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Certificate Course in Full-stack Development(React.js + Java Spring Boot)

1: Web & JavaScript Fundamentals

Goal: Build the foundation with essential web technologies and JavaScript.

Topics: • HTML5 & Semantic Tags • CSS3 (Box Model, Flexbox, Grid) • JavaScript (variables, functions, conditionals, loops) • ES6+ features (arrow functions, destructuring, spread/rest) • DOM manipulation, events, form handling • Fetch API & JSON Tools: VS Code, Chrome DevTools, Git/GitHub

2: React.js Fundamentals

Goal: Create interactive user interfaces with modern React.

Topics: • React setup with Vite / CRA • JSX, functional components, props • useState & useEffect hooks • Lists, keys, conditional rendering • React Router v6+ for navigation • Controlled forms & basic validation • Component-based architecture Tools: React.js, Postman, Axios, VS Code

3: Java Fundamentals

Goal: Learn core Java concepts essential for backend logic and Spring Boot.

Topics: • Data types, operators, control flow • OOP (classes, inheritance, abstraction, polymorphism) • Collections Framework (List, Set, Map) • Exception handling • Java 8+ features (Streams, Lambda expressions) • File I/O and basic Java APIs Tools: Java 17+, IntelliJ IDEA / Eclipse

4: Backend Development with Spring Boot

Goal: Build secure and scalable RESTful APIs using Spring Boot.

Topics: • Spring Core: IoC, Dependency Injection • Spring Boot annotations and project structure • REST APIs using Spring Web • Configuration with application.properties / YAML • CRUD with Spring Data JPA & Hibernate • Entity relationships and mapping • Global and local exception handling • API testing with Postman / Swagger Tools: Spring Boot, Spring Initializr, Maven, Postman, MySQL / PostgreSQL, Swagger UI

5: Full-stack Integration

Goal: Connect frontend (React) with backend (Spring Boot) to build a complete app.

Topics: • Consuming Spring Boot APIs in React using Axios • CORS configuration • Authentication flow: storing tokens, protected routes • Data fetching, loading states, and error handling Tools: Axios, Spring Security, React Router

6: Testing, CI/CD & Deployment

Goal: Test, build, and deploy fullstack applications.

Topics: • React unit testing with Jest / RTL • Backend testing with JUnit & Mockito • CI/CD pipelines (GitHub Actions / Jenkins) • Dockerization of frontend and backend • Deployment (Render, Netlify, Railway, AWS) Tools: Docker, GitHub Actions, Swagger, Netlify, Railway, Jenkins