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LLM-centric application development

A hands-on session with examples using LangChain(JS)

Duc Nguyen - Developer, Nordcloud
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Agenda.

1. Glossaries.
2. Langchain and simple example (chatbot etc).
3. RAG (retrieval-augmented generation) architecture, embedding, vector DB and examples with Langchain.
4. Agent and allow LLM to do more.

Source code can be found here:
https://github.com/nnduc1994/langchainjs-example-2024

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Glossaries.

- **LLM** : large language model
- **Chat GPT**: an AI chat with UI
- **Open AI**: a company who provides LLM
- **GPT 3.5, 4 etc**: a LLM models
- **Token**: a unit when working with LLM, 1000 tokens are around 750 words
- **Langchain (JS/python)**: a framework for developing applications powered by language models.

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Langchain (JS)

- Langchain provides utilities / connector etc to work with different LLMs.
- Imagine Langchain is like Terraform for IaC.
- Whatever you do with langchain can be done with LLM REST API, sdk etc..
- Example: Simple example with LLM models, (Terminal) Chatbot.

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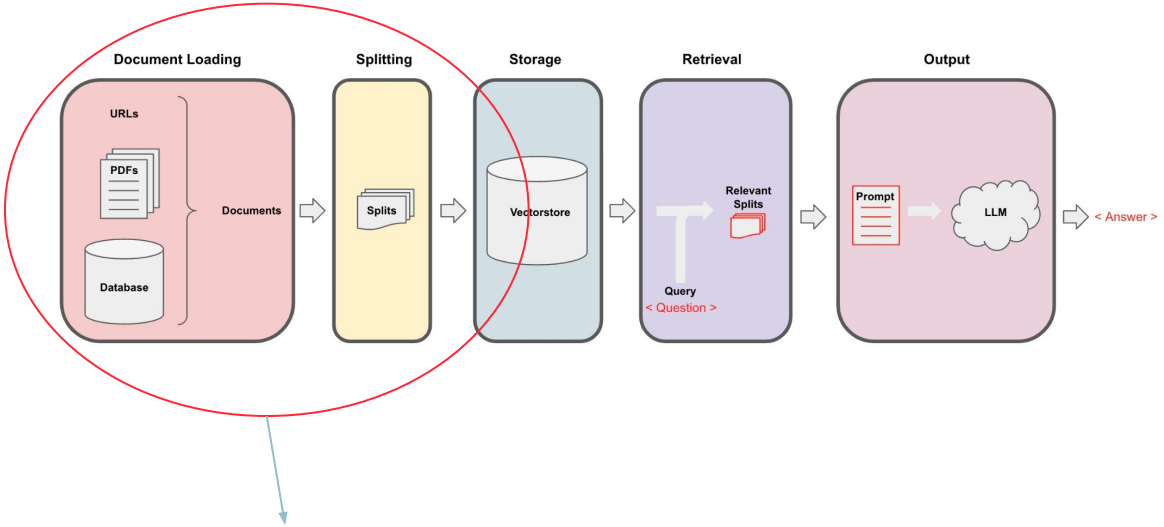
RAG (Retrieval Augmented Generation) architecture



LangchainJS provides utilities for document loaders and text splitters

In RAG architecture documents/knowledge/context are preprocessing in order to help the model agnostic to any data that is created after the model was trained

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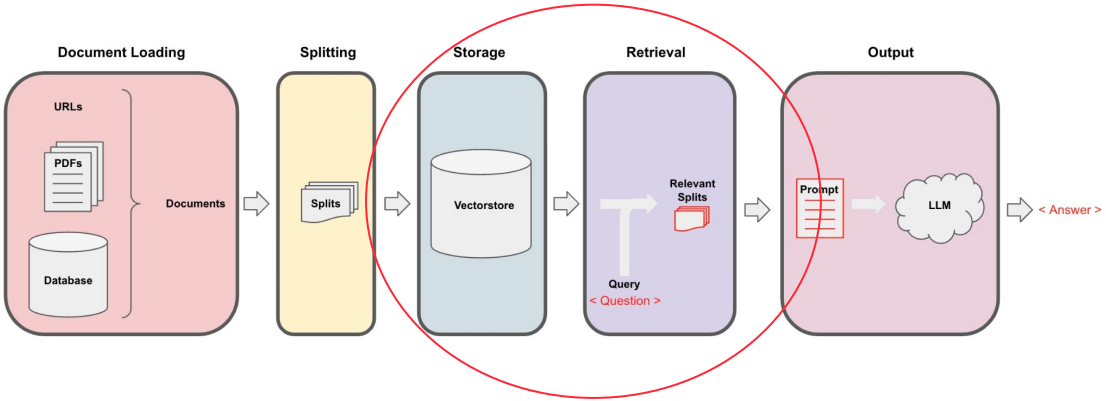
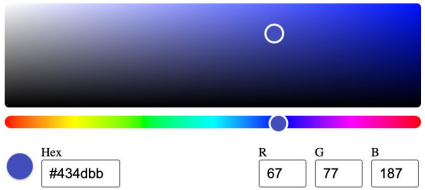
Embedding and Vector database



Pinecone

The **action** to convert "some text" —> [0.00715376856, 0.00710533885, -0.0181957] is called **embedding**



Example: [Simple RAG system]

Vector DB works a bit similar to RGB colour picker

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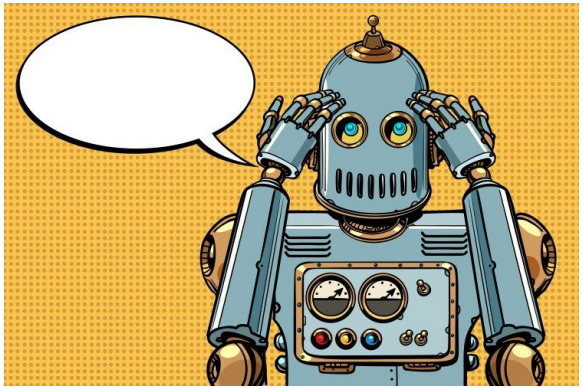
Agent and allow LLM to do more



- LLM making decisions about which Actions/Tools to take and taking that Action/Tool
- Base on The ReAct pattern (for Reason+Act)
- Example: Agent with langchain
- Interesting video to watch: Build AI agent workforce - Multi agent framework with MetaGPT & chatDev

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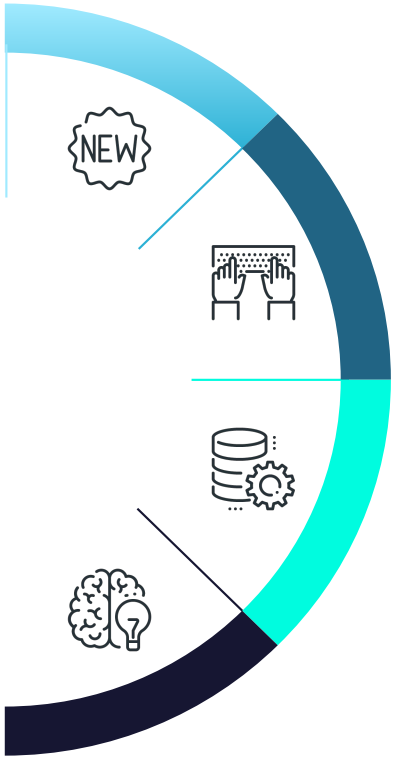
We talked about:



01
Glossaries

02
Basic Langchain JS - built chatbot

03
RAG, Embedding, Vector DB

04
Agents

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Thank you !

And questions :)

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