CRONUS
CONSULTANTS
HARVESTING EXCELLENCE

Maven, Spring Boot & Microservices

Course Structure

Duration – 70 Hours (4 Months)



Module 1: Java Build Automation with Maven (5 Hours)

- Maven Introduction: Project Object Model (POM) structure, project lifecycle, and phases (clean, compile, test, package, install).
- Dependency Management: Adding dependencies, scope (compile, test, runtime), and transitive dependencies.
- Build & Plugins: Using Maven plugins for packaging (JAR/WAR) and running Spring Boot applications.

Module 2: Spring Boot Fundamentals (15 Hours)

- Getting Started: Project setup via Spring Initializr, project structure, and application.properties/YAML configuration.
- Core Concepts: Dependency Injection (DI), Inversion of Control (IoC), and Auto-configuration.
- RESTful APIs: Developing REST controllers using @RestController, @RequestMapping, and handling HTTP methods (GET, POST, PUT, DELETE).
- Data Access: Spring Data JPA, Hibernate integration, entity mapping, and repository patterns with H2 or MySQL.

Module 3: Microservices Architecture (20 Hours)

- Core Patterns: Moving from Monolithic to Microservices, service boundaries, and decentralized data management.
- Service Discovery: Implementing Spring Cloud Netflix Eureka for service registration and discovery.
- Inter-service Communication: Using RestTemplate, WebClient, or declarative REST clients like Spring Cloud OpenFeign.
- API Gateway: Routing and load balancing with Spring Cloud Gateway.
- Externalized Configuration: Centralizing settings using Spring Cloud Config Server.

Module 4: Advanced Features & Resilience (10 Hours)

- Fault Tolerance: Implementing Circuit Breaker and Retry patterns with Resilience4j.
- Security: Securing services using Spring Security, JWT, or OAuth2.
- Observability: Monitoring application health and metrics with Spring Boot Actuator and distributed tracing.
- Containerization: Introduction to Dockerizing microservices for cloud deployment.

ands-On Project, Deployment & Cloud Storage – 20 Hours.

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Contact Us Today!

+91 8282884601

partner@cronusconsultants.co.in

www.cronusconsultants.co.in

Corporate Office - Bengal Eco Intelligent Park, Floor 13, Module 21, EM3, Salt Lake Sector V, Kolkata - 700 091

Registered Office - AA/19, DESBANDHU NAGAR, KOLKATA, North 24 Parganas, West Bengal, 700059