

15 Days (Introduction to Java)

Objective:

- Understand the basics of Java programming and build simple applications.

Syllabus:

1. **Day 1-3:** Introduction to Java
 - a. Java overview and setup (JDK, IDEs like IntelliJ IDEA, Eclipse).
 - b. Writing and executing basic Java programs.
2. **Day 4-6:** Java Fundamentals
 - a. Data types, variables, and operators.
 - b. Control flow statements (if-else, loops).
3. **Day 7-9:** Object-Oriented Programming (OOP) Basics
 - a. Classes, objects, and methods.
 - b. Constructors and access modifiers.
4. **Day 10-12:** Collections and Arrays
 - a. Arrays, ArrayLists, and basic collections framework.
 - b. Iterators and loops for collections.
5. **Day 13-15:** Hands-On Practice
 - a. Simple console-based projects (e.g., calculator, student management system).

30 Days (Beginner-Level Java Development)

Objective:

- Build a strong foundation in Java with OOP principles and basic application development.

Syllabus:

1. **Week 1:** Core Java
 - a. Advanced OOP concepts: inheritance, polymorphism, encapsulation, and abstraction.
 - b. Static and final keywords, nested and inner classes.
2. **Week 2:** Exception Handling and I/O
 - a. Error and exception handling (try-catch, custom exceptions).
 - b. File handling using Java I/O (FileReader, FileWriter).
3. **Week 3:** Multithreading and Concurrency
 - a. Threads, runnable interface, and thread lifecycle.

- b. Synchronization and thread-safe programming.
- 4. **Week 4:** Basic Project
 - a. Develop a console-based project using all learned concepts (e.g., Library Management System).

45 Days (Intermediate-Level Java Development)

Objective:

- Learn intermediate Java features and introduce database and GUI programming.

Syllabus:

1. **Week 1-2:** Advanced Java Concepts
 - a. Generics and lambda expressions.
 - b. Streams API and functional programming.
2. **Week 3:** Database Programming
 - a. Introduction to JDBC.
 - b. Connecting Java applications with databases (MySQL, PostgreSQL).
3. **Week 4:** GUI Programming
 - a. JavaFX or Swing basics.
 - b. Building simple graphical user interfaces.
4. **Week 5:** Intermediate Project
 - a. Build a database-connected application (e.g., Inventory Management System).

60 Days (Advanced Java Development)

Objective:

- Master Java development with frameworks and enterprise features.

Syllabus:

1. **Week 1-2:** Advanced Frameworks
 - a. Introduction to Java frameworks (Spring, Hibernate).
 - b. Dependency Injection (DI) and Spring Boot basics.
2. **Week 3-4:** Web Development with Java
 - a. Basics of servlets and JSP.

- b. Building RESTful web services using Spring Boot.
- 3. **Week 5:** Application Security
 - a. Authentication and authorization with Spring Security.
 - b. Secure application development best practices.
- 4. **Week 6:** Advanced Project
 - a. Develop a web application using Spring Boot and Hibernate (e.g., Employee Management System).