

# Langchain

# Generative AI → LLM

Many providers:

- ① OpenAI
- ② Llama
- ③ Mistral
- so on - - - -

LLM

# Problem:

- ① Limited context window
- ② Outdated knowledge base
- ③ Data privacy
- ④ cost
- ⑤ No connection with 3rd party tools
- so on - - - -

# Gen AI app:

Data in

- txt
- pdf
- csv
- sql
- xls
- html
- png
- so on - - - -

Action

- DBs
- agents
- APIs
- format
- manipulate
- Transformation
- memory
- 3rd party tool
- so on - -

output

anything

# Langchain

## Orchestration Frameworks

- ✓ ① Langsmith → LLM p tool — monitor
- ✓ ② Langserve → LLMops tool → serve
- ③ Langgraph → Agent AI tool

↳ Gen AI → LLMs

④ OpenAI

⑤ Llama

⑥ Mistral

⑦ Falcon

son - -

LLM

↳ limited context windows  
\*

Llama Index

# Haystack

- ① powerful open-source GenAI framework by deepset
- ② Primarily used for building RAG
- ③ Supports QA system, semantic search, chatbot and documents search

## Why?

- ① combine retrievers and reader in modular pipelines.
- ② plug and play support for langchain, FAISS, Ollama, Elasticsearch, Pinecone, Milvus.
- ③ Designed for production ready, scalable GenAI apps.

## Core components.

1. Document source
2. Retriever
3. Reader
4. pipelines

## # Langchain

### ① Primary purpose:

Building LLM application with tools / agent chaining

### ② Core strength:

Agents, memory, tools, chain of reasoning

### ③ Ideal use case:

Multi tool agents, LLM apps, custom workflow

## # Llama Index

### ① Primary purpose:

For building indexing-structuring and querying data with LLMs

### ② Core strength:

Data connections, indexing, Query engines.

### ③ Ideal use case:

connecting private data to LLMs (docs, API, SQL - -)

## # Haystack

### ① Primary purpose:

End to End search / QA (RAG, QA)

### ② Core strength:

Modular pipeline for Retrieval Re-ranker system

### ③ Ideal use case:

Document search, QA system, Semantic search, ...

$$\frac{1, 2, 3, 4}{}$$

$$\frac{1+2+3+4}{4}$$

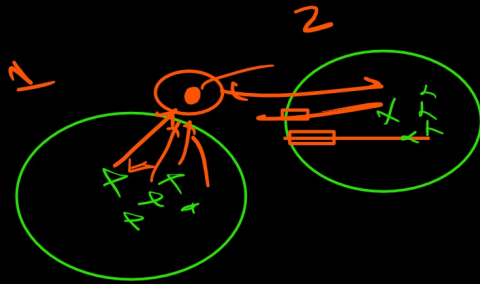
$$\begin{array}{l} \rightarrow 10 + (-10) \\ \rightarrow 5 - \text{fend} \end{array}$$

male, female

$\Rightarrow$  men

$$\frac{\text{male} + \text{female}}{2}$$

$\rightarrow$  male



$\ll n$





