

GenAI Fundamentals: Prompting, RAG & LangChain

Learn to build Generative AI applications using LLMs, prompt engineering, quantization, RAG and LangChain.

2 Days

16 HOURS

6

MODULES

17

TOPICS

9

HANDS-ON ACTIVITIES

COURSE OVERVIEW

Unlock the potential of Generative AI with Koenig Solutions' immersive Introduction to Generative AI course. Over two days (16 hours), dive deep into Python programming, and explore text-based and image-based Large Language Models (LLMs). Learn to apply Role-based prompting, optimize models through Quantization, and build practical applications like Chatbots using LangChain. The course features extensive hands-on labs utilizing open-source platforms and the Koenig Data Center. Elevate your AI skills with practical experiences in Object detection, Image captioning, Translation, and more. Join us to transform the way you perceive and implement AI technologies in real-world scenarios.

WHO THIS COURSE IS FOR

Data Scientists

Machine Learning Engineers

AI Researchers

Software Developers

IT Consultants

AI Enthusiasts

Data Analysts

Research Scientists

Tech Entrepreneurs

Graduate Students in AI and Machine Learning

IT Managers overseeing AI projects

Innovation Officers

Solution Architects

Backend Developers interested in AI

Python Developers

CTOs and CIOs (Chief Technology/Information Officers)

University Educators in AI fields

PREREQUISITES

Pre-requisite

- Fundamental knowledge of Python/similar programming is a must.

TOOLS AND REQUIREMENTS

Labs

- Open-Source platform and Koenig DC will be provided

What You Will Learn

- Explain Generative AI concepts, architectures and GANs
- Build basic GenAI applications using the Transformer Library
- Describe the architecture and types of text-based LLMs
- Apply role-based prompting for translation and summarization
- Perform image-based tasks such as object detection and captioning
- Apply prompt engineering techniques such as iterative prompting
- Apply quantization techniques to fine-tune models such as Llama
- Build LLM applications and a chatbot using RAG and LangChain

COURSE SYLLABUS

6 Modules, 17 Topics

01

Hands-on

Introduction of GenAI

Understand Generative AI concepts, architectures, and Generative Adversarial Networks (GANs). Gain practical skills in creating basic GenAI applications using the Hugging Face Transformer Library

TOPICS

- Introduction to Generative AI & its Architecture
- Introduction to Generative Adversarial Networks (GANs)
- Applications of Generative AI using Transformer Library

02

3 Hands-ons

Working with Text Based Large Language Model

Learn the architecture and types of text-based LLMs. Gain hands-on experience in using Ollama and role-based prompting for tasks like translation, summarization, and sentence similarity.

TOPICS

Architecture of Large Language Models · Types of Large Language Models (LLMs) · Introduction to Ollama · Role based prompting of LLMs using Ollama

03**Hands-On**

Working with Image Based Large Language Models

Explore various image-based AI models and services. Perform hands-on tasks such as object detection, image segmentation, and zero-shot classification using image-based LLMs.

TOPICS

Image AI Models & Services

04**Hands-on**

Prompt Engineering for Large Language Models

Master prompt engineering techniques for LLMs. Apply text prompting using Meta's Llama and practice iterative, summarization, inference, and transformation prompting techniques.

TOPICS

Introduction to Prompt Engineering · Prompt Engineering Techniques · Text Prompting using Llama (Meta)

05**Hands-on**

Fine-tuning LLMs (Quantization) Using Open Source Models

Understand quantization techniques for optimizing model weights and performance. Gain hands-on experience in fine-tuning LLMs like Llama using different quantization modes.

TOPICS

Introduction to Quantization · Optimization of model weights (data types) · Modes of Quantization

06**2 Labs**

Basic LLM Systems (RAG) Using Large Language Models

Learn the basics of Retrieval-Augmented Generation (RAG) and LangChain. Build LLM applications, including a chatbot, utilizing concepts of embedding, retrieval, chains, and agents.

TOPICS

- Introduction to Retrieval Augmented Generation (RAG)
- Introduction to LangChain
- Concept of Embedding, Retrieval, Chain and Agents using LangChain

Practise What You Learn

#	MODULE	ACTIVITY
01	Introduction of GenAI	Hands-on: Basic GenAI application creation using transformer library (Hugging face)
02	Working with Text Based Large Language Model	HANDS-ON ■ Task based Text AI LLMs – Translation, Summarization, Sentence Similarity, etc. ■ Consuming Major Text AI LLMs using Ollama (Qwen, Llama) ■ Applying role-based prompting & Consuming LLMs using Ollama (Llama)
03	Working with Image Based Large Language Models	Hands-On: Performing multiple tasks using LLMs (Object Detection, Image Segmentation, Image Retrieval, Image Captioning, Visual QnA, Zero-shot Image Classification)
04	Prompt Engineering for Large Language Models	Hands-on: Iterative, Summarization, Inference & Transformation Prompting using LLMs
05	Fine-tuning LLMs (Quantization) Using Open Source Models	Hands-on: Fine tuning Llama model
06	Basic LLM Systems (RAG) Using Large Language Models	LAB ■ Build a Simple LLM Application using LangChain ■ Build a Chatbot LangChain

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.

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