

Spring Boot & Hibernate (3 Months)

Duration: 3 Months (~120 Hours)

Mode: Live Online / Classroom

Designation after completion: Java Backend Developer / Spring Boot Developer / Microservices Engineer

Tools & Technologies: Java SE 11+, Spring Boot, Spring Data JPA, Hibernate, Maven/Gradle, MySQL/PostgreSQL, Postman, JUnit, Mockito, GitHub, Docker (intro)

Certifications prepared: Spring Certified Professional, Hibernate ORM Training

Detailed Syllabus (12 Weeks)

Week 1

- Spring Core, Dependency Injection
- Spring Boot project setup (Maven/Gradle)
- Application.properties & profiles
- Assignment

Week 2

- RESTful web services
- @RestController, @RequestMapping
- JSON serialization (Jackson)
- Assignment

Week 3

- JPA architecture
- Entities, repositories
- Hibernate ORM mappings
- Assignment

Week 4

- Advanced Hibernate: One-to-one, One-to-many, Many-to-many relationships
- Cascade types & fetch types
- JPQL & Criteria API
- Assignment
- Mock Interview 1

Week 5

- Global exception handling with @ControllerAdvice
- Custom exceptions
- Validation API (@Valid, @NotNull, @Size)

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- Assignment

Week 6

- Spring Security basics
- Authentication vs Authorization
- Configuring in-memory users
- Role-based access control
- Assignment

Week 7

- JSON Web Tokens (JWT) introduction
- Implementing JWT in Spring Boot
- Securing REST endpoints
- Assignment

Week 8

- Unit testing with JUnit 5
- Mocking with Mockito
- Integration testing with MockMvc
- Assignment
- Mock Interview 2

Week 9

- Microservices with Spring Boot
- Service registry (Eureka)
- API Gateway (Zuul / Spring Cloud Gateway)
- Config server & centralized configs
- Assignment

Week 10

- Spring Kafka basics
- Producing & consuming messages
- Use case: Order event processing
- Assignment

Week 11

- Spring Boot Actuator
- Health checks, metrics
- Logback configuration
- Assignment

Week 12

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- Packaging JARs/WARs
 - Dockerizing Spring Boot app
 - Deployment to AWS Elastic Beanstalk / Azure App Services
 - Assignment
 - Mock Interview 3

Mini Projects

- Employee Management REST API
- E-commerce Product Service