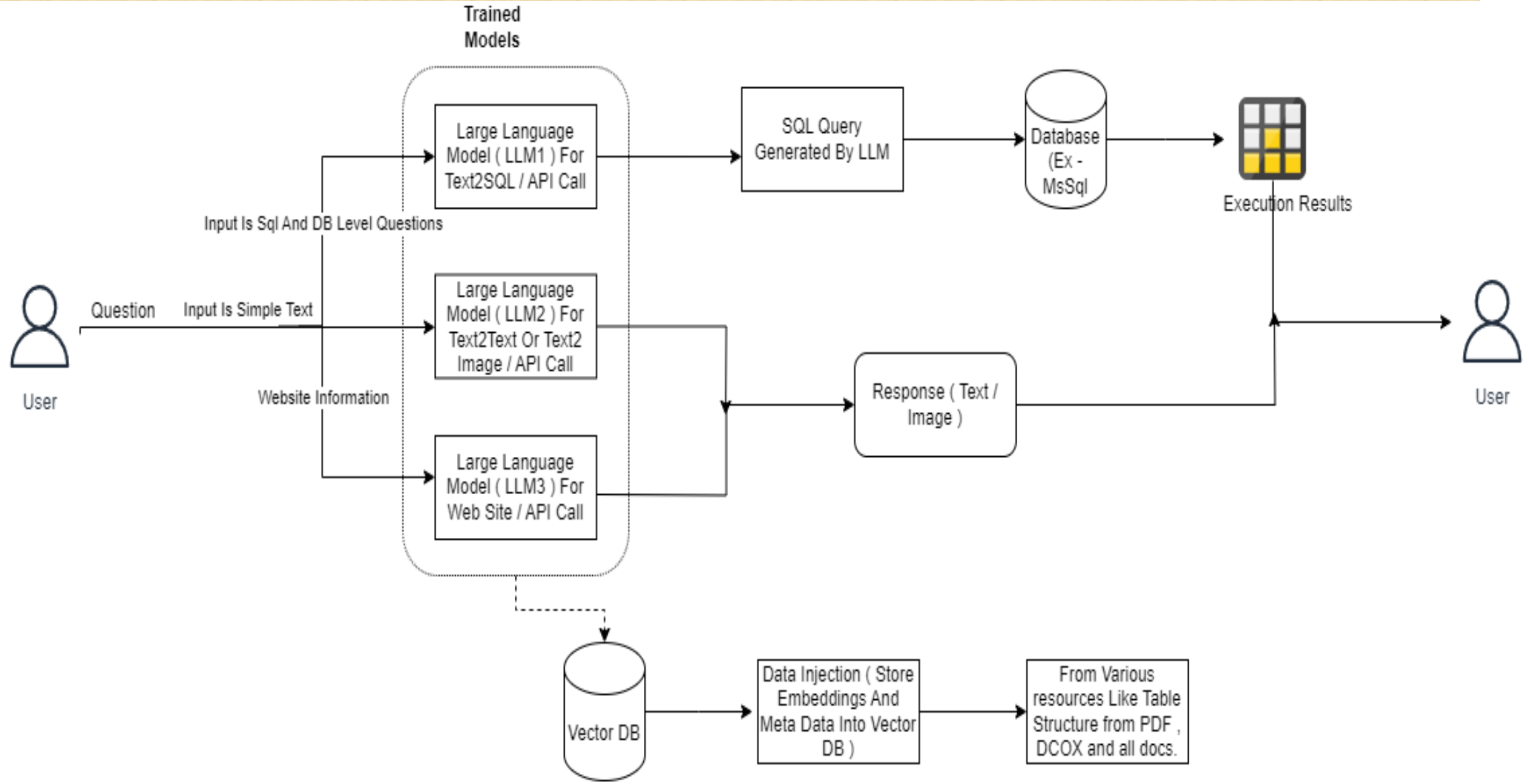


AI Agents interface for Mutli-model Architecture

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Upload and Ask:

Easily upload multiple PDFs up to 200 MB and ask questions in chat. We implemented it using RAG.

Powered by RAG implementation Langchain: Our solution is built on Retrieval Augmented Generation (RAG) technology which is implemented using Langchain.

The screenshot shows a web browser window with a URL bar indicating a local address: 192.168.0.169:8501. The page is titled "MultiAgent Model Team - 21 Chat with PDF using RAG". On the left, a sidebar contains a "Menu:" section with instructions to upload PDF files (limit 200MB per file) and a "Submit & Process" button. A file named "Stock_Market_Data.pdf" (93.3KB) is shown as uploaded. The main content area displays a chat interface where a question "Provide Me Finance Department Report?" has been asked. The response is "Reply: Finance Department Report" dated November 25, 2024. Below the response, there are two sections: "Stock Prices" and "Market Indices", each containing a list of data points.

Menu:
Upload your PDF Files and Click on the Submit & Process Button

Drag and drop files here
Limit 200MB per file

Browse files

Stock_Market_Data.pdf
93.3KB

Submit & Process

MultiAgent Model Team - 21 Chat with PDF using RAG

Ask a Question from the PDF Files

Provide Me Finance Department Report?

Reply: Finance Department Report

Date: November 25, 2024

Stock Prices

- Apple Inc. (AAPL): Closed at \$182.75, up 1.23%
- Microsoft Corporation (MSFT): Closed at \$252.30, up 0.92%
- Tesla Inc. (TSLA): Closed at \$710.50, up 1.48%
- Meta Platforms Inc. (META): Closed at \$325.50, up 1.72%
- NVIDIA Corporation (NVDA): Closed at \$520.00, up 4.00%

Market Indices

- S&P 500 Index: Closed at 4,520.00, up 0.44%
- NASDAQ Composite Index: Closed at 14,150.00, up 1.07%

CLI input for text to SQL:

```
[*****100%*****] 1 of 1 completed
[*****100%*****] 1 of 1 completed
What was the last open and close value for TSLA?
Generating SQL query...|
```

Generated SQL Query:

```
SELECT open, close FROM stock_data WHERE ticker = 'TSLA' ORDER BY date DESC LIMIT 1;
```

Data retrieved from the database:

	open	close
0	360.524994	347.320007

WebSearch input:

Executing Web Search LLM - 3...

Web Search LLM-3 Output:

Zomato launches \$1Bn QIP to fund Blinkit expansion Food delivery aggregator Zomato has finally initiated its Qualified Institutional Placement

Key Functionalities

LLM1 Text2SQL Agent:

- Schema understanding and SQL generation.
- Example: Fetching "last open and close values for TSLA."

LLM2(RAG Agent) Stock Data Handling

- Downloads historical data using yfinance.
- Saves to Excel and SQLite for persistent storage.

Web Search Agent:

- Fetches live trends and insights from the web.

Databases and Evaluation Metrics:

- Vector DB(FAISS): Stores schema information and facilitates efficient similarity searches.
- SQLite: Retrieves LLM-generated queries for evaluation purposes.

Evaluation Methodology:

- Programmatically: Utilizes API calls to fetch results and compare them with LLM responses.
- Manually: Verifies accuracy through human evaluation.

Basic Methodology:

We are developing a novel multi-model architecture capable of interacting with users through both image and text inputs, responding to diverse query types. API calls are seamlessly integrated into this framework.

Expected Outcomes:

Our multi-model architecture will effectively:

1. Process user prompts in both text and image formats.
2. Provide accurate and relevant responses.

Github:

https://github.com/SuryakantaK-Dev/Major_Project_FMGA

References:

- <https://arxiv.org/pdf/2405.02957>
<https://arxiv.org/abs/2401.08281>