Java & Spring Boot

Build secure, data-driven REST APIs and microservices with Java, Spring Boot and JPA.

DURATION	FORMAT	LEVEL	LABS
45 hours	Onsite, online or hybrid	Intermediate	Cloud sandbox included

About this programme

Covers back-end development in Java, from the core language and collections to SQL, JDBC, Hibernate and Spring Data JPA, Spring Boot REST APIs and microservices, Spring Security with OAuth 2.0 and JWT, testing and CI/CD deployment.

Who it is for: Java developers, back-end engineers and graduates joining Java teams

What your team will be able to do

- Write idiomatic Java with collections, streams and lambdas
- Persist data with SQL, JDBC, Hibernate and Spring Data JPA
- Build REST APIs and microservices with Spring Boot and Spring Cloud
- Secure applications with Spring Security, OAuth 2.0 and JWT
- Test with JUnit and deploy through CI/CD to containers or the cloud

Before you start

- Basic programming in any language; Java helps
- Git basics

Course outline

1. Java fundamentals

- Core Java and object-oriented programming
- Data structures and algorithms
- Collections, I/O and Java 8 features: lambdas and streams
- Builds and dependencies with Maven

2. Data persistence

- Relational and NoSQL databases: MySQL and MongoDB
- SQL: DDL, DML, joins, stored procedures and transactions
- JDBC and CRUD operations
- ORM with Hibernate and JPA
- Spring Data JPA repositories

3. Web development with Spring

- Servlets and JSP fundamentals
- Spring core: dependency injection, IoC and AOP
- Spring MVC and Spring Boot auto-configuration
- Designing and consuming RESTful APIs

4. Microservices and security

- Microservices with Spring Boot and Spring Cloud
- Common threats: SQL injection and cross-site scripting
- Spring Security for authentication and authorisation
- OAuth 2.0, OpenID Connect and JWT

5. Testing and deployment

- Unit and integration testing with JUnit
- CI/CD with Jenkins or GitLab
- Deploying to cloud platforms or containers

6. Advanced topics

- Reactive programming with Spring
- Caching for performance
- Messaging between microservices with Apache Kafka
- Cloud-native integration

Sample schedule

6 days onsite, or 12 half-day sessions online. We fit days and session lengths to your team's calendar.

Day 1	8 h	Java fundamentals; Data persistence
Day 2	8 h	Data persistence (continued)
Day 3	8 h	Data persistence (continued); Web development with Spring
Day 4	8 h	Microservices and security
Day 5	8 h	Testing and deployment; Advanced topics
Day 6	5 h	Advanced topics (continued)

Assessment and certification

How learning is checked

- A short knowledge check on day one and again at the end, so you can see each person's progress
- Graded hands-on labs in every module, reviewed by the trainer
- A final exercise that applies the programme to a problem like your team's own

Certificate and exams

- Participants who complete the programme receive a Cognitive Networks AI certificate of completion.

Formats and cohort size

- Onsite: At your office or a venue you choose, in full days.
- Online, live: Instructor-led over video, usually in half-day sessions so people can keep up with work.
- Hybrid: Some days in a room together, the rest online. Useful when a team works across cities.

Cohort size: 15 to 25 people per trainer. Larger teams run as parallel cohorts on the same outline, so everyone learns the same thing.

Pricing: We quote per cohort, based on duration, format and number of cohorts. There is no per-seat price list: tell us your team and we send a proposal within one business day.

Bring this programme to your team

Request a proposal at cognitivenetworks.ai/contact?programme=java-spring

reachus@cognitivenetworks.ai · Bangalore +91 72043 05303 · Dallas +1 (303) 827-7415