

## Java Language Syllabus

By GharSeCode (GSC)

Course Title: Programming in Java

Course By: GSC (Ghar Se Code)

Duration: 3 Hrs

Code Spirit: Strong Code Needs Strong Principles.

Topics	Detailed Overview
Introduction to Java Programming	What is Java? Features of Java JDK, JRE, and JVM Structure of a Java Program Compilation and Execution Process Comments
Variables, Data Types, and Operators	Data Types (Primitive and Non-Primitive) Variables & Constants Type Conversion & Type Casting Operators (Arithmetic, Relational, Logical, Bitwise, Assignment, Unary, Ternary) Operator Precedence
Control Flow Statements	Decision Making: if, if-else, nested if-else, switch Loops: for, while, do-while Jump Statements: break, continue, return
Input and Output	Using Scanner Class Reading Input from Console Formatted Output using printf()
Arrays	Introduction to Arrays One-Dimensional Arrays Multi-Dimensional Arrays Array Operations (Traversal, Insertion, Deletion) Array Class and Methods
Strings	String Class and StringBuffer, StringBuilder String Methods String Operations and Manipulations
Methods	Defining Methods Method Overloading Passing Arguments Return Types Scope and Lifetime of Variables
Object-Oriented Programming	Classes and Objects Constructors

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Encapsulation, Abstraction, and Polymorphism	Access Modifiers Getter and Setter Methods Abstract Classes and Methods Interfaces Compile-time and Runtime Polymorphism
Exception Handling	Types of Exceptions try, catch, finally block throw and throws keyword Creating Custom Exceptions
File Handling	Reading and Writing to Files using FileReader, FileWriter BufferedReader, BufferedWriter Working with File Class
Collections Framework	List, Set, Map Interfaces ArrayList, LinkedList, HashSet, TreeSet HashMap, TreeMap Iterating Collections