

Full Stack Advanced Training in Java

Module 1: Advanced Java Core Concepts

- **Topics Covered:**
 - Deep dive into Java 8+ features:
 - Java 8 features (example: Lambda, Stream API, Functional Interface)
 - Java 21 features (example: Record, Virtual Thread, Pattern Matching etc.)
 - Java Memory Model (Garbage Collection, Heap, Stack)
 - Best Practices for Exception Handling
 - JVM Optimization Techniques (Good to Have)
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Module 2: Backend Development with Spring Framework

- **Topics Covered:**
 - Spring Core:
 - Spring AOP and Transaction Management
 - Spring Boot Persistence Layer:
 - Spring Data JPA (CRUD Operations, JPQL, Native Queries)
 - Spring Security:
 - Spring Security (Authentication, Authorization)
 - JWT Implementation for Token-based Security
 - Integration: (Good to Have)
 - Connecting to external APIs using Asynchronously (ex: Web Client)
 - Messaging with Kafka
 - Monitoring:
 - Integrating Actuator and Micrometer for application monitoring
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Module 3: Frontend Development with Modern JavaScript Frameworks

- **Topics Covered:**
 - Introduction to Frontend Frameworks:

- HTML5 Advance topics (Local storage, Responsive images, Web workers, Drag and Drop API, Web sockets, Microdata etc.)
- Knowledge of Advance JS and ES6+ features in depth
- Knowledge of Typescript in depth.
- Knowledge of Angular or React in depth.
- Basic knowledge of Shadow DOM and Virtual DOM.
- Design patterns (Singleton, Factory pattern, Module, Prototype etc.)
(Good to Have)
- Micro frontend architecture (Good to Have)
- Component-based Architecture:
 - Creating Reusable Components
 - Creating Custom Directives.
 - State Management (Redux or Saga or RxJS)
- Routing and Navigation
- Handling REST API calls (Axios or Angular HttpClient)
- Real-time Updates with WebSockets
- Styling:
 - Deep drive knowledge in CSS3 (Grid, Flex etc.)
 - CSS Preprocessors (SASS/LESS)
 - Material Design or Bootstrap
- Build Tolls:
 - Vite or Webpack
- Unit Testing:
 - Jest or Mocha

Module 4: Full Stack Integration

- **Topics Covered:**

- Connecting Frontend and Backend:
 - API Integration (Frontend consuming Backend APIs)

- Authentication and Authorization Flow
 - Handling CORS Issues
 - Deployment And Tools:
 - Dockerizing Full Stack Applications
 - Kubernetes deployment for Java applications
 - Performance Optimization: (Good to Have)
 - Caching
 - Lazy Loading and Pagination
 - Testing:
 - API Testing with Postman
 - How to Run Postman Scripts from Newman CLI Commands (Good to Have)
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Module 5: Microservices Architecture

- Topics Covered:
 - Introduction to Microservices:
 - Monolith vs Microservices
 - Principles of Microservices Architecture
 - Building Microservices: (High Level)
 - Spring Cloud (Netflix OSS)
 - Service Discovery with Eureka
 - API Gateway with Zuul/Spring Gateway
 - Load Balancing with Ribbon
 - Inter-Service Communication:
 - REST, gRPC
 - Distributed Systems:
 - Circuit Breakers with Resilience4j/Hystrix
 - Distributed Logging and Monitoring
 - Tracing with Zipkin or Jaeger
 - Deploying Microservices with Kubernetes
