

Java Programming Plan

Course Duration : 120 Days

Topics & Details

Introduction to Programming:

- ★ Understanding what programming is and its importance.
- ★ Introduction to basic programming concepts: variables, data types, and operations.

Introduction to Java:

- ★ What is Java and why is it popular?
- ★ Installing Java Development Kit (JDK) and setting up the development environment.
- ★ Writing and running your first Java program (Hello World).

Java Basics:

- ★ Variables and data types (integers, floats, strings, booleans).
- ★ Basic arithmetic operations, comparison operators, and logical operators.
- ★ Understanding and using comments in Java.

Control Structures:

- ★ Conditional statements: if, else, else if.
- ★ Loops: for, while, do-while.
- ★ Loop control statements: break and continue.



Arrays and Lists:

- ★ Creating and manipulating arrays.
- ★ Introduction to ArrayList for dynamic lists.

Functions and Methods:

- ★ Creating and calling functions (methods) in Java.
- ★ Function parameters and return values.
- ★ Variable scope (local and global variables).

Object-Oriented Programming (OOP) Basics:

- ★ Classes and objects: creating classes and instantiating objects.
- ★ Methods and constructors in classes.
- ★ Encapsulation and data hiding.

Inheritance and Polymorphism:

- ★ Inheriting properties and behaviors from parent classes.
- ★ Method overriding and polymorphism concepts.

Exception Handling:

- ★ Handling errors and exceptions using try-catch blocks.
- ★ Throwing and catching custom exceptions.

File Input/Output (I/O):

- ★ Reading from and writing to text files.



- ★ Using BufferedReader and BufferedWriter for efficient I/O operations.

Introduction to Collections Framework:

- ★ Understanding collections: Lists, Sets, and Maps.
- ★ Using collections for data storage and manipulation.

Introduction to Java APIs:

- ★ Exploring basic Java APIs (e.g., Math class, String class methods).

Introduction to GUI Programming (Optional):

- ★ Basics of Java Swing or JavaFX for building graphical user interfaces.

Introduction to Multithreading (Optional):

- ★ Understanding the basics of multithreading.
- ★ Creating and managing threads in Java applications.

Project Work:

- ★ Implementing small projects to reinforce learned concepts, such as a simple calculator, a student grade management system, or a basic inventory management application.

Best Practices and Coding Standards:

- ★ Understanding and applying Java coding standards for clean and readable code.
- ★ Proper code indentation and naming conventions.

Examination & Certification:

- ★ At the last step appear in the final examination and get final certificate.

