

Generative AI

Trainer: Nilesh Ghule



Introduction to LangChain v1 and Agents

- Goal:
 - Raw API scripts to a unified framework for building agents with LangChain.
- Today:
 - What is LangChain v1? ✓
 - How to create agents with cloud and local models? ✓
 - Why the agent-first redesign?
 - How to create minimal agents with cloud and local models?

What is LangChain?

- LangChain is an open-source framework for building LLM-powered applications like chatbots, RAG systems, and agents.
- It provides abstractions for models, prompts, memory, tools, and orchestration, reducing boilerplate and enabling portability across providers.
- Install langchain:
 - cmd> pip install langchain
- Install langchain providers/model integrations:
 - cmd> pip install langchain-groq
 - cmd> pip install langchain-google-genai

Initialize Chat Model

```
from langchain_google_genai import ChatGoogleGenerativeAI

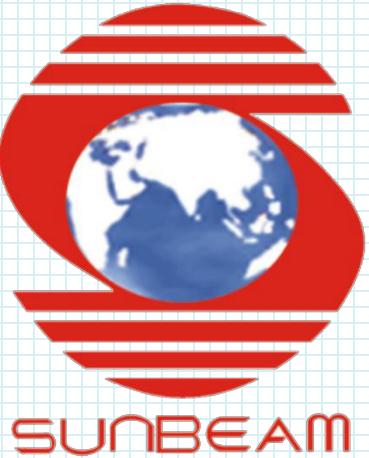
def init_gemini_model():
    api_key = os.getenv("GOOGLE_API_KEY")
    llm = ChatGoogleGenerativeAI(
        model="gemini-2.5-flash",
        api_key=api_key
    )
    return llm
```

```
from langchain_openai import ChatOpenAI
def init_local_model():
    api_key = os.getenv("OPENAI_API_KEY")
    llm = ChatOpenAI(
        model="google/gemma-3-4b",
        api_key=api_key
        base_url="http://127.0.0.1:1234/v1"
    )
    return llm
```

```
from langchain_groq import ChatGroq

def init_groq_model():
    api_key = os.getenv("GROQ_API_KEY")
    llm = ChatGroq(
        model="llama-3.3-70b-versatile",
        api_key=api_key
    )
    return llm
```

```
from langchain.chat_models import init_chat_model
def init_lanchain_v1_model():
    # use OPENAI_BASE_URL and OPENAI_API_KEY env
    llm = init_chat_model(
        "google/gemma-3-4b",
        model_provider="openai",
        base_url=os.environ.get("OPENAI_BASE_URL"),
        api_key=os.environ.get("OPENAI_API_KEY")
    )
    return llm
```



Thank You!

Nilesh Ghule

nilesh@sunbeaminfo.com

Nilesh Ghule