



Java Basic to Advanced

Duration: 40 Hours- 15 Days

**Each Session Time: 1 & ½
Hour (90 Minutes)**

DAY-WISE SCHEDULE &
LEARNING ACTIVITIES

Day 01: Java Fundamentals

- ❖ What is Java?
- ❖ History of Java
- ❖ Java Virtual Machine (JVM)
- ❖ Java Development Kit (JDK)
- ❖ Setting up Java Environment
- ❖ Basic Structure of a Java Program
- ❖ Hello, World! Program
- ❖ Comments



Day 02: Variables, Data Types, Operators

- ❖ Operators
 - ❖ Arithmetic, Relational, Logical, etc
- ❖ Keywords and Identifiers
- ❖ Data Types (Primitive, Reference)
- ❖ Variables and Constants
- ❖ Declaration, Initialization of Var
- ❖ Operator Precedence, Associativity
- ❖ Type Casting



Day 03: Control Flow Statements

- ❖ Conditional Statements
 - ❖ if, else-if, else
- ❖ Loops
 - ❖ for, while, do-while
- ❖ Nested Loops
- ❖ Break & Continue Statements
- ❖ Switch Statement



Day 04: Arrays

- ❖ One-Dimensional Arrays
- ❖ Declaration of Arrays
- ❖ Initialization of Arrays
- ❖ Accessing Arrays
- ❖ Array Operations
 - ❖ Sorting, Searching, etc.
- ❖ Multi-Dimensional Arrays



Day 05: Strings

- ❖ String Class
- ❖ String Manipulation Methods
 - ❖ length, charAt, concat, substring, etc.
- ❖ String Comparison
- ❖ String Formatting
- ❖ Regular Expressions



Day 06: Classes and Objects

- ❖ Classes and Objects
- ❖ Constructors
- ❖ Methods
- ❖ Encapsulation
- ❖ Inheritance
- ❖ Polymorphism
- ❖ Method Overloading
- ❖ Method Overriding



Day 07: Interfaces & Abstract Classes

- ❖ Interfaces
- ❖ Abstract
- ❖ Implementing Interfaces
- ❖ Abstract Methods
- ❖ Multiple Inheritance (using Interfaces)



Day 08: Packages

- ❖ Creating Packages
- ❖ Importing Packages
- ❖ Package Hierarchy
- ❖ Access Modifiers
 - ❖ public
 - ❖ private
 - ❖ protected



Day 09: Exception Handling

- ❖ Try-Catch-Blocks
- ❖ Throwing Exceptions
- ❖ Custom Exceptions



Day 10: File Handling

- ❖ File Input/Output Streams
- ❖ Reading Text Files
- ❖ Writing Text Files
- ❖ Reading Binary Files
- ❖ Writing Binary Files
- ❖ File I/O Exceptions



Day 11: Generics

- ❖ Generic Classes
- ❖ Generic Methods
- ❖ Type Bounds
- ❖ Wildcards



Day 12: Collections Framework

- ❖ ArrayList
- ❖ LinkedList
- ❖ HashSet
- ❖ TreeSet
- ❖ HashMap
- ❖ TreeMap
- ❖ Iterators and Collections



Day 13: Multithreading

- ❖ Thread Creation
- ❖ Thread Execution
- ❖ Thread Synchronization
- ❖ Inter-Thread Communication
- ❖ Concurrent Utilities
 - ❖ ConcurrentHashMap
 - ❖ CountdownLatch
 - ❖ Semaphore



Day 14: Networking

- ❖ Sockets
- ❖ Server-Client Communication
- ❖ TCP/IP Protocol
- ❖ UDP Protocol
- ❖ HTTP Protocol



Day 15: JavaFX

- ❖ Introduction to JavaFX
- ❖ Basic GUI Components
- ❖ Event Handling
- ❖ Layout Managers
- ❖ Scene Graph
- ❖ FXML
- ❖ Animations
- ❖ Transitions

