

Full Stack Java Development with Generative AI

Industry-Ready Training | 75 Days | 1 Hr/Day | Mon-Fri

Spring Boot

Microservices

Docker & K8s

Spring AI

RAG & LLMs

AWS Cloud

Why This Course?



AI-Integrated Learning

Learn Spring AI, LLMs, RAG, and Vector DBs alongside core Java — skills every modern employer demands.



Production-Ready Skills

From Docker & Kubernetes to CI/CD pipelines and AWS deployment — real-world practices, not just theory.



Industry Expert Mentor

Hands-on guidance from experienced engineers. Concept → Demo → Practice model for deep retention.



Career Outcome Focus

Module 20 covers Java, Spring Boot, Microservices, and System Design interview Q&As to land your dream job.

20 Modules • 50-75 Hours • Real Projects • Interview Prep

Who Is This Course For?



Fresh Graduates

CS/IT graduates looking to bridge the gap between academic knowledge and industry-ready skills. Build a portfolio that gets interviews.



Junior Developers

1-2 years of experience but missing core enterprise patterns, microservices, or cloud skills. Fast-track your career to mid-level.



Career Switchers

Professionals from other fields who want to enter software development through the most in-demand language in enterprise.



AI-Curious Java Developers

Developers who understand Java but want to add Generative AI, LLMs, and RAG to their skillset for the future of software.

Prerequisite: Basic computer skills. No prior Java or programming experience required for the Basic track.

Course At a Glance

50 Days (Basic) or 75 Days (Extended) | 1 Hr/Day | Mon–Sat

20

Modules

75

Total Hours

6

AI Modules

1

Hr/Day

Your Learning Path

Foundation

Java + Spring Boot

Backend

REST + Security + JPA

Advanced

Microservices + Kafka

Gen AI

Spring AI + RAG +
LLMs

DevOps

Docker + K8s + AWS



MODULE

1 & 2

Core Java & Collections

9 DAYS • 9 HRS

Core Java Fundamentals

- ✓ Java Basics & OOPs Concepts
- ✓ Inheritance, Abstraction & Polymorphism
- ✓ Exception Handling
- ✓ Java 8+ Features (Streams, Lambdas)

Collections & Utility Classes

- ✓ Collections Framework: List, Set, Map, Queue
- ✓ Comparable & Comparator, Generics
- ✓ Lambda Expressions & Optional Class

Spring Boot — The Heart of Java Backend

Modules 3 & 4 • 10
Days • 10 Hrs

MODULE 3

Spring Boot Fundamentals

- Spring Boot Introduction & Setup
- Auto Configuration magic
- Spring Beans & Dependency Injection
- Properties & Profiles (dev/prod)
- Logging & Spring Boot Starter Apps

MODULE 4

REST API Development

- REST Principles & Architecture
- Building RESTful APIs
- Request & Response handling
- Exception Handling & Validation
- Global Exception Handler (@ControllerAdvice)



By Module 4 you'll have built your first fully functional REST API with proper error handling

Data Access, MVC & Security

Modules 5–7 • 14 Days • 14 Hrs

MOD 5

5 Days

Spring MVC

Web Development

- Spring MVC Architecture
- Controllers & Request Mapping
- Model, View & Controller
- Thymeleaf Templating
- Form Handling & Validation

MOD 6

5 Days

JPA & Hibernate

Data Access

- JPA Basics & Entity Mapping
- Relationships (OneToMany, ManyToMany)
- CRUD Operations
- Spring Data JPA Repositories
- Pagination & Sorting

MOD 7

4 Days

Spring Security

Authentication

- Authentication & Authorization
- Password Encoding (BCrypt)
- Role-based Access Control
- JWT Authentication
- Securing REST APIs

Spring MVC + JPA + Security = Complete Full Stack Web Application

Microservices Architecture

Module 8 • 6 Days • 6 Hrs



Service Discovery

Eureka Server



Config Server

Centralized Config



API Gateway

Single Entry Point



Resilience4j

Circuit Breaker



OpenFeign

Service Communication



Load Balancing

Traffic Distribution



Distributed

Tracing & Logging



Inter-Service

REST Communication

Build scalable, maintainable systems the way top companies do

MODULE 9

Kafka Event Streaming

- Kafka Overview & Architecture
- Producer & Consumer patterns
- Topics & Partitions
- Consumer Groups
- Spring Boot with Kafka
- Real-time Data Streaming

5 Days • 5 Hrs

MODULE 10

Spring AI Integration



Introduction to Spring AI Framework



Chat & Prompt Templates



Integrate LLM via OpenAI API



AI Services in Spring Boot



Build AI-Powered Applications

5 Days • 5 Hrs

DevOps & Frontend Integration

Modules 11–13 • 16 Days

MOD 11 • 6 Days

Docker & Kubernetes

- Docker Basics & Dockerfile
- Container Images
- Kubernetes Pods, Services
- Deployments & ConfigMaps
- Deploy Spring Boot to K8s

MOD 12 • 6 Days

Frontend Integration

- HTML5, CSS3 & JavaScript
- Bootstrap / Tailwind CSS
- React.js Basics
- Consuming REST APIs
- Authentication Handling

MOD 13 • 4 Days

Open Source DevOps & CI/CD

- Git & GitHub workflows
- CI/CD with Jenkins
- Maven Build Lifecycle
- Docker Hub
- Kubernetes Deployment pipelines

Ship code like a professional — containerize, automate, and deploy with confidence

THE AI MODULES

What Makes This Course Future-Proof



14 Testing

JUnit 5, Mockito, Integration Testing, TDD

15 Generative AI Concepts

GenAI Fundamentals, LLMs, Prompt Engineering, Fine-tuning vs RAG

16 LLM, RAG & Vector DB

Embeddings, Pinecone/Milvus/Chroma, RAG Pipeline, Build RAG Apps

17 AI Agents & Tools

LangChain/LangGraph, Tools & Functions, Memory & Chains, AI Agents

18 GenAI with Java Apps

OpenAI/LLM Integration, AI Chatbot in Spring Boot, Document Q&A, AI Security

Cloud Deployment & Interview Mastery

Modules 19–20 • Final Phase

MODULE 19 • 5 Days

Deployment on AWS Cloud

- AWS Basics & Overview
- EC2 Instances, S3, IAM
- RDS Cloud Databases
- Deploy Spring Boot Apps to AWS
- CI/CD to Production Pipeline

MODULE 20 • 5 Days

Interview Questions & Answers

- Core Java Interview Q&A
- Spring Boot Interview Q&A
- Microservices Interview Q&A
- SQL & Database Q&A
- System Design Basics
- HR Interview Questions

Graduate career-ready — deployed on the cloud, interview-prepared, portfolio in hand

Complete 20-Module Syllabus

1	Core Java Fundamentals	5d	11	Docker & Kubernetes	6d
2	Collections & Utility Classes	4d	12	Frontend Integration	6d
3	Spring Boot Fundamentals	5d	13	Open Source DevOps & CI/CD	4d
4	Spring Boot – REST API Dev	5d	14	Testing (JUnit 5, Mockito)	4d
5	Spring MVC Web Development	5d	15	Generative AI Concepts	5d
6	Data Access with JPA & Hibernate	5d	16	LLM, RAG & Vector DB	5d
7	Security with Spring Security	4d	17	AI Agents & Tools	4d
8	Microservices with Spring Boot	6d	18	Gen AI Integration with Java Apps	4d
9	Kafka Event Streaming	5d	19	Deployment on Cloud (AWS)	5d
10	Spring AI Integration	5d	20	Interview Questions & Answers	5d

Total: 20 Modules • 75 Days • 75 Hours • 1 Hr/Day

Technologies You'll Master

Industry-standard tools used by top tech companies worldwide

Java 8+

Spring Boot

Spring MVC

Spring Security

JPA / Hibernate

MySQL /
PostgreSQL

Microservices

Apache Kafka

Spring AI

OpenAI / LLMs

RAG Pipelines

Vector DBs

LangChain4J

Docker

Kubernetes

React.js

Jenkins CI/CD

AWS Cloud

Git & GitHub

JUnit 5 / Mockito

Our Learning Approach

01



Concept

Clear explanation of every topic — the 'why' before the 'how'. We never rush past fundamentals. You'll understand concepts deeply, not just copy-paste code.

02



Demo

Every concept is immediately demonstrated with real code. Watch it built live — see how theory turns into working applications.

03



Practice

You code it yourself. Hands-on exercises, mini-projects, and assignments after every module. Practice is where real learning happens.

● Live Coding Sessions

● Doubt Clearing Sessions

● Hands-on Projects

● Assignment-Based Learning

● Code Reviews

● Real-world Scenarios

Ready to Start Your Java + AI Journey?

Join Plural Labs — Where Java Developers are Future-Proofed with AI



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Visit Website

www.plurallabs.com

What You Get:

- 20 Comprehensive Modules
- 75 Days to Complete
- 1 Hr/Day Commitment
- Generative AI Included
- AWS Cloud Deployment
- Interview Preparation

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