

JAVA SE 8: PROGRAMMING

Oracle Certified Professional,
Java SE 8 Programmer



Introduction

Fully updated for Java SE 8, this course, explains how to develop, compile, debug, and run Java programs. It covers the entire Java language, including its syntax, keywords, and fundamental programming principles, as well as significant portions of the Java API library. JavaBeans, servlets, applets, and Swing are examined and real-world examples demonstrate Java in action. New Java SE 8 features such as lambda expressions, the stream library, and the default interface method are discussed in detail.



Course Content:

- Declarations, access control, and enums
- Object orientation
- Assertions and exceptions
- Dates, times, locales, and resource bundles
- I/O and NIO
- Generics and collections
- Inner classes
- Lambda expressions and functional interfaces
- Streams
- Threads
- Concurrency
- JDBC

Electronic content includes:

- This course contains:
 - 170+ practice exam questions
 - Fully customizable test engine

Course Objectives

- Creating high-performing multi-threaded applications
- Creating Java technology applications that leverage the object-oriented features of the Java language, such as encapsulation, inheritance, and polymorphism
- Implementing input/output (I/O) functionality to read from and write to data and text files and understand advanced I/O streams
- Executing a Java technology application from the command line
- Manipulating files, directories and file systems using the JDK NIO.2 specification
- Creating applications that use the Java Collections framework
- Performing multiple operations on database tables, including creating, reading, updating and deleting using both JDBC and JPA technology
- Searching and filter collections using Lambda Expressions
- Implementing error-handling techniques using exception handling
- Using Lambda Expression concurrency features

Audience

- Application Developers
- Developer
- Project Manager
- System Administrator
- Team Leader
- Technical Administrator
- Technical Consultant

Course Duration

- 40 hours

Learn To:

- Create Java technology applications with the latest JDK Technology
- Develop your object-oriented skills
- Identify good practices in the use of the language to create robust Java application
- Use Lambda expressions in Java applications
- Store and manipulate data using collections
- Manipulate files, directories and file systems
- Connect to databases using standard SQL queries through JDBC
- Create high-performance multi-threaded applications

Benefits to You

- You can use this course to further develop your skills with the Java language and prepare for the Oracle Certified Professional, Java SE 8 Programmer Exam!

Prerequisites

- Knowledge on Basic Java Development
- Similar knowledge to the Course **JAVA SE 8: FUNDAMENTALS**

Course Content

Module 1: Declarations, Access Control, and Enums

- Java Class Design and Object Orientation
- Define Classes and Interfaces
- Use Interfaces
- Declare Class Members
- Declare and Use enums

Module 2: Object Orientation

- Encapsulation
- Inheritance and Polymorphism
- Polymorphism
- Overriding/Overloading
- Casting
- Implementing and Interface
- Legal Return Types
- Constructors and Instantiation
- Immutable Classes
- Initialization Blocks
- Statics

Module 3: Assertions and Java Exceptions

- Working with the Assertion Mechanism
- Working with Exception Handling

Module 4: Dates, Times, Locales, and Resource Bundles

- Dates, Times and Locales
- Properties Files
- Resource Bundles

Module 5: I/O and NIO

- File Navigation and I/O
- Files, Path, and Paths
- File and Directory Attributes
- Directory Stream
- Serialization

Module 6: Generics and Collections

- Override hashCode(), equals(), and toString()

- Collections Overview
- Using Collections
- Generic Types

Module 7: Inner Classes

Nested Classes
Inner Classes
Method-Local Inner Classes
Anonymous Inner Classes
Static Nested Classes
Lambda Expressions as Inner Classes

Module 8: Lambda Expressions and Functional Classes

Lambda Expression Syntax
Functional Interfaces
Method References
Write Your Own Functional Interface

Module 9: Streams

- What is a Stream?
- How to create a Stream
- The Stream Pipeline
- Operating on Streams
- Map-Filter-Reduce with average() and Optionals
- Optionals
- Searching and Sorting with Streams
- Collecting Values from Streams
- Streams of Streams
- Generating Streams
- A taste of Parallel Streams

Module 10: Threads

- Defining, Instantiating, and Starting Threads
- Thread States and Transitions
- Synchronizing Code, Thread Problems
- Thread Interaction

Module 11: Concurrency

- Concurrency with the `java.util.concurrent` Package
- Apply Atomic Variables and Locks
- Use `java.util.concurrent` Collections
- Use Executors and ThreadPools
- Use the Parallel Fork/Join Framework
- Parallel Streams

Module 12: JDBC

- Starting Out: Introduction to Databases and JDBC
- Core Interfaces of the JDBC API
- Connect to a Database Using `DriverManager`
- Submit Queries and Read results from the Database