

Java SE 11: Programming Complete

Course Duration: 40 Hours

Course Code: JAVA-SE11-PC

1. Course Overview

The **Java SE 11: Programming Complete Course** is designed to provide in-depth knowledge and hands-on experience in core Java programming concepts. This course covers the fundamentals of Java SE 11, including object-oriented programming, data structures, exception handling, functional programming, and modular development. By the end of this course, learners will be able to design, develop, and deploy Java applications efficiently, following industry best practices.

2. What You'll Learn?

- Core Java syntax and programming concepts.
- Object-Oriented Programming (OOP) principles: classes, objects, inheritance, polymorphism, and encapsulation.
- Working with data types, operators, arrays, and collections.
- Exception handling and debugging techniques.
- Java I/O (Input/Output) and file handling.
- Functional programming using Lambda expressions and Streams API.
- Modular development with Java Platform Module System (JPMS).
- Multithreading and concurrency.
- Building and running Java applications in real-world scenarios.

3. Target Audience

This course is ideal for:

- Beginners who want to start their journey in Java programming.
- Programmers from other languages looking to learn Java.
- Software developers, engineers, and IT professionals aiming to strengthen Java skills.
- Students pursuing Computer Science, BCA, MCA, or related fields.
- Professionals preparing for Oracle Java Certification.

4. Pre-Requisites

- Basic understanding of programming concepts (preferred but not mandatory).
- Familiarity with any programming language is helpful.
- Enthusiasm to learn and practice Java programming.

5. Course Content

Module 1: Introduction to Java SE 11

- Java features and architecture
- Setting up development environment
- Writing and running Java programs

Module 2: Java Fundamentals

- Variables, data types, and operators
- Control flow statements (if, switch, loops)
- Arrays and strings

Module 3: Object-Oriented Programming (OOP) with Java

- Classes and objects
- Constructors and methods
- Inheritance, polymorphism, abstraction, encapsulation

Module 4: Exception Handling and Debugging

- Types of exceptions
- Try-catch-finally blocks
- Custom exceptions and best practices

Module 5: Java Collections Framework

- Lists, Sets, Maps, and Queues
- Generics in collections
- Iterators and enhanced for-loop

Module 6: Input/Output and File Handling

- Working with files and directories
- Reading and writing data streams
- Serialization and deserialization

Module 7: Functional Programming in Java

- Lambda expressions
- Functional interfaces
- Streams API for data processing

Module 8: Multithreading and Concurrency

- Creating and managing threads
- Synchronization
- Executor framework and concurrency utilities

Module 9: Java Platform Module System (JPMS)

- Introduction to modular programming

- Creating and using modules
- Managing dependencies

Module 10: Application Development and Deployment

- Building Java applications
- Packaging and deployment (JARs and modules)
- Best practices in Java coding and project structure

