding deadlock and starvation
- **TDD and Multithreading:** Writing effective unit tests; Using mocking frameworks
- **New Language Features in Java SE 7:** Strings in switch; Binary integral literals; Underscores in numeric literals; Multi-catch and precise rethrow; Improved type inference for generic instance creation; try-with-resources statement; Simplified varargs method invocation; Lambda expressions
- **Advanced Java File IO techniques:** NIO Buffer; ByteBuffer, CharBuffer, DoubleBuffer, etc; Channels; File locking; Transferring data & exceptions; Invoking chaining
- **Remote Method Invocation (RMI):** Distributed Java applications; Stub and skeleton layer; Naming remote objects; Callbacks; Dynamic class loading; Distribution of RMI classes; Serialization of remote objects; Untrusted code; Managing security policies; Securing applications and applets; RMI vs. sockets and object serialization
- **Java Reflection:** Dynamic retrieval of information using reflection; Creating instances of extensibility objects; Test harnesses; Class fields, methods and constructors; Arrays and enumerated types; Improving exception handling with reflection and generics; Performance and security
- **Java Serialization:** Object persistence; Using java.io.Serializable; Writing and reading objects; Serialized GUI objects; Exception handling; Customising the default protocol; Version control; Performance considerations

Who Should Attend:

Java developers looking to dig deeper into the language and platform.

Prerequisites:

At least 6 months solid Java experience.