Full Course Content: Front-End Development using Angular and Back-End Development using Java Spring Boot and Node.js

Module 1: Introduction to Front-End and Back-End Development

- Overview of Web Development
- Client-Side vs. Server-Side Development
- Introduction to Angular, Java Spring Boot, and Node.js
- Setting Up Development Environment

Part 1: Front-End Development with Angular

Module 2: Introduction to Angular

- Introduction to Single Page Applications (SPA)
- Angular Architecture and Components
- Installing Angular CLI
- Creating and Running an Angular Application

Module 3: Angular Components and Templates

- Creating and Using Components
- Data Binding (Interpolation, Property, Event, and Two-Way Binding)
- Directives (Structural and Attribute)
- Angular Template Syntax

Module 4: Angular Services and Dependency Injection

- Creating and Using Services
- Dependency Injection in Angular
- HTTPClient for Making API Calls
- Handling Data with Observables and RxJS

Module 5: Angular Routing and Navigation

- Setting Up Angular Router
- Defining Routes and Navigation
- Route Guards and Lazy Loading
- Child Routes and Nested Navigation

Module 6: Forms in Angular

- Template-Driven Forms

- Reactive Forms
- Form Validation and Custom Validators
- Handling Form Data

Module 7: State Management in Angular

- Introduction to State Management
- Using Services for State Management
- Introduction to NgRx for State Management
- Implementing Redux Pattern in Angular

Module 8: Angular Modules and Advanced Topics

- Angular Modules and Lazy Loading
- Using Angular Material for UI Components
- Performance Optimization Techniques
- Unit Testing and End-to-End Testing in Angular

Part 2: Back-End Development with Java Spring Boot

Module 9: Introduction to Java Spring Boot

- Overview of Spring Framework
- Setting Up Spring Boot Project
- Understanding Spring Boot Architecture
- Creating a Basic Spring Boot Application

Module 10: Spring Boot RESTful Web Services

- Creating RESTful APIs with Spring Boot
- Handling HTTP Methods (GET, POST, PUT, DELETE)
- Data Validation and Exception Handling
- Consuming APIs with Angular

Module 11: Spring Data JPA and Database Integration

- Introduction to Spring Data JPA
- Setting Up Database Connection
- CRUD Operations with JPA Repositories
- Using Hibernate with Spring Boot

Module 12: Security in Spring Boot

- Introduction to Spring Security

- Implementing Authentication and Authorization
- JWT (JSON Web Token) for Secure APIs
- Security Best Practices

Module 13: Advanced Spring Boot Features

- Spring Boot Actuator for Monitoring
- Scheduling Tasks with Spring Boot
- Sending Emails with Spring Boot
- Integrating Third-Party APIs

Part 3: Back-End Development with Node.js

Module 14: Introduction to Node.js

- Overview of Node.js and its Features
- Setting Up Node.js Environment
- Node.js Architecture and Event Loop
- Creating a Basic Node.js Application

Module 15: Building RESTful APIs with Express.js

- Introduction to Express.js
- Setting Up Express.js Project
- Creating RESTful Endpoints
- Middleware and Error Handling

Module 16: Database Integration with Node.js

- Connecting to MongoDB using Mongoose
- Creating Schemas and Models
- CRUD Operations with Mongoose
- Using MySQL with Node.js

Module 17: Authentication and Authorization in Node.js

- User Authentication with Passport.js
- Implementing JWT for Authentication
- Role-Based Access Control
- Securing Node.js APIs

Module 18: Advanced Node.js Features

- Real-Time Communication with Socket.io

- Building GraphQL APIs with Node.js
- File Uploads and Data Streaming
- Performance Optimization in Node.js

Part 4: Full-Stack Development Projects

Module 19: Full-Stack Development Workflow

- Setting Up Full-Stack Project
- Connecting Angular Front-End with Spring Boot Back-End
- Connecting Angular Front-End with Node.js Back-End
- Environment Configuration and Deployment

Module 20: Full-Stack Project 1: E-commerce Application

- Building Front-End with Angular
- Building Back-End with Spring Boot
- Implementing Shopping Cart and Payment Gateway
- Deployment and Maintenance

Module 21: Full-Stack Project 2: Social Media Platform

- Building Front-End with Angular
- Building Back-End with Node.js
- Implementing Real-Time Features with Socket.io
- Deployment and Maintenance

Capstone Project

- Real-World Full-Stack Application Development
- End-to-End Integration of Angular, Spring Boot, and Node.js
- Project Planning and Execution
- Presentation and Defense of the Project

Assessment and Certification

- Quizzes and Exams
- Practical Lab Assessments
- Final Project Evaluation
- Certification of Completion