

JAVA FULL STACK DEVELOPER

PROFESSIONAL SYLLABUS

1. Core Programming Fundamentals (Java)

✓ Java Basics

- **JVM, JRE, JDK**
- **Data Types, Variables**
- **Operators & Expressions**
- **Input/Output**
- **Type Casting**

✓ Control Structures

- **If-else**
- **Loops**
- **Switch case**

✓ Object-Oriented Programming

- **Classes & Objects**
- **Constructors**
- **this, super keywords**
- **Inheritance**
- **Polymorphism (compile-time & runtime)**
- **Abstraction (abstract class & interface)**

- **Encapsulation**
- **Static & Final keywords**
- **Packages**

✓ Java Collections Framework

- **List, Set, Map**
- **Array List, LinkedList**
- **HashMap, Tree Map**
- **HashSet, LinkedHashSet**
- **Sorting & Comparators**

✓ Exception Handling

- **try-catch-finally**
- **Custom exceptions**

✓ Java I/O

- **File handling**
- **Serialization & Deserialization**

✓ Multi-threading

- **Thread lifecycle**
- **Thread synchronization**

2. Advanced Java

✓ JDBC

- **Connection, Statement, Prepared Statement**
- **Batch processing**
- **Connection pooling**

✓ Servlet

- **Request/Response**
- **HTTP methods**
- **Session management**
- **Cookies & URL rewriting**

✓ JSP

- **Directives**
- **Script lets**
- **JSP Expression & Declarations**
- **JSTL & EL tags**
- **MVC architecture**

3. Frontend Technologies (UI Development)

HTML5

- **Semantic tags**
- **Forms**
- **Media tag**

CSS3

- **Selectors**
- **Flexbox**
- **Grid**
- **Animations**
- **Responsive design**

JavaScript (Advanced)

- **DOM & BOM**
- **Arrow functions**
- **Callbacks**
- **Promises & Async/Await**
- **Fetch API**
- **ES6+ features**

Bootstrap / Tailwind

- **Layouts**
- **Components**
- **Utility classes**

4. Frontend Framework

React.js

- **JSX**
- **Components (class & functional)**
- **Props & State**

- **Hooks (useState, useEffect, useRef)**
- **Routing**
- **Forms**
- **Redux (or context API)**
- **API integration**
- **Project structuring**

OR

Angular (Latest version)

- **Components**
- **Directives, Pipes**
- **Services**
- **Dependency Injection**
- **Observable & RxJS**
- **Template-driven & Reactive Forms**
- **Routing**
- **API integration**
- **Lifecycle hooks**

5. SQL & Database Systems

✓ MySQL / PostgreSQL

- **DDL, DML, DQL**
- **Joins**

- **Views**
- **Stored procedures**
- **Triggers**
- **Indexing**
- **User privileges**

✓ **NoSQL – MongoDB (*optional*)**

- **Documents**
- **CRUD**
- **Aggregation**

6. Back-End Framework: Spring + Spring Boot

✓ **Spring Core**

- **IoC**
- **Dependency Injection**
- **Bean scopes**
- **Spring configuration**

✓ **Spring Boot**

- **Project setup**
- **Starter dependencies**
- **Auto-configuration**
- **Profiles**

- **Logging**

✓ Spring MVC

- **Controllers**
- **Rest Controller**
- **DTO**
- **Model Attribute**
- **Exception handling**
- **Interceptors**

✓ Spring REST API (Very Important)

- **CRUD API**
- **Request/Response handling**
- **JSON Mapping**
- **Validation (Hibernate Validator)**

✓ Spring Data JPA

- **Repositories**
- **Query methods**
- **JPQL**
- **Pagination & Sorting**

✓ Spring Security

- **Authentication & Authorization**
- **JWT Authentication (Most Important)**

- **Role-based access**

7. Build Tools

✓ Maven

- **pom.xml**
- **Dependencies**
- **Plugins**

✓ Gradle (*optional*)

8. Version Control – Git & GitHub

✓ Git Basics

- **git init**
- **commit**
- **push/pull**
- **branching**
- **merge**
- **resolve conflicts**

✓ GitHub

- **Repository creation**
- **Collaborations**
- **Issues**

- **Pull requests**
- ✓ **GitHub Actions (CI/CD basics)**
 - **Build pipeline**
 - **Automated deploy**

9. Cloud Deployment

- ✓ **Back-end hosting**
 - **Render.com**
 - **Railway.app**
 - **Deta Space**
 - **Cyclic.sh**
- ✓ **Front-end hosting**
 - **Netlify**
 - **Vercel**
 - **GitHub Pages**
- ✓ **Database hosting (Free options)**
 - **MongoDB Atlas (MongoDB)**
 - **Planetscale (MySQL)**
- ✓ **Docker (Basic)**
 - **Dockerfile**
 - **Containers**

- **Images**
- **Volumes**

10. Testing

✓ JUnit

✓ Mockito

✓ Postman

✓ Swagger Documentation

11. Soft Skills & Development Practices

- **Agile & Scrum**
- **SDLC**
- **UML diagrams**
- **Requirement understanding**
- **System design basics**

12. Projects (Industry Level)

✓ Project 1

E-Commerce Web App

- **React/Angular frontend**
- **Spring Boot backend**

- **MySQL**
- **JWT security**
- **Payment gateway integration (dummy)**

✓ Project 2

Employee Management System

- **CRUD API**
- **JWT**
- **Role-based access**
- **Docker deployment**

Complete Syllabus :-

Frontend → HTML, CSS, JS, Bootstrap, React/Angular

Backend → Java, JDBC, Servlet/JSP, Spring Boot

Database → MySQL, optional MongoDB

DevOps → Git, GitHub, CI/CD, Docker

Cloud → Free hosting platforms

Tools → Postman, VS Code, STS/Eclipse