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Sign up

Generative AI Applications with LangChain? Training

3 days (21 hours)

Overview

LangChain is the go-to framework for orchestrating generative AI applications, enabling you to connect language models to your data and business tools. This modern approach is based on total flexibility to design solutions capable of reasoning, acting, and integrating seamlessly into complex architectures.

Our Generative AI Applications with LangChain training will enable you to make your AI workflows portable and scalable: from creating complex chains (LCEL) to implementing autonomous agents. You'll learn to choose the right indexing strategies (RAG), finely manage conversation memory, and build your own custom tools to automate high-value-added generative tasks.

The approach is 100% hands-on: it relies on guided workshops, build demonstrations, and troubleshooting of common errors related to API or network management. At the end of the session, you'll have ready-to-use configuration files, a checklist of best practices for production, and sample scripts to integrate LangChain into your existing data pipelines.

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Create applications based on generative AI.
- Integrate language models.
- Automate generative tasks.
- Deploy AI solutions.

Target Audience

- AI developers
- Data engineers

Prerequisites

- Knowledge of Python
- Fundamentals of LLMs

Technical prerequisites

- Python 3.10 or higher
- 16 GB of RAM recommended for local execution of vector databases
- An active account and an API key (OpenAI, Anthropic, or Hugging Face)
- A code editor (VS Code recommended)
- A free account on LangSmith for the evaluation portion

Course Outline for Generative AI Applications with LangChain

[Day 1 - Morning]

Architecture and Fundamentals of LLMs

- Introduction to LangChain: Philosophy, Installation, and Configuration
- Models and Predictions: LLMs vs. Chat Models
- Dynamic Prompt Engineering: Prompt Templates and Example Selectors
- Managing Outputs with Output Parsers
- Hands-on Workshop: Creating Your First "Prompt + Model" Workflow

[Day 1 - Afternoon]

LCEL and Memory Management

- LangChain Expression Language (LCEL): Composing Strings Declaratively
- Persistence and State: Implementing Conversation Memory
- Advanced Strings and State Variable Management
- Hands-on Workshop: Developing a Context-Aware Assistant.

[Day 2 - Morning]

RAG and Data Management (Retrieval)

- Document Loaders and Text Splitters
- Vector Stores and Embeddings: Indexing Your Data
- The Retriever: Optimizing Retrieval to Minimize Hallucinations
- Hands-on Workshop: Building a Question-Answering Pipeline for PDF Documents.

[Day 2 - Afternoon]

Agents and Autonomy

- Agent Concept: Reasoning (ReAct) and the Agent Executor Cycle
- Tools: Enabling AI to Call APIs or Execute Code
- Autonomous Agents and Simulations
- Hands-on workshop: Building an agent capable of performing web searches.

[Day 3 - Morning]

Use Cases: Chatbots and Code Analysis

- UX Chatbot: recreating a ChatGPT-style experience
- Code understanding: indexing and development assistant
- Introduction to multimodal (audio/voice) assistants
- Hands-on Workshop: Developing an Intelligent "Code Reviewer"

[Day 3 - Afternoon]

Evaluation, Benchmarking, and Deployment

- Evaluation of chains and use of LangSmith
- Benchmarking: Comparative Analysis of Agents and VectorDB
- Deployment and monitoring of production costs
- Hands-on workshop: Performance audit and robustness testing on a dataset.

Target Audience

This training is intended for both individuals and companies, large or small, wishing to train their teams in a new advanced IT technology or to acquire specific business knowledge or modern methods.

Assessment upon enrollment

The pre-training assessment complies with Qualiopi quality standards. Upon

final registration, the learner receives a self-assessment questionnaire that allows us to assess their estimated level of proficiency with various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

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

Organization

The course alternates between theoretical instruction from the instructor—supported by examples and discussion sessions—and group work.

Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

Certification

A certificate will be issued to each trainee who has completed the entire training program.