KOENIG SOLUTIONS · COURSE OUTLINE

Spring AI: RAG, Prompt Engineering & Chat Apps

Learn to build RAG pipelines, prompts and chat applications in Java using Spring AI.

5 Days	5	24
40 HOURS	MODULES	TOPICS

COURSE OVERVIEW

This course covers the core concepts of Spring AI, including models, prompts, prompt templates, embeddings, tokens, structured output and function calling, along with retrieval augmented generation. It then looks at building AI applications in Java with Spring, working with prompts and output parsers, and bringing custom data into prompts. Retrieval augmented generation is explored further through a Spring Boot reference documentation assistant with GPT-4 and a PDF chat application. The course also covers building chat applications with GPT-4o, HTMX and Ollama with Llama 3.1, plus embeddings, image generation, summarisation and an introduction to LangChain.

WHO THIS COURSE IS FOR

This course is intended for the developers who want to upgrade their skills in the field of Generative AI to create practical applications

Participants should have prior background in Java, AI and should be skilled with the project lifecycle management

PREREQUISITES

- Knowledge of OOPs and Generative AI

TOOLS AND REQUIREMENTS

- JDK
- IntelliJ
- OpenAI API key

LEARNING OBJECTIVES

- Explain core Spring AI concepts such as models, prompts and embeddings
- Apply prompt templates to communicate effectively with LLMs
- Configure output parsers to structure responses from LLMs
- Implement retrieval augmented generation with Spring AI
- Build a reference documentation assistant using Spring AI and GPT-4
- Develop a chat application to query PDF documents
- Build a ChatGPT-style clone using HTMX, Spring Boot and Spring AI
- Generate images and summaries using Spring AI

COURSE SYLLABUS

5 Modules, 24 Topics

01

Spring AI Overview

TOPICS

- Models
- Prompts
- Prompt Templates
- Embeddings
- Tokens
- Structured Output
- Bringing your Data and API to the Model
- RAG
- Function Calling
- Evaluating AI responses

02

Building Applications with Spring AI

TOPICS

- Building AI Applications in Java with Spring
- Working with Prompts in Spring AI - Effectively Communicating with LLMs
- Using Spring AI's Output Parsers to structure the response from LLMs
- Bring your own data using the Prompt

03

Working with RAG

TOPICS

- RAG and Spring AI
- Building a Spring Boot Reference Documentation Assistant with Spring AI & GPT-4
- Chat with your PDF Documents using Java and Spring Boot

04

Building Chat Applications

TOPICS

- GPT-4o in Spring AI with Chat and Vision Capabilities
- Building a ChatGPT Clone in Java with HTMX, Spring Boot, and Spring AI
- Getting Started with Ollama, Llama 3.1 and Spring AI

05

Spring AI Applications

TOPICS

SpringAI and embeddings · Generating Images with SpringAI · Summarization using SpringAI · LangChain Introduction

NOTES

- Labs: Koenig DC would be provided and labs performed via an API
- Courseware: Unofficial PDF/PPT
- Benefits: The course would be extremely practical and will be an opportunity for the organization to move towards development related projects in the field of Generative AI.

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

Ready to Get Started?

Talk to a learning advisor about schedules, group training and customised delivery.

Visit koenig-solutions.com | info@koenig-solutions.com