AI VIETNAM
All-in-One Course
(TA Session)

Building LLMs application with LangChain

Extra Class: LLMs

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Year 2024

Objectives

LangChain

In this lecture, we will discuss about:

1. What is LLMs in Production?
2. What is Langchain?
3. Basic components of LangChain.
4. How to use LangChain to deploy an API?
5. How to use LangChain to deploy a RAG application?

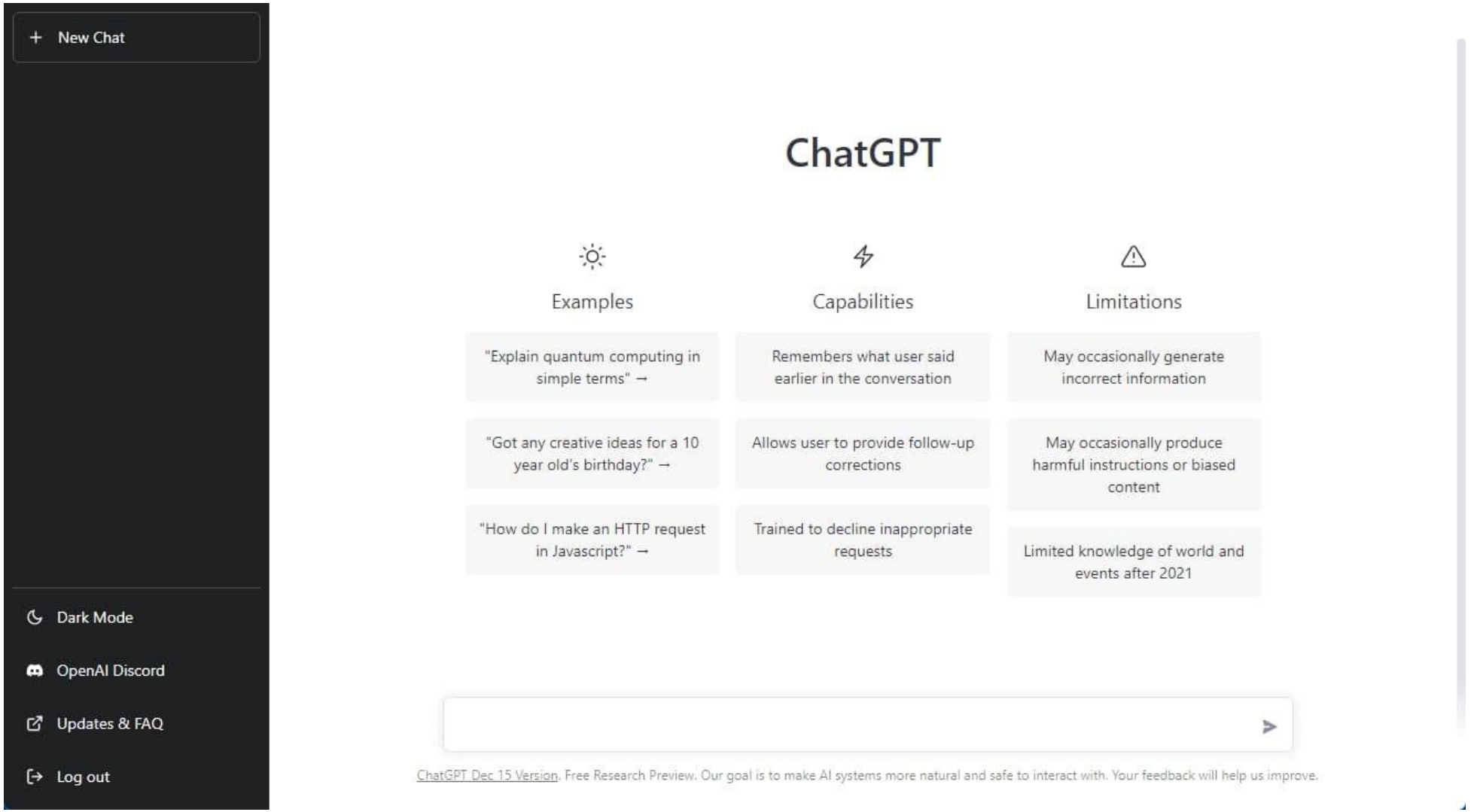
Outline

- Introduction
- LangChain
- API with LangChain
- RAG with LangChain
- Question

Introduction

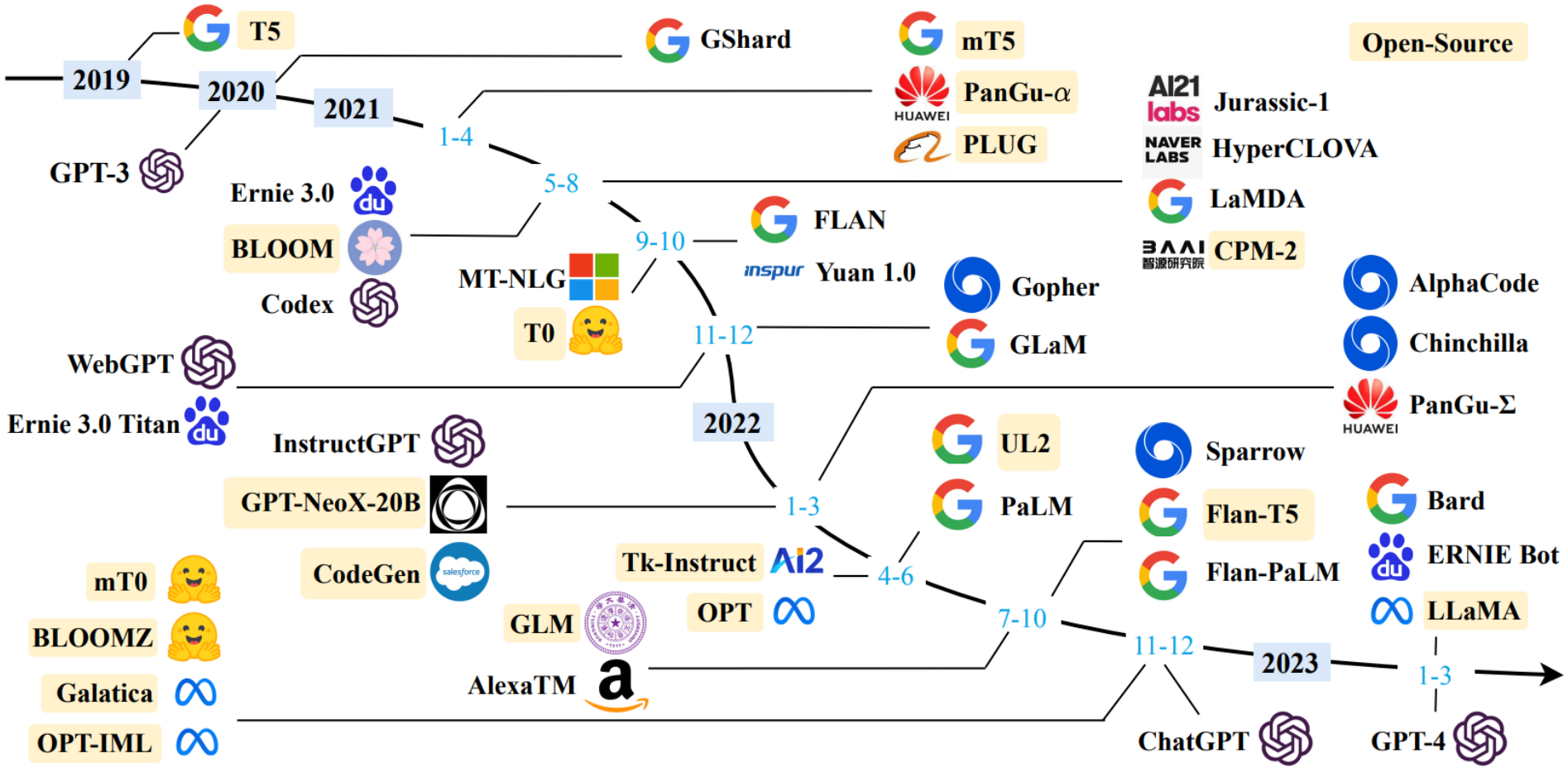
Introduction

❖ Getting Started



Introduction

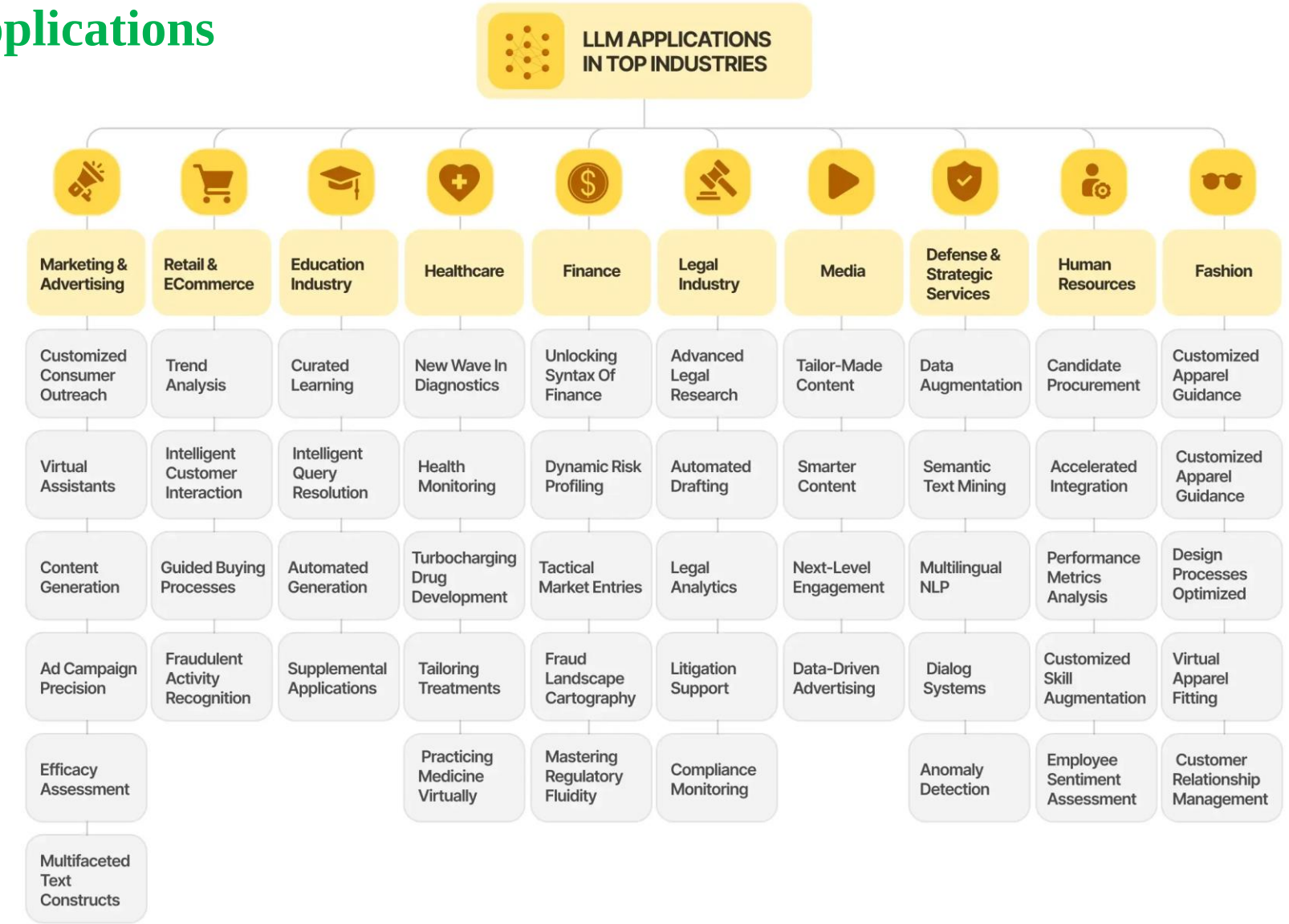
❖ LLMs size over time



https://www.reddit.com/r/AILinksandTools/comments/12c4jmk/a_survey_of_all_llms_so_far_2018_to_2022_a/

Introduction

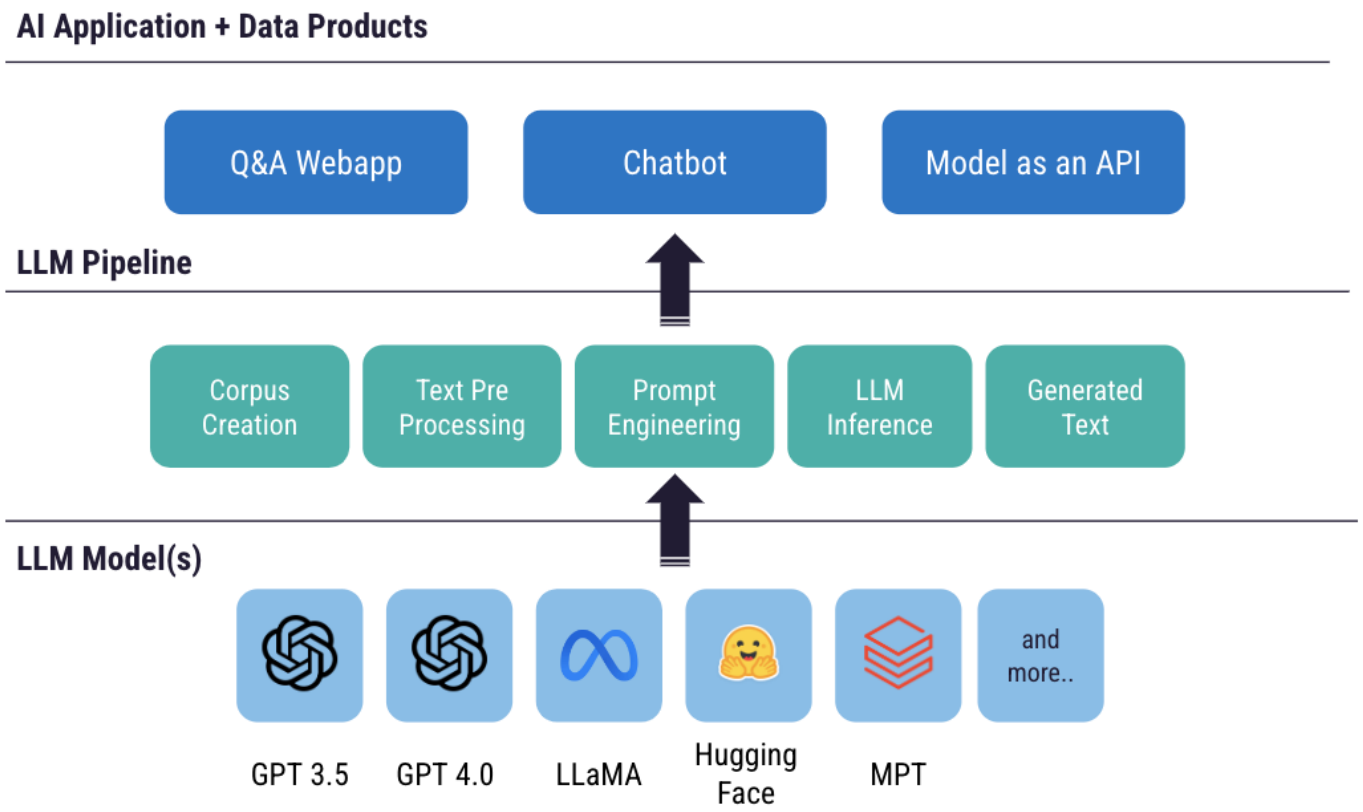
❖ LLMs Applications



https://markovate.com/blog/applications-and-use-cases-of-llm/

Introduction

❖ Getting Started



Overview of LLMs in Production

https://blog.dataiku.com/llm-in-production

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LangChain

LangChain

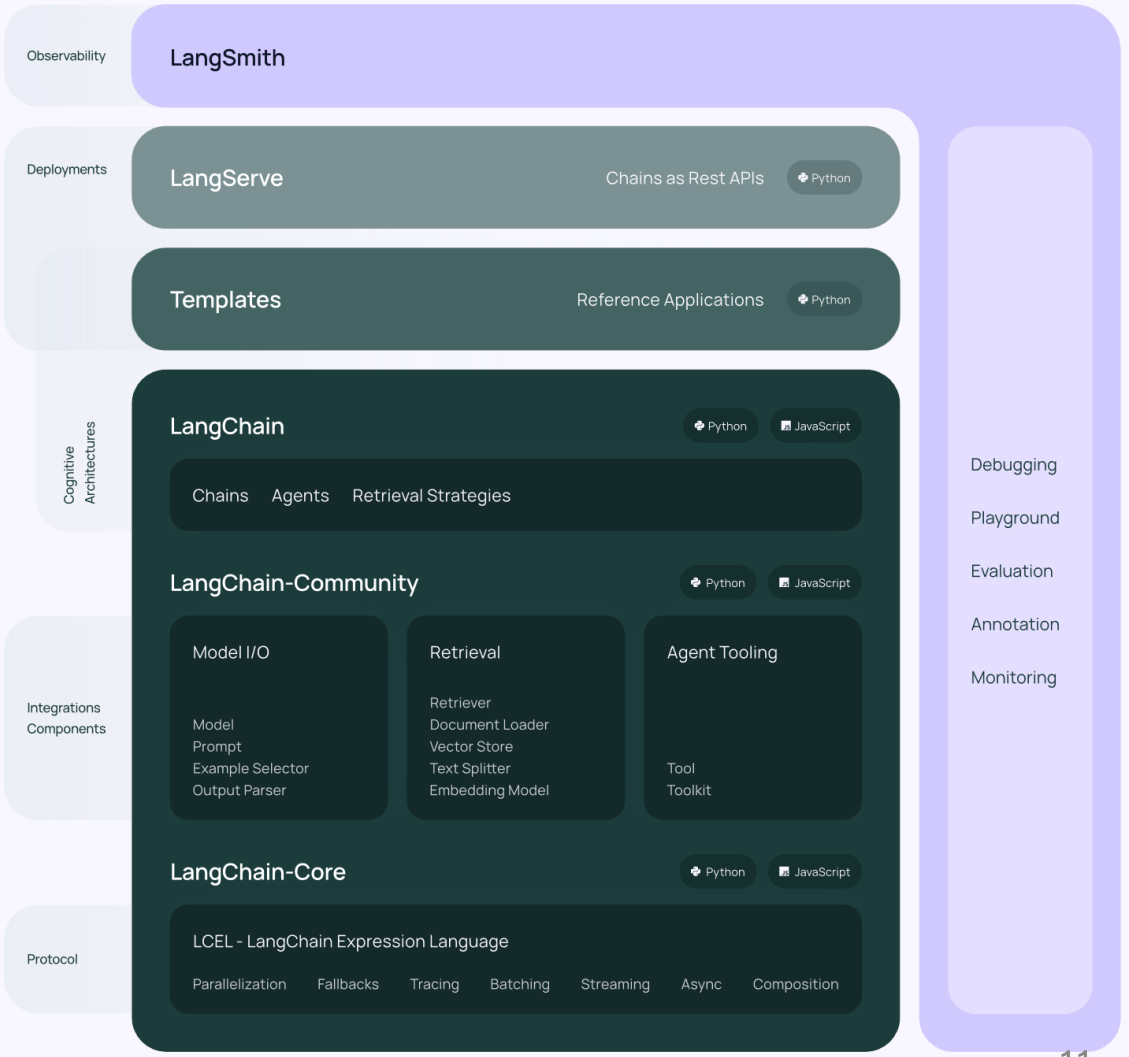
❖ Introduction

LangChain: A framework for developing applications powered by large language models (LLMs). LangChain simplifies every stage of the LLM application lifecycle: Development, Productionization, Deployment.

LangChain

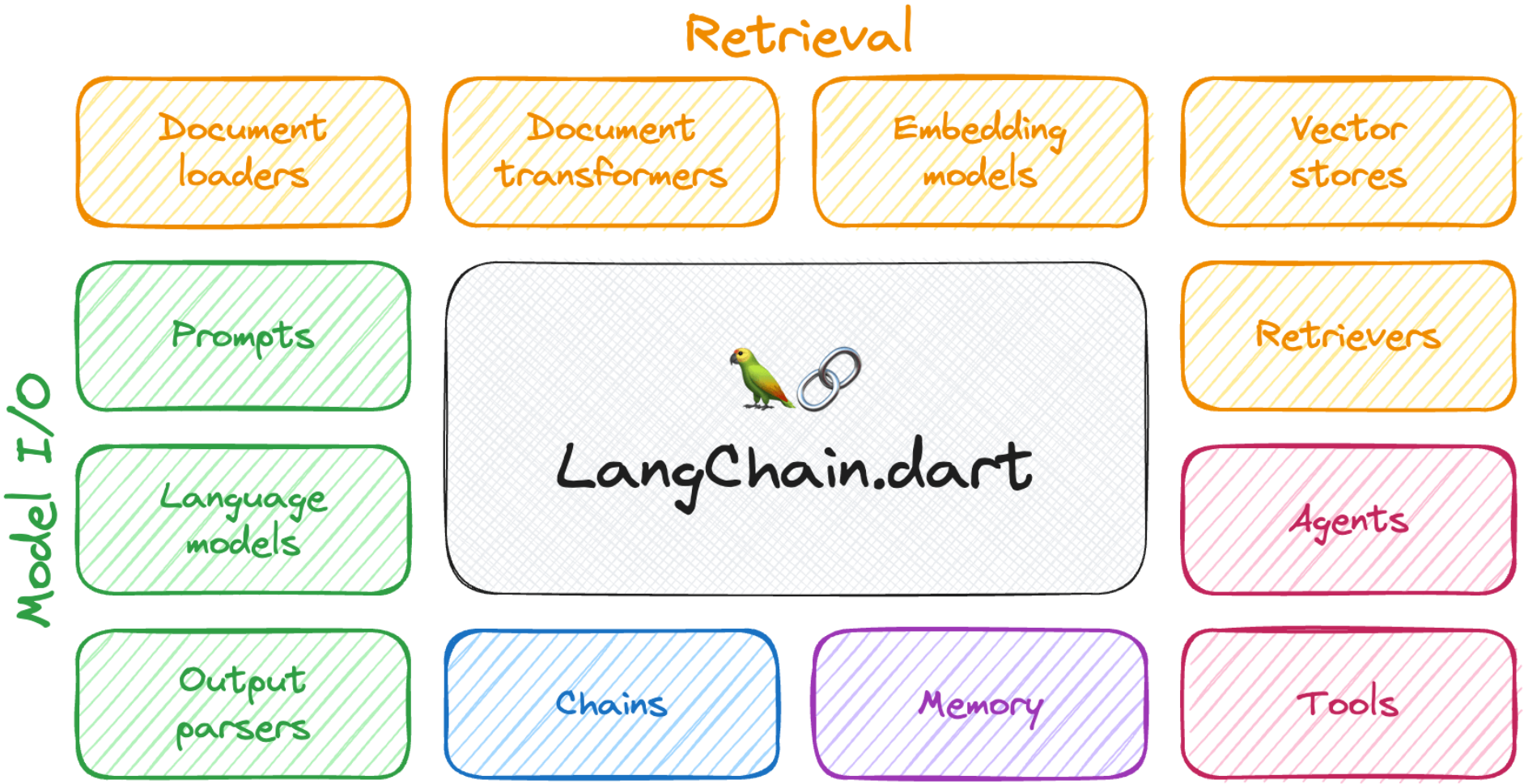
❖ Introduction

- **Development:** Build your applications using LangChain's open-source **building blocks** and **components**. Hit the ground running using **third-party integrations** and **Templates**.
- **Productionization:** Use **LangSmith** to inspect, monitor and evaluate your chains, so that you can continuously optimize and deploy with confidence.
- **Deployment:** Turn any chain into an API with **LangServe**.



LangChain

❖ LangChain components



https://pub.dev/packages/langchain

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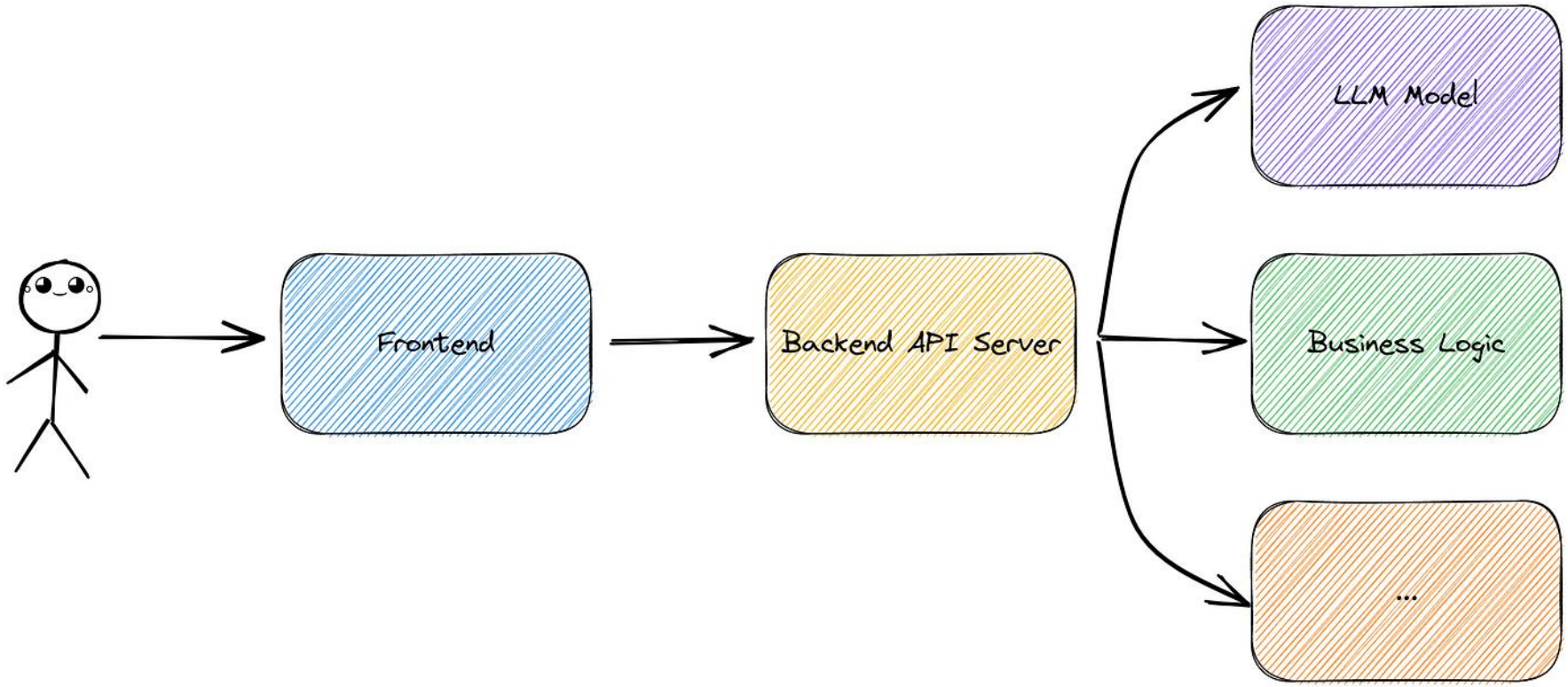
API with LangChain

API with LangChain

❖ Introduction

Description: Serve a LLMs chat application as an API that receive a simple question and return the response of the LLMs (pre-trained model).



https://blog.streamlit.io/langchain-tutorial-1-build-an-llm-powered-app-in-18-lines-of-code/

Quiz

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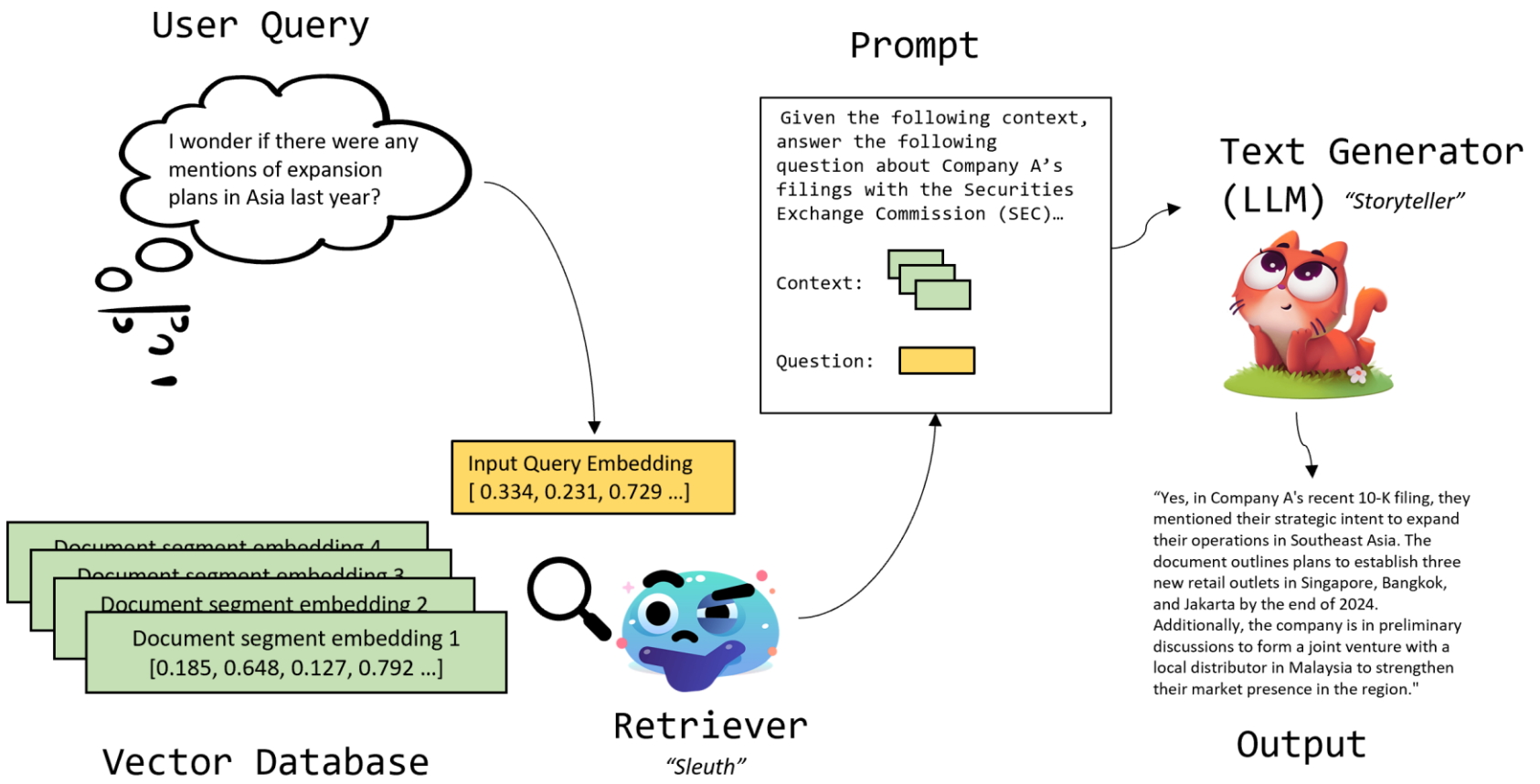
RAG with LangChain

RAG with LangChain

❖ Introduction

Description: Serve a LLMs RAG application as an API that receive a simple question and return the response of the LLMs (utilizing context retrieved from a vector database).



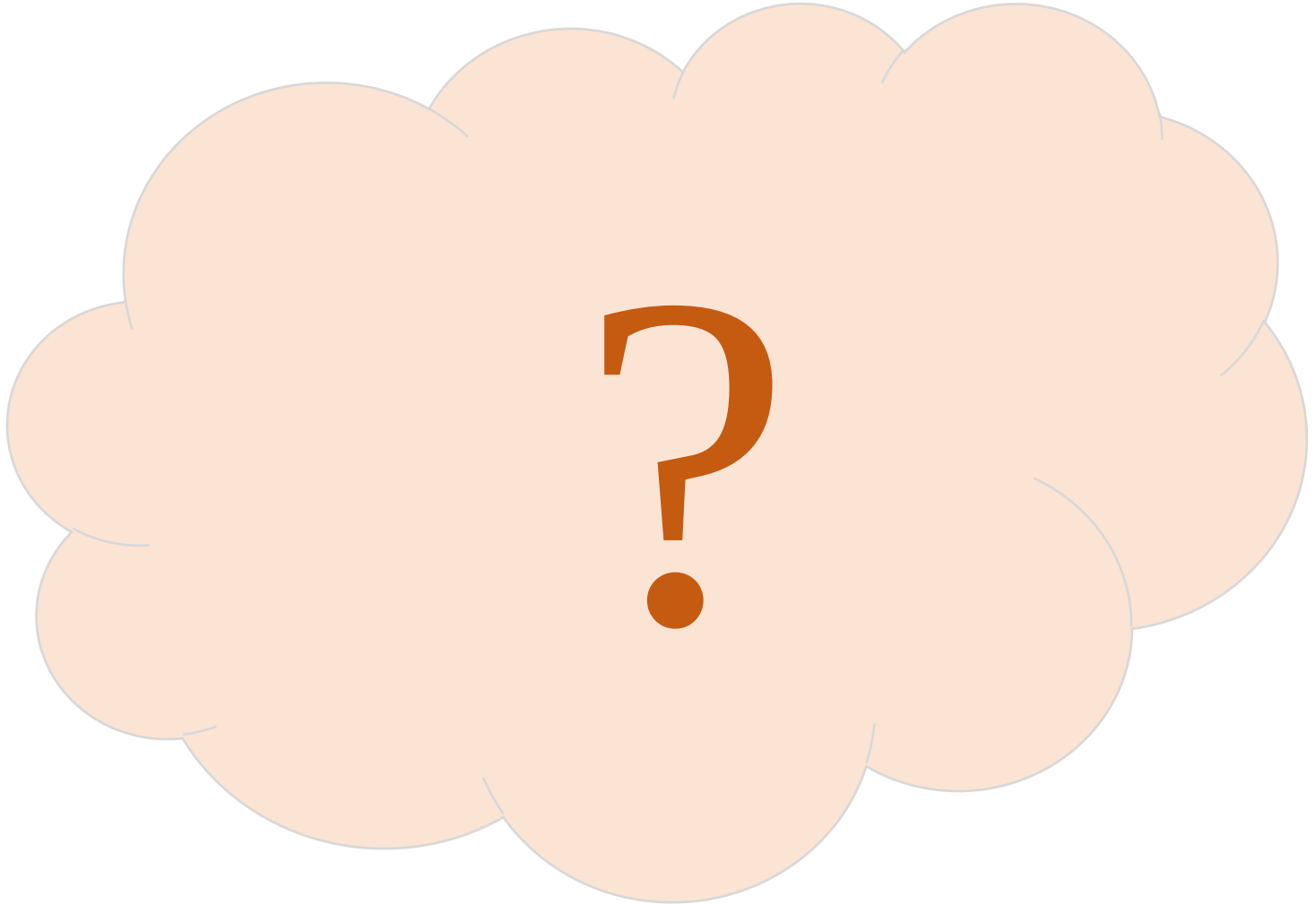
https://www.determined.ai/blog/rag

Summary

In this lecture, we have discussed:

1. **What is LLMs in production?**
    1. How is it differ from LLMs in research?
    2. What are some challenges when deploying LLMs in production?
2. **Basics of LangChain**
    1. The key concept of LangChain.
    2. Basic components of LangChain: Prompt Template, LLM Chain, Chat History, Document Loader...
3. **How to build an API using LangChain.**
4. **How to build a RAG application using LangChain.**
    1. Retrieve and answer questions related to Academic Paper.

Question




Thank you!