

JAVA

☀️ **BECOME A JAVA PROGRAMMER** ☀️

WHY LEARN JAVA?

- Highly in-demand language worldwide.
- Powers software, web, mobile apps (Android), games, banking systems.
- Strong career opportunities.
- Builds solid programming and OOPS skills.

COURSE HIGHLIGHTS

- Hands-on coding sessions
- Real-world projects & assignments
- Interview preparation & placement guidance
- Learn from experienced instructors



TECHSQUARE SOLUTIONS

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ENROLL NOW

ADVANCED JAVA SYLLABUS**Module 1: Introduction to Advanced Java**

- Difference Between Core Java & Advanced Java
- Overview of Java EE and Distributed Applications
- Java Platform Architecture (JSE vs JEE)
- Introduction to Web Technologies (HTML, CSS, JavaScript Basics)
- Setting Up Enterprise Development Environment

Module 2: Java Collections Framework (JCF)

- Introduction to Collection Framework
- List Interface (ArrayList, LinkedList, Vector, Stack)
- Set Interface (HashSet, LinkedHashSet, TreeSet)
- Map Interface (HashMap, LinkedHashMap, TreeMap, Hashtable)
- Queue Interface (PriorityQueue, Deque)
- Iterators & Enhanced for-loop
- Comparable & Comparator Interfaces

Module 3: Networking in Java

- Java.net Package
- Client and Server Networking
- Socket Programming
- DatagramSocket & DatagramPacket
- Multithreading in Networking

Module 4: Servlets – Java Web Programming

- Explain Servlets and lifecycle (init, service, destroy)
- Servlet API (HttpServletRequest, HttpServletResponse)
- Handling Form Data in Servlets
- Servlet Config & Servlet Context
- Session Tracking Techniques – Cookies, HttpSession, URL Rewriting, Hidden Form Fields
- RequestDispatcher & SendRedirect

Module 5: Java Server Pages (JSP)

- Introduction to JSP / JSP vs Servlets
- JSP Lifecycle / JSP Implicit Objects
- JSP Scripting: Declaration, Expression, Scriptlet
- JSP Directives (page, include, taglib)
- JSP Actions / Custom Tags in JSP
- EL and JSP Standard Tag Library (JSTL)
- Exception Handling in JSP

Module 6: Java I/O (Input and Output)

- File Handling (FileReader, FileWriter, BufferedReader, BufferedWriter)

- Serialization & Deserialization
- Byte Streams vs Character Streams
- RandomAccessFile Class

Module 7: Lambda Expressions and Functional Programming

- Lambda Expressions / Method References
- Functional Interfaces (Predicate, Consumer, Supplier, Function)
- Stream API (Java 8+)
- Optional Class (Java 8+)
- Parallel Streams

Module 8: Regular Expressions in Java

- Introduction to Regular Expressions
- Pattern & Matcher Classes
- Regex Methods
- Using Regular Expressions in Validations

Module 9: Java Persistence API (JPA) & Hibernate - ORM Framework

- Introduction to ORM & Need for Hibernate
- Hibernate Architecture & Configuration (XML & Annotation-Based)
- Hibernate SessionFactory, Session, Transaction
- Hibernate CRUD Operations & HQL
- Relationships in Hibernate (One-to-One, One-to-Many, Many-to-Many)
- Hibernate Caching (First-Level & Second-Level Cache)
- JPA Transactions & Entity Lifecycle

Module 10: Multithreading & Concurrency

- Java Executor Framework
- Callable & Future Interfaces
- Fork/Join Framework / Parallel Streams in Java 8+
- CompletableFuture API
- Concurrency Utilities (Locks, Semaphores, CountdownLatch)

Module 11: Java Design Patterns

- Introduction to Design Patterns
- Creational Patterns (Singleton, Factory, Builder, Prototype) / Structural Patterns (Adapter, Decorator, Proxy)
- Behavioral Patterns (Observer, Strategy, Command)
- MVC Architecture Pattern

Module 12: Web Application Deployment

- Introduction to Web Servers & Application Servers
 - Deploying Java Web Applications on Tomcat & JBoss
 - WAR & EAR File Deployment
 - Build Tools Overview: Maven / Gradle
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Module 13: Performance Optimization

- Java Profiling Tools (JProfiler, VisualVM)
 - JVM Optimization Techniques
 - Memory Management & Garbage Collection
 - Analyzing Memory Leaks in Java Applications
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Module 14: IDE & Development Tools

- Working with **Eclipse**
 - Working with **IntelliJ IDEA**
 - Working with **NetBeans**
 - Debugging Tools & Techniques
 - Code Refactoring & Optimization Tools
 - Version Control with Git & GitHub
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Module 15: Databases & Connectivity

- MySQL Database Setup
 - SQL Server Integration
 - Writing SQL Queries
 - Connecting Java apps via JDBC
 - Connection Pooling
 - Stored Procedures with CallableStatement
 - Introduction of Database Normalization Concepts
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Module 16: Assignments, Projects & Case Studies

- 100+ topic-wise assignments
- Debugging & error-fixing tasks
- Real-world coding exercises
- Project Work
- Interview Preparation

Master Programming

TSS

 Learn. Code. Succeed.

OFFLINE CLASSES (IN-PERSON)

- Interactive classroom sessions
- Personalized mentorship
- Real-time problem solving

ONLINE CLASSES (LIVE SESSIONS)

- Attend from anywhere in the world
- Live doubt-clearing sessions
- Full access to assignments & notes
- International time zone flexibility

WHY CHOOSE US?

- Industry-aligned curriculum
- Experienced and certified trainer
- Real-world projects and assessments

DATA STRUCTURES

MACHINE LEARNING

**INTERVIEW
PREPARATION**

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aws


 **spring
boot**



 **Java**
ORACLE

 **python**[™]

node


 **mongoDB**

 **SQL**



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