docker / **genai-stack**

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Langchain + Docker + Neo4j + Ollama

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tomasonjo Update deprecated chains to LCEL (#198) · 0444f46 · 6 months ago

.github/media	Update README	2 years ago
embedding_model	Git ignore local changes to embedding_model dir	2 years ago
front-end	Bump vite from 4.4.10 to 4.4.12 in /front-end (#1...	last year
images	Add data model image to loader page	2 years ago
.dockerignore	Add API container + static client	2 years ago
.gitignore	Git ignore local changes to embedding_model dir	2 years ago
CONTRIBUTING.md	Add contributing guidelines (#68)	2 years ago
LICENSE	use creative commons license (#11)	2 years ago
api.Dockerfile	Add API container + static client	2 years ago
api.py	Update deprecated chains to LCEL (#198)	6 months ago
bot.Dockerfile	Switch to langchain docker image	2 years ago
bot.py	Update deprecated chains to LCEL (#198)	6 months ago
chains.py	Update deprecated chains to LCEL (#198)	6 months ago
docker-compose.yml	Update dependencies (#197)	6 months ago
env.example	Add support for more LLM models (#186)	10 months ago
front-end.Dockerfile	Add API container + static client	2 years ago
install_ollama.sh	running on WSL (#38)	2 years ago
loader.Dockerfile	Use 8502 port for the healthcheck (#110)	2 years ago
loader.py	Update dependencies (#197)	6 months ago
pdf_bot.Dockerfile	Add pdf bot	2 years ago
pdf_bot.py	Update deprecated chains to LCEL (#198)	6 months ago
pull_model.Dockerfile	Add support for more LLM models (#186)	10 months ago
readme.md	Update blog link in README (#182)	last year
	Update dependencies (#197)	6 months ago

requirements.txt		
running_on_wsl.md	running on WSL (#38)	2 years ago
utils.py	Update deprecated chains to LCEL (#198)	6 months ago

GenAI Stack

The GenAI Stack will get you started building your own GenAI application in no time. The demo applications can serve as inspiration or as a starting point. Learn more about the details in the introduction blog post.

Configure

Create a `.env` file from the environment template file `env.example`

Available variables:

Variable Name	Default value	Description
OLLAMA_BASE_URL	http://host.docker.internal:11434	REQUIRED - URL to Ollama LLM API
NEO4J_URI	neo4j://database:7687	REQUIRED - URL to Neo4j database
NEO4J_USERNAME	neo4j	REQUIRED - Username for Neo4j database
NEO4J_PASSWORD	password	REQUIRED - Password for Neo4j database
LLM	llama2	REQUIRED - Can be any Ollama model tag, or gpt-4 or gpt-3.5 or claudev2
EMBEDDING_MODEL	sentence_transformer	REQUIRED - Can be sentence_transformer, openai, aws, ollama or google-genai-embedding-001
AWS_ACCESS_KEY_ID		REQUIRED - Only if LLM=claudev2 or embedding_model=aws
AWS_SECRET_ACCESS_KEY		REQUIRED - Only if LLM=claudev2 or embedding_model=aws
AWS_DEFAULT_REGION		REQUIRED - Only if LLM=claudev2 or embedding_model=aws
OPENAI_API_KEY		REQUIRED - Only if LLM=gpt-4 or LLM=gpt-3.5 or embedding_model=openai
GOOGLE_API_KEY		REQUIRED - Only required when using GoogleGenai LLM or embedding model google-genai-embedding-001
LANGCHAIN_ENDPOINT	"https://api.smith.langchain.com"	OPTIONAL - URL to Langchain Smith API
LANGCHAIN_TRACING_V2	false	OPTIONAL - Enable Langchain tracing v2
LANGCHAIN_PROJECT		OPTIONAL - Langchain project name
LANGCHAIN_API_KEY		OPTIONAL - Langchain API key

LLM Configuration

MacOS and Linux users can use any LLM that's available via Ollama. Check the "tags" section under the model page you want to use on https://ollama.ai/library and write the tag for the value of the environment variable `LLM=` in the `.env` file. All platforms can use GPT-3.5-turbo and GPT-4 (bring your own API keys for OpenAI models).

MacOS Install Ollama on MacOS and start it before running `docker compose up` using `ollama serve` in a separate terminal.

Linux No need to install Ollama manually, it will run in a container as part of the stack when running with the Linux profile: run `docker compose --profile linux up`. Make sure to set the `OLLAMA_BASE_URL=http://llm:11434` in the `.env` file when using Ollama docker container.

To use the Linux-GPU profile: run `docker compose --profile linux-gpu up`. Also change `OLLAMA_BASE_URL=http://llm-gpu:11434` in the `.env` file.

Windows Ollama now supports Windows. Install Ollama on Windows and start it before running `docker compose up` using `ollama serve` in a separate terminal. Alternatively, Windows users can generate an OpenAI API key and configure the stack to use `gpt-3.5` or `gpt-4` in the `.env` file.

Develop

> ⚠ **Warning**
>
> There is a performance issue that impacts python applications in the `4.24.x` releases of Docker Desktop. Please upgrade to the latest release before using this stack.

To start everything

```
docker compose up
```

If changes to build scripts have been made, **rebuild**.

```
docker compose up --build
```

To enter **watch mode** (auto rebuild on file changes). First start everything, then in new terminal:

```
docker compose watch
```

Shutdown If health check fails or containers don't start up as expected, shutdown completely to start up again.

```
docker compose down
```

Applications

Here's what's in this repo:

Name	Main files	Compose name	URLs	Description
Support Bot	`bot.py`	`bot`	http://localhost:8501	Main usecase. Fullstack Python application.
Stack Overflow Loader	`loader.py`	`loader`	http://localhost:8502	Load SO data into the database (create vector embeddings etc). Fullstack Python application.
PDF Reader	`pdf_bot.py`	`pdf_bot`	http://localhost:8503	Read local PDF and ask it questions. Fullstack Python application.
Standalone Bot API	`api.py`	`api`	http://localhost:8504	Standalone HTTP API streaming (SSE) + non-streaming endpoints Python.
Standalone Bot UI	`front-end/`	`front-end`	http://localhost:8505	Standalone client that uses the Standalone Bot API to interact with the model. JavaScript (Svelte) front-end.

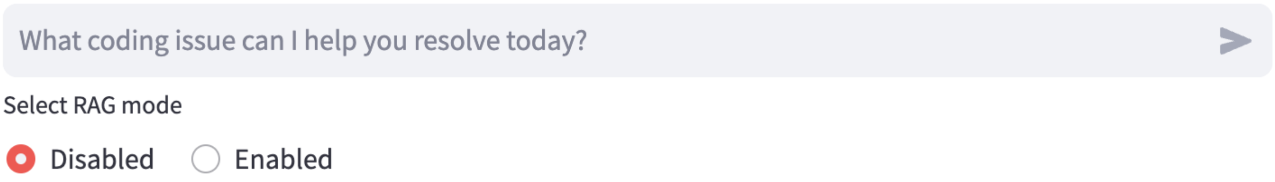
The database can be explored at http://localhost:7474.

App 1 - Support Agent Bot

UI: http://localhost:8501 DB client: http://localhost:7474

- answer support question based on recent entries
- provide summarized answers with sources

- demonstrate difference between
  - RAG Disabled (pure LLM response)
  - RAG Enabled (vector + knowledge graph context)
- allow to generate a high quality support ticket for the current conversation based on the style of highly rated questions in the database.

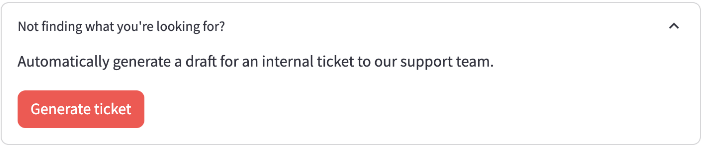
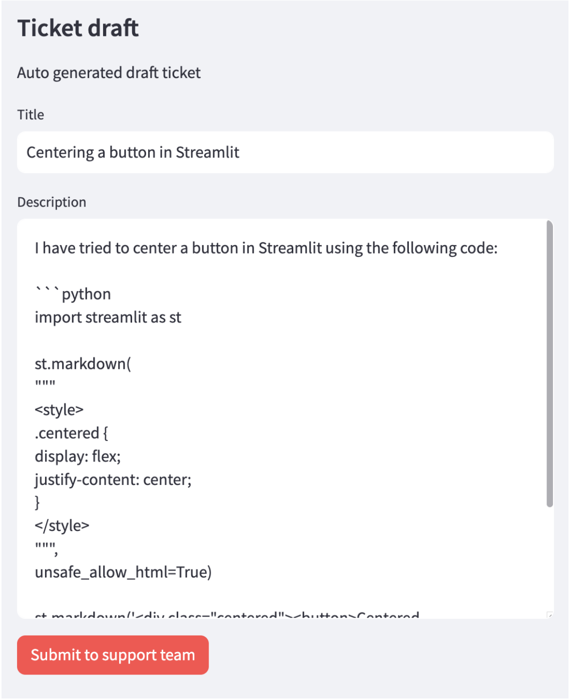


What coding issue can I help you resolve today?

Select RAG mode

● Disabled ○ Enabled

(Chat input + RAG mode selector)

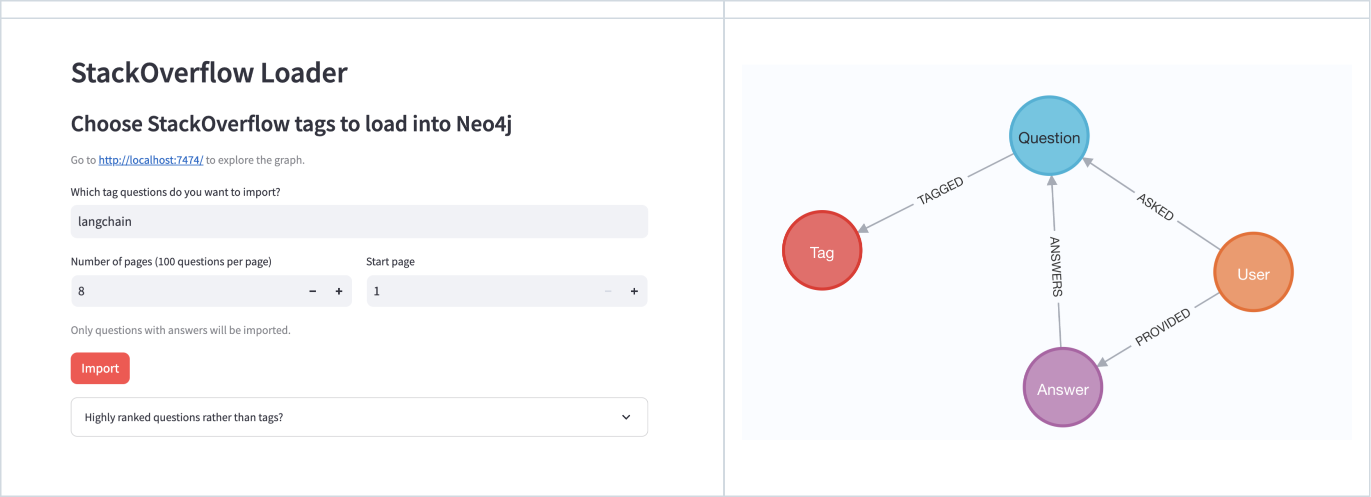

Not finding what you're looking for?
Automatically generate a draft for an internal ticket to our support team.
Generate ticket
	
	Ticket draft
	Auto generated draft ticket
	Title
	Centering a button in Streamlit
	Description
	I have tried to center a button in Streamlit using the following code:
	```
	python
	import streamlit as st

	st.markdown(
	"""
	<style>
	.centered {
	display: flex;
	justify-content: center;
	}
	</style>
	""",
	unsafe_allow_html=True)

	st.markdown('<div class="centered"><button>Centered
	Submit to support team
	```

(CTA to auto generate support ticket draft)	*(UI of the auto generated support ticket draft)*

App 2 - Loader

UI: http://localhost:8502 DB client: http://localhost:7474

- import recent Stack Overflow data for certain tags into a KG
- embed questions and answers and store them in vector index
- UI: choose tags, run import, see progress, some stats of data in the database
- Load high ranked questions (regardless of tags) to support the ticket generation feature of App 1.



StackOverflow Loader

Choose StackOverflow tags to load into Neo4j

Go to http://localhost:7474/ to explore the graph.

Which tag questions do you want to import?

langchain

Number of pages (100 questions per page): 8

Start page: 1

Only questions with answers will be imported.

App 3 Question / Answer with a local PDF

UI: http://localhost:8503
DB client: http://localhost:7474

This application lets you load a local PDF into text chunks and embed it into Neo4j so you can ask questions about its contents and have the LLM answer them using vector similarity search.

Chat with your pdf file

Upload your PDF

App 4 Standalone HTTP API

Endpoints:

- http://localhost:8504/query?text=hello&rag=false (non streaming)
- http://localhost:8504/query-stream?text=hello&rag=false (SSE streaming)

Example cURL command:

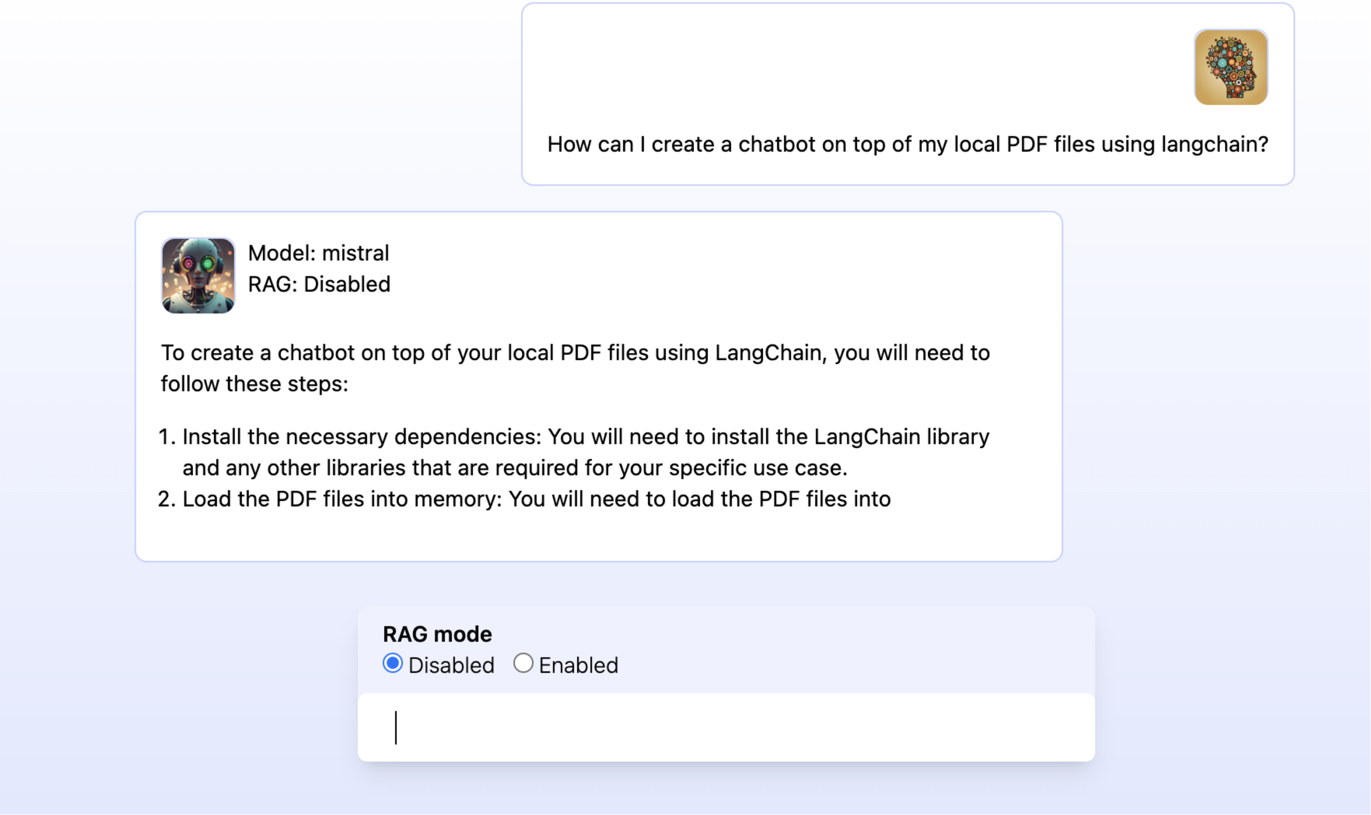
```
curl http://localhost:8504/query-stream\?text\=minimal%20hello%20world%20in%20python\&rag\=false
```

Exposes the functionality to answer questions in the same way as App 1 above. Uses same code and prompts.

App 5 Static front-end

UI: http://localhost:8505

This application has the same features as App 1, but is built separate from the back-end code using modern best practices (Vite, Svelte, Tailwind).
The auto-reload on changes are instant using the Docker watch `sync` config.



How can I create a chatbot on top of my local PDF files using langchain?

Model: mistral
RAG: Disabled

To create a chatbot on top of your local PDF files using LangChain, you will need to follow these steps:

1. Install the necessary dependencies: You will need to install the LangChain library and any other libraries that are required for your specific use case.
2. Load the PDF files into memory: You will need to load the PDF files into

Contributors 27

+ 13 contributors

Languages

● Python 53.6% ● Svelte 15.7% ● Shell 13.7% ● JavaScript 8.3% ● Dockerfile 7.3% ● HTML 0.7% ● CSS 0.7%