NS3EDU – Java Programming Curriculum
Industry-Oriented | Job-Focused | Hands-On Training

Program Overview

The NS3EDU Java ProgrammingProgram is designed tobuild strong core Java fundamentals to advanced enterprise-level application development skills. This curriculum focuses on object-oriented programming, problem-solving, data structures, backend development, real-world projects, and interview preparation, making learners industry-ready Java developers.

LEVEL 1: Java Fundamentals (Beginner Level)

Part 1: Introduction to Java

- Whatis Java

- History & Features of Java

- Java Editions (JSE, JEE, JME)

- JDK, JRE & JVM

- Java Program Structure

- Installing & Setting Java Environment

Part 2: Core Java Basics

- Variables&DataTypes

- Operators

- Input & Output

- Conditional Statements

- Loops (for, while, do-while)

- Control Statements

Part 3: Methods & Arrays

- Methods & Method Overloading

- Call by Value

- Arrays (1D & 2D)

- Array Operations

- Command Line Arguments

Part 4: Object-Oriented Programming (OOP)

- Class & Object

- Constructors

- Inheritance

- Polymorphism

- Abstraction

- Encapsulation

Part 5: Strings & Wrapper Classes

- String Class

- StringBuffer & StringBuilder

- Wrapper Classes

- Type Casting

LEVEL 2: Core Java Advanced (Intermediate Level)

Part 6: Exception Handling

- Typesof Exceptions

- Try-Catch Block

- Finally Keyword

- Custom Exceptions

- Exception Hierarchy

Part 7: Collections Framework

- List (ArrayList, LinkedList)

- Set (HashSet, TreeSet)

- Map (HashMap, TreeMap)

- Iterator & Comparator

- Collections Utility Class

Part 8: Multithreading

- Thread Lifecycle

- Creating Threads

- Synchronization

- Inter-Thread Communication

- Concurrency Basics

Part 9: File Handling & I/O

- File Class

- File Input & Output Streams

- Serialization & Deserialization

- Buffered Streams

Part 10: Java 8 Features

- Lambda Expressions

- Functional Interfaces

- Streams API - Optional Class - Date & Time API

LEVEL 3: Advanced Java & Backend Development (Professional Level)

Part 11: JDBC (Java Database Connectivity)

- JDBC Architecture

- Connecting Java with Database

- CRUD Operations

- Prepared Statements

- Transaction Management

Part 12: Java Web Basics

- Introduction to Web Applications

- HTTP Protocol

- Servlet Lifecycle

- Request & Response Handling

- Session Management

Part 13: JSP (Java Server Pages)

- JSP Architecture

- JSP Tags

- Expression Language (EL)

- JSTL

- MVC Pattern

Part 14: Framework Introduction

- Spring Framework Overview

- Spring Core Basics

- Spring Boot Introduction

- REST API Basics

Part 15: Real-World Java Projects

- Console-Based Java Application

- Database-Driven Application

- Web-Based Java Project

- REST API Mini Project

- Industry-Level Case Study

Part 16: Career & Interview Preparation

- Java Developer Roles

- Core Java Interview Questions

- Coding Practice & Logic Building

- Resume & GitHub Profile Setup

- Mock Interviews

Tools & Technologies Covered

- Java(JDK8+)

- Eclipse / IntelliJ IDEA

- MySQL

- Maven

- Git & GitHub

- Apache Tomcat

Outcome

Learnersbecome job-ready Java Developers, capable of building robust Java applications, backend systems, and database-driven projects, with strong OOP and problem-solving skills.

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