Library ChatBot

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and developer AI-based FileBrain.Pro platform*

TECH
STACK
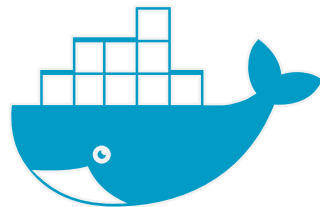
Streamlit

neo4j

docker

OpenAI

LangChain

- Searching for books and information about books

- Searching for books and information **solely within the library catalog**.

- Searching for books based on **their content**.

- Taking into account the **context of the conversation**.

Library ChatBot

Hi, I'm the Library Chatbot! How can I help you?

Do you have any science fiction books that explore space colonization?

In the realm of science fiction, we have some fascinating explorations of space colonization. One notable title is **"Red Mars"** by Kim Stanley Robinson. This novel follows a group of scientists and astronauts as they embark on a mission to colonize and terraform Mars. As they work to establish a new society, they confront various challenges, including political ideologies and environmental ethics. The narrative intricately weaves themes of human ambition and the complexities of establishing life on another planet.

Another remarkable work is **"2312,"** also by Kim Stanley Robinson, which is set in the 24th century where humanity has successfully colonized much of the solar system. The story revolves

Ask me to find your next book...

Step 1.1 Data Set

⊿ Title		⊿ Author		⊿ Genre		⊿ Summary		⊿ Reviews		# Ratings
252 unique values		Thakazhi Sivasank... 3%		Fiction 30%		**250** unique values		[] 4%		
		Vaikom Muhamma... 3%		Fantasy 6%				A masterpiece of L... 1%		
		Other (238) 94%		Other (162) 64%				Other (241) 96%		2.7 — 4.9
Harry Potter and the Sorcerer's Stone		J.K. Rowling		Fantasy		Rescued from the outrageous neglect of his aunt and uncle, a young boy with a great destiny proves h...		Fantastic read! Couldn't put it down!		4.8

# Publication Year		# Number of Pages		⊿ Language		⊿ ISBN	
				English 57%		9.79E+12 29%	
				Malayalam 21%		9.78E+12 16%	
-150 — 2024		32 — 3342		Other (56) 22%		Other (139) 55%	
1997		320		English		978-0-7475-3269-6	

https://www.kaggle.com/datasets/shijo96john/books-dataset
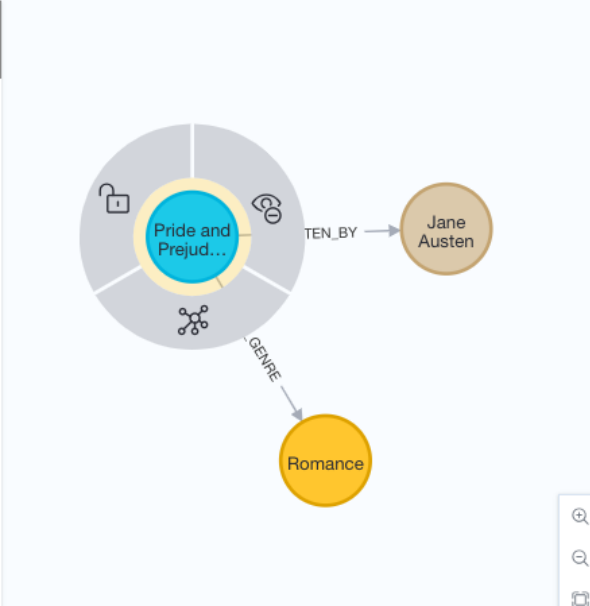
Step 1.2 Database Neo4j

```
1  MATCH (n)-[r]→(m)
2  RETURN n, r, m LIMIT 10
```
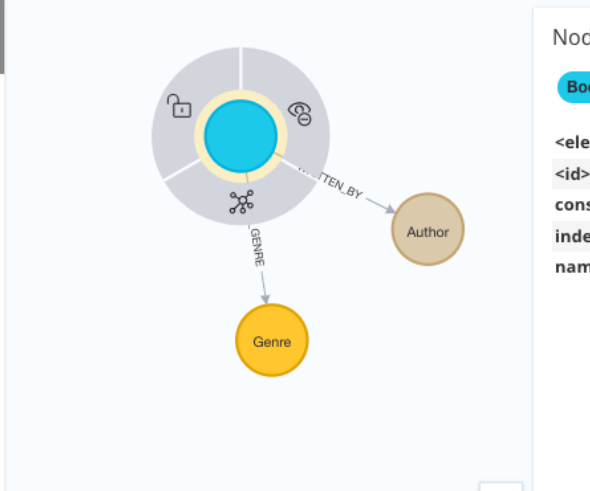
Node properties

Book

|	
<elementId>	4:38db045c-8a79-4b60-b328-fcdd1cfc958b:10
<id>	10
language	English
plotEmbeddingSummury	[0.013920973986387253,0.01520504616200924,0.01784452795982361,0.004843296483159065,-0.004649666137993336,0.03895018994808197,-0.019729871302843094,-0.0... Show all]
publication_year	1813
rating	4.4
summary	The story follows the tumultuous relationship between Elizabeth Bennet, the daughter of a country gentleman, and Mr. Darcy, a wealthy and aloof aristo... Show all
title	Pride and Prejudice

```
neo4j$ CALL db.schema.visualization()
```

Node properties

Book

<elementId>	-100
<id>	-100
constraints	[]
indexes	[plotEmbeddingSummury]
name	Book

Step 1.3 Data to Database (Embeddings)
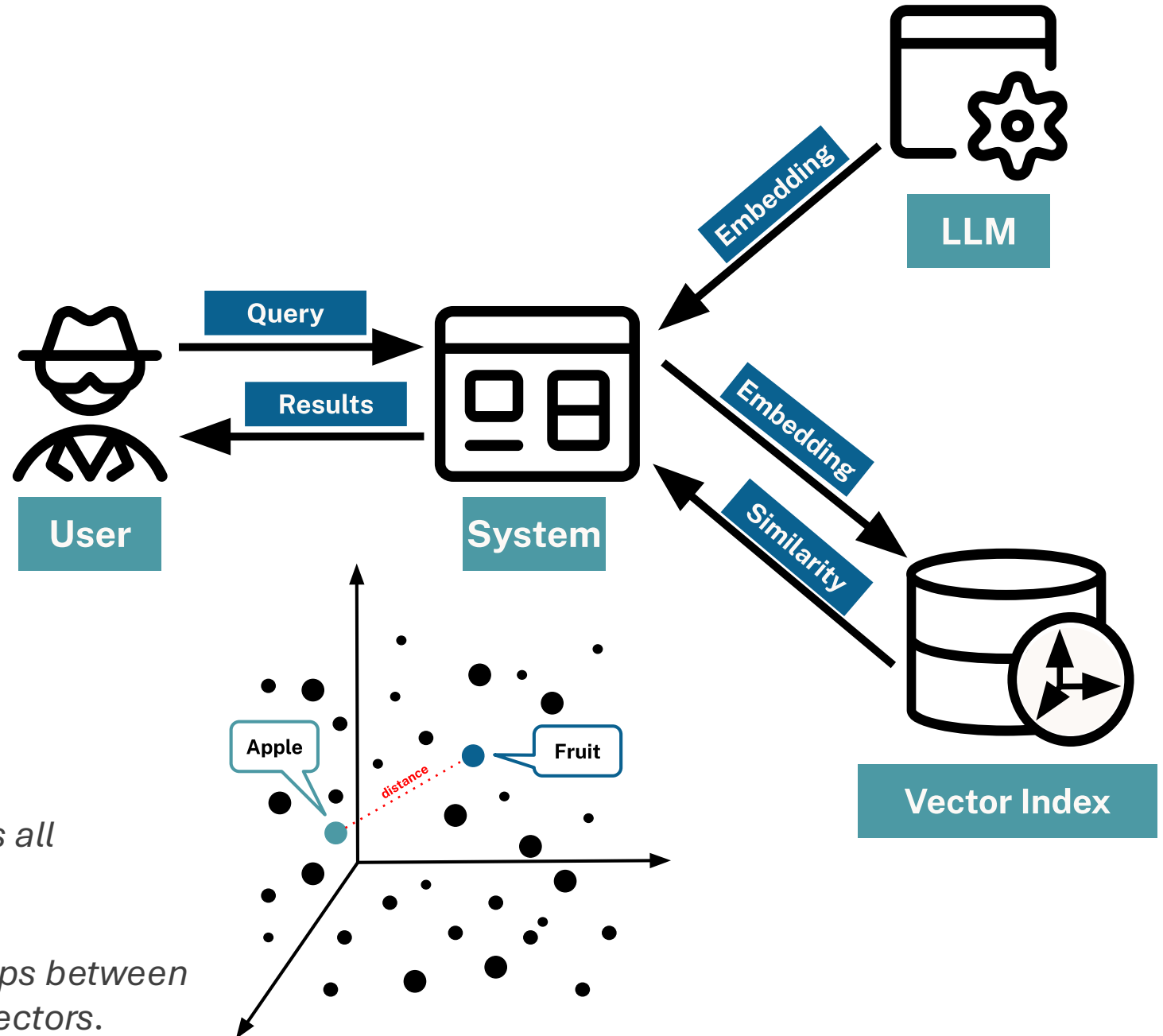
- *Use a consistent embedding model across all applications.*

- *Indexing allows pre-calculating relationships between embeddings for faster retrieval of similar vectors.*

Hurray, our database is ready, now we'll make the chat app!

Step 2.1 Streamlit

```
st.chat_message(role,
avatar=avatar)
```

```
st.chat_input("Ask me to find your
next book...")
```

```
st.session_state.messages.append({"
role": role, "content": content})
```


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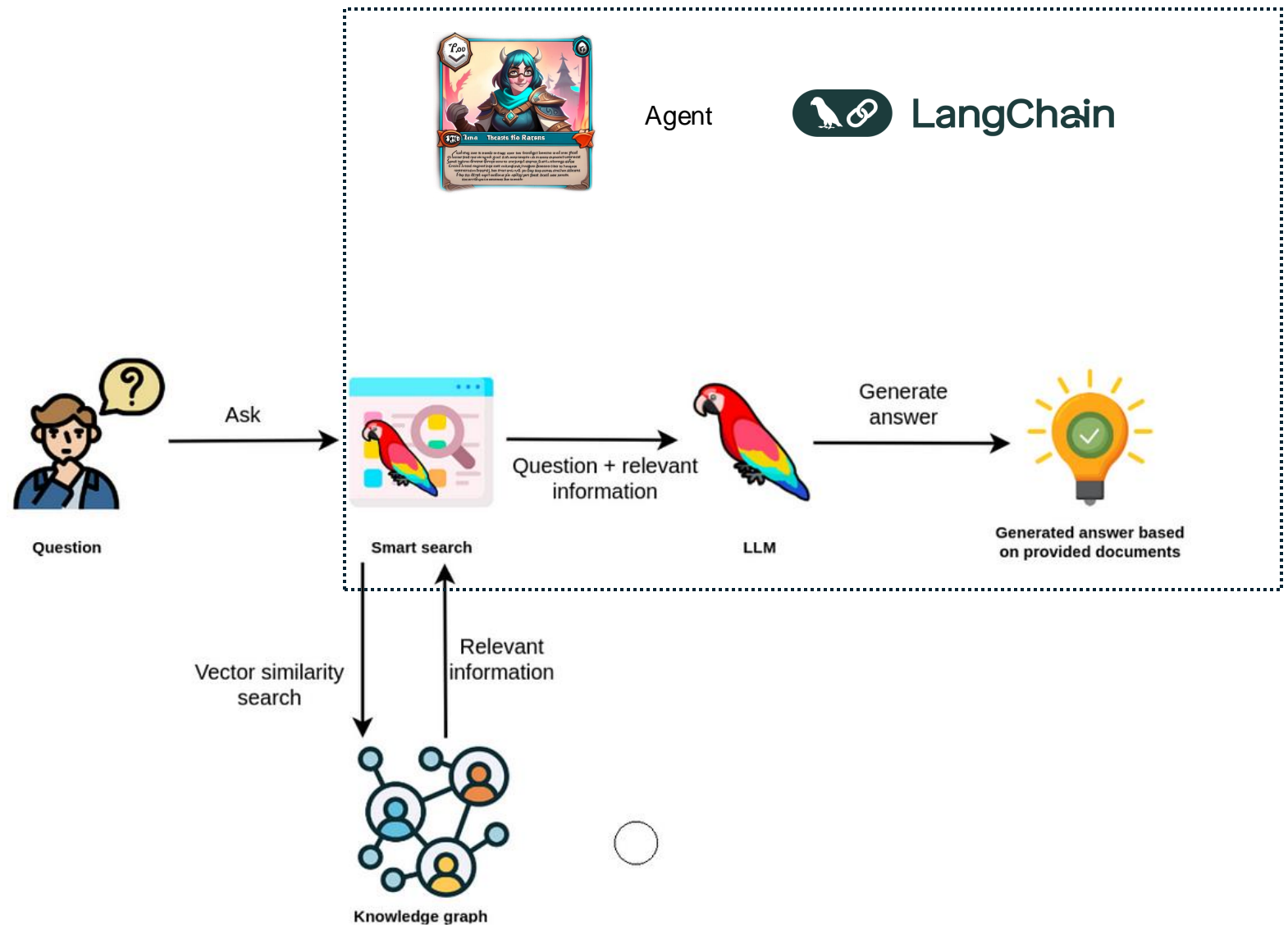
Ask me to find your next book...

Step 2.2 RAG (*Retrieval-Augmented Generation*)

Chat agent:

a component configured to manage and run the process.

```python
def get_memory(session_id):
    return Neo4jChatMessageHistory(session_id=session_id, graph=graph)
```

```python
chat_agent = RunnableWithMessageHistory(
    agent_executor,
    get_memory,
    input_messages_key="input",
    history_messages_key="chat_history",
)
```

Agent Executor:

a bridge between the user and the agent
Coordinates interactions between the agent and tools,
ensures accountability.

```python
agent_executor = AgentExecutor(
    agent=agent,
    tools=tools,
    verbose=True
)
```

Agent:

- Identity (prompt)
- Knowledge (LLM)
- Capabilities (tools)


```python
agent = create_react_agent(llm, tools, agent_prompt)
```

Step 2.3
History
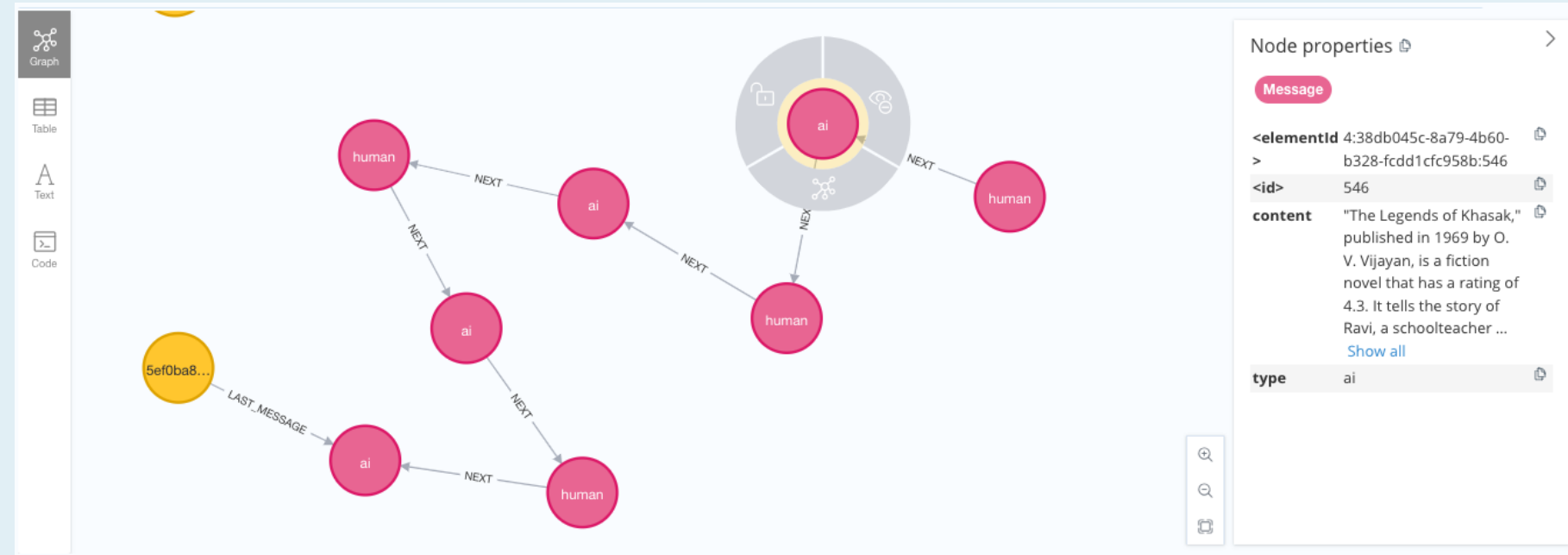
Step 2.3 Tools

```python
tools = [
    Tool.from_function(
        name="General Chat",
        description="For general books chat not covered by other tools",
        func=book_chat.invoke,
    ),
    Tool.from_function(
        name="Books Plot Search",
        description="For when you need to find information about books based on a plot or find the book if it's
        not covered by other tools",
        func=get_book_plot,
    ),
    Tool.from_function(
        name="Book information",
        description="Search for books based on author, genre, rating, year, recommend the book (you have to find
        one random book) or provide detailed book information using Cypher queries",
        func=cypher_qa,
    )
]
```

Step 2.3 Tools

A bit more Streamlit, or what else might your chat look like?