



JAVA COURSE

Prepared By (CTO) SYNTHOQUEST

45 Days Duration

Duration: 45 days × 2 hrs/day = 90 hrs

Goal: Equip learners with fundamental and advanced Java skills for software development, object-oriented programming, and enterprise applications.

Core Domains

1. Introduction to Java & Setup (5%)

- Java history, features, and platforms
- JDK, JRE, JVM, and IDE setup (Eclipse, IntelliJ IDEA)
- Writing, compiling, and running Java programs

2. Basic Syntax & Data Types (10%)

- Variables, data types, operators
- Typecasting, input/output
- Expressions and operator precedence

3. Control Statements (10%)

- Conditional statements: if, else if, switch
- Loops: for, while, do-while
- Break, continue, and nested loops

4. Methods & Packages (10%)

- Defining and invoking methods
- Method overloading
- Java packages and importing classes

5. Object-Oriented Programming (20%)

- Classes, objects, constructors, methods, attributes
- Inheritance, polymorphism, encapsulation, abstraction
- Interfaces, abstract classes, and inner classes

6. Exception Handling & File I/O (10%)

- Try-catch, finally, throw, throws, custom exceptions
- File handling: reading/writing text and binary files
- Serialization and deserialization

7. Collections Framework & Generics (15%)

- Lists, Sets, Maps, Queues, and their implementations
- Iterators, enhanced for loop
- Generics and type safety

8. Multithreading & Concurrency (10%)

- Thread creation: extending Thread, implementing Runnable
- Thread life cycle, synchronization, inter-thread communication
- Executor framework basics

9. Java Libraries & Introduction to Frameworks (10%)

- Java Standard Library: java.lang, java.util, java.io
- JDBC for database connectivity
- Introduction to Spring Boot / Java web applications

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