

Updated on 27/02/2025

Sign up

RAG training with Langchain and Azure AI Search

2 days (14 hours)

Presentation

Our RAG with LangChain training course will teach you how to develop RAG applications using Azure AI Search and the LangChain LLM framework. Retrieval-Augmented Generation (RAG) is a powerful framework that integrates search into the sequence generation process. It is a technique often used when creating chatbots.

Our program will teach you the basics of search-based augmented generation with Azure, as well as the appropriate techniques for querying your AI model. You'll learn how to put your own application into production with LlamaIndex. We'll also look at the advantages of the LangChain framework.

Our training will also cover monitoring your RAG application to improve results and performance. Throughout your training, you'll take part in practical workshops to validate your skills and apply them in the real world.

Like all our training courses, it is based on the latest versions of the tools presented here. [LangChain 0.3.3](#) and [Azure AI Search 2024](#)

Objectives

- Master the principles of RAG
- Mastering the LangChain framework
- Mastering Azure AI Search
- Deploying your RAG application

Target audience

- **Developers**

Prerequisites

- Basic knowledge of Python
- Mastering Microsoft Azure

Technical requirements

- Have Azure AI studio installed on your machine

Program of our RAG training with LangChain

INTRODUCTION TO SEARCH-AUGMENTED GENERATION (RAG)

- Understanding the fundamental concepts of RAG with LangChain and LlamaIndex
- Key components and challenges
- Application examples
- Performance analysis
- Introduction to data agents with LlamaIndex
- Interactive discussion of use cases in different sectors

ADVANCED RAG TECHNIQUES

- Fine-tuning techniques
- Deep Memory for improved data retrieval accuracy
- Putting RAG solutions into production with LlamaIndex
- Iterative optimization of the RAG pipeline with LlamaIndex
- Deep memory with LangChain for precise answers to questions

SEARCH-ENHANCED GENERATION AGENTS

- Using data agents with LlamaIndex
- AI assistants with OpenAI and Hugging Face APIs
- Multimodal applications
- Building an intelligent shopping assistant with Deep Lake and LlamaIndex
- Practical workshop: setting up a RAG agent for a specific use case

EVALUATION AND OBSERVABILITY OF RAG

- Mastery of metrics and evaluation techniques for RAG
- Observability tools (LangSmith)
- Practical workshop: evaluating a system with specific metrics
- Best practices for observability
- Application exercises to test and improve performance

RAG WITH AZURE AI SEARCH

- Understanding RAG with Azure AI search
- Implement your own data sources
- Integration and LLMs
- Searchable content
- Practical exercise: questioning your AI model

USING THE LANGCHAIN FRAME

- Installation and configuration of the development environment
- Creating and chaining simple prompts with a template
- Working with agents and tools
- Document loading and splitting
- Output analysis with parsers
- Practical workshop: creating a vector database application

PRACTICAL APPLICATIONS OF RAG

- Application building: SQL data and CV management
- Using LangChain Expression Language (LCEL) for advanced scenarios
- Creation of a chatbot for website queries
- Integration with external systems: CSV, JSON, SQL databases, web services
- Hands-on workshop: developing an interactive application with Streamlit and LangChain

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire enabling us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives with regard to the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.