

JAVA 9+ PROGRAMMING (JAVA SE 9-12)

This test is designed for software developers to assess their understanding of the Java Platform, Standard Edition language through version Java SE 12. This includes Java 9, Java 10, Java 11, and Java 12. The Secure Evaluation Mode and Remote versions of this test will contain a minimum of 54 questions and will require a typical time of 64 minutes. The Secure Interview Mode and QwikChek versions will provide as many questions as the test taker can answer within an approximate 40 minute time limit. The CoreChek version will contain 27 questions and will require a typical time of 32 minutes.

Following is a description of each sub-topic on the test:

Java Declarations explores the declaration of core Java artifacts: instance, static and local variables of various types, methods, classes and interfaces, binary literals, Underscores in Numeric Literals, understanding of Java keywords, and type annotations in Java SE versions 9 to 12. **Core**

Java Program Construction assesses ability to construct and execute complete Java programs through Java SE versions 9 to 12. **Core**

Object Orientation in Java identifies knowledge of the key concepts of object-oriented programming applied to Java SE versions 9 to 12: object identity, encapsulation, coupling, inheritance, overloading, overriding and polymorphism. **Core**

Flow Control tests understanding of the different types of Java operators and demonstrates their behavior and precedence, including if, switch, for loop, enhanced for loop, break and continue in Java SE versions 9 to 12. **Core**

Java Memory Management measures understanding of the issues around memory use in Java SE versions 9 to 12, covering heap allocation, memory leaks, garbage collection and use of finalizers. **Core**

Java I/O measures proficiency in file creation, file reading/writing and serialization, the java.nio.file file API, and java.util.stream support for Java SE versions 9 to 12.

Access Modifiers measures understanding of the keywords and techniques for access control of variables, methods and classes in Java SE versions 9 to 12 code.

Compilation and Deployment evaluates understanding of issues related to compilations and execution of Java SE versions 9 to 12 code: executing code, finding classes at runtime and using jar files, embedded JavaScript, and Safe Varargs Method Invocation.

Generics and Collections evaluates understanding of generics in Java SE versions 9 to 12, primarily the creation and use of generic collections. Type Inference for Generic Instance Creation.

Strings, Formatting and Parsing analyzes use of the String, StringBuffer and StringBuilder classes; use of Numbers and Currencies; and use of Regular expressions in Java SE versions 9 to 12. **Core**

Concurrency in Java tests knowledge of process and thread execution, locks, thread synchronization, fork-join, immutable objects and CompletableFutures in Java SE versions 9 to 12. **Core**

Java Classes and Interfaces measures knowledge of use of interfaces and about developing classes like: Object, Class, constructors, static nested classes, use of inner classes, wrapper classes, Optional, Spliterator, ClassLoader, Anonymous classes and Multithreaded Custom Class Loaders in Java SE versions 9 to 12.

Java Internationalization compares legacy date and time handling with the Java SE versions 9 to 12 time package; works with dates, times and locales across time zones; explores internationalization using locales and resource bundles.

Java Streams tests knowledge of the creation of object and primitive streams from collections, references, and primitives: intermediate and terminal operations, usage of filter, map, flatMap, forEach, collect, and reduce operations, use of Optionals, Collector, and Collectors, and parallelism in Java SE versions 9 to 12. **Core**

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Lambda Expressions explores usage of lambda expressions to implement Comparator and other functional interfaces; understanding of Predicates, Consumers, Functions, Suppliers, BinaryOperators, and usage of lambdas with collections in Java SE versions 9 to 12. **Core**

Persistence in Java Explore serialization, store data in SQL databases, classes and interfaces used to ensure persistence in Java SE versions 9 to 12.

Java Networking measures knowledge of using Java Networking APIs, including specific interface and classes in order to develop web applications.

Java Graphics tests knowledge of Java AWT and Java Swing classes from Java SE versions 9 to 12 for the realization of graphic applications.

Core indicates the sub-set of sub-topics offered in the CoreChek assessment version.