

5 Days

## Java SE 7 Programming

The Java SE 7 Programming training lays emphasis on the core Application Programming Interfaces (API) that are widely used to design and code object-oriented applications with Java. Through this training, individuals learn to write database programs with JDBC, manipulate files, and identify best practices to build strong java applications

Completion of this training course will enable candidates to:

- Create Java technology applications with the latest JDK 7 Technology and the NetBeans Integrated Development Environment (IDE).
- Create Class, Subclass, Abstract Classes and Interfaces
- Create high-performance, multi-threaded applications.
- Identify good practices in the use of the language to create robust Java applications.
- Learn Object Oriented Programming Skills
- Work with database applications such as SQL through JDBC.
- Properly use exceptions and the Collections framework.
- Develop applications that manipulate files, directories and file systems.

### Course Benefits:

Attaining this course helps individuals to enhance the productivity, communication, and collaboration of their organization. This course will equip you with the right knowledge and skill set to minimize the cost of application ownership through more efficient deployment and development techniques.

### Earn Your Java Certification

This course develops the essential skills with Java language. This training is an important pre-requisite for individuals who are preparing for the Oracle Certified Professional, Java SE 7 Programmer Exam.

## Course Details

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### Course Outline

#### 1. Java Platform Overview

- Introductions
- Course Schedule

- [Java Platforms Overview](#)
- [Open JDK](#)
- [Licensing](#)
- [The Java Community Process](#)
- [Java in Server Environments](#)

## **2. Java Syntax and Class Review**

- [Simple Java classes](#)
- [Java fields, constructors, and methods](#)
- [Package and import statements](#)
- [Model objects using Java classes](#)

## **3. Encapsulation and Polymorphism**

- [Encapsulation in Java class design](#)
- [Model business problems with Java classes](#)
- [Subclassing](#)
- [Immutability](#)
- [Variable argument methods](#)
- [Overloading methods](#)

## **4. Java Class Design**

- [Access modifiers: private, protected and public](#)
- [Constructor overloading](#)
- [Method overriding](#)
- [The instanceof operator](#)
- [Virtual method invocation](#)
- [Casting object references](#)
- [Polymorphism](#)
- [Overriding Object methods](#)

## **5. Advanced Class Design**

- [Abstract classes and type generalization](#)
- [Field modifier best practices](#)
- [The static and final modifiers](#)
- [Designing abstract classes](#)
- [The Singleton design pattern](#)
- [Nested classes](#)
- [Enumerated types](#)

## **6. Inheritance with Java Interfaces**

- Java Interfaces
- Implementing multiple interfaces
- The DAO design pattern
- Types of Inheritance
- Object composition and method delegation

## **7. Generics and Collections**

- Generic classes and type parameters
- Type inference (diamond)
- Stack and Deque
- List, set and Map

## **8. String processing**

- String manipulation with StringBuilder and StringBuffer
- Essential String methods
- Input processing with Scanner
- Text output and formatting
- Regular expressions with the Pattern and Matcher classes

## **9. Exceptions and Assertions**

- Exceptions categories
- Standard Java Exception classes
- Create your own Exception classes
- Use try-catch and the final clause
- Use try-with-resources and the AutoCloseable interface
- Best practices using exceptions

## **10. I/O Fundamentals**

- I/O using Java
- Using and Chaining I/O Streams
- Reading the console input stream
- Channel I/O
- Writing to the console
- Reading and writing objects using Serialization

## **11. File I/O with NIO 2**

- The Path interface
- The Files class
- Directory and File operations
- Manage file system attributes
- Read, write, and create files
- Watch for file system changes

## **12. Threading**

- Operate system task scheduling
- Recognize multithreaded environments
- Create multi-threaded solutions
- Share data across threads
- Synchronize and Deadlock
- Immutable objects

## **13. Concurrency**

- Create Atomic variables
- Use Read-Write Locks
- Thread-safe collections
- Concurrent synchronizers (Semaphore, Phaser, and others)
- Parallelism and the Fork-Join framework

## **14. Database Application with JDBC**

- JDBC drivers
- Layout of the JDBC API
- Queries and results
- PreparedStatement and CallableStatement
- The DAO Pattern and JDBC

## **15. Localization**

- Advantages of localization
- Define locale
- Read and set locale using the Locale object
- Resource bundles
- Format messages, dates and numbers

## Who Should Attend

The Oracle Certified Associate Java SE 7 Programming course is Ideal for:

- J2EE Developer
- Java EE Developers
- Java Developers
- Developer

## Pre Requisite

- Understand object-oriented principles
- Experience with at least one programming language
- Basic understanding of database concepts and SQL syntax
- Java SE7 Fundamentals
- Have completed the Java SE 7 Fundamentals course, or experience with the Java language - can create, compile and execute programs

464, Udyog Vihar Phase  
V, Gurgaon (Delhi  
NCR)-122016, India

+91 8882 233 777

[training@mercury.co.in](mailto:training@mercury.co.in)

[www.mercurysolutions.co](http://www.mercurysolutions.co)

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