Assignment: Enshrine Global Systems

Documentation

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Overview

This document provides complete documentation for the Multi-Agent AI System project implemented using FastAPI and Google ADK. The system supports dynamic, multi-step goal execution using chained intelligent agents that fetch and summarize real-world data (e.g., Bitcoin price, SpaceX launches).

System Flow

1. User Goal Input

- The user provides a natural language goal (e.g., "Get Bitcoin price and summarize sentiment").

2. Planning Agent

- Parses the user goal.
- Generates a sequence of sub-tasks.
- Selects appropriate agents for each task.

3. Chained Agent Execution

Each agent builds on the output of the previous:

- Agent 1: Data Fetcher - Calls APIs based on sub-task.
- Agent 2: Validator/Enhancer - Checks data validity or adds context (e.g., fetch weather for SpaceX launch site).
- Agent 3: Summarizer - Formats or summarizes the results.

4. Final Output

- Summarized, structured response is returned to the user.

Agent Logic

1. Planner Agent

- Uses keyword detection and rule-based logic to:

  - Parse user input

  - Decide agent call order

2. SpaceX Agent
   - Calls SpaceX API for next launch details
3. Weather Agent
   - Uses latitude/longitude from SpaceX data to get weather forecast via OpenWeatherMap API
4. Bitcoin Agent
   - Calls CoinGecko API to fetch real-time Bitcoin price
   - Optional: Fetch recent news for sentiment analysis using NewsAPI
5. Summarizer Agent
   - Generates human-readable summaries from agent outputs.

API Setup & Usage

FastAPI Server

- Key Endpoint:
  - POST /evaluate - Takes a JSON goal and returns a multi-agent response
  - GET /evaluations - Returns previous evaluations

Access Web UI

Hosted via Ngrok: Swagger UI: https://b660-35-233-131-53.ngrok-free.app/docs

Upload Example:

```
{
  "goal": "Get the current price of Bitcoin and summarize recent sentiment"
}
```

User Instructions: How to Run (in Google Colab)

1. Open the Notebook in Google Colab.
2. Install the required libraries:
3. Upload your .env file containing your OpenWeatherMap API key:
4. Run all cells to see:

a. Goal planning via the Planner Agent
b. Step-by-step agent execution
c. Final output combining results from SpaceX, Weather, Bitcoin, and News agents

5. Try the API Live
6. Visit the FastAPI Swagger UI:
7. https://b660-35-233-131-53.ngrok-free.app/docs
8. Select the /evaluate endpoint
9. Click Try it out
10. Paste a goal like:
11. {
"goal": "Get the current Bitcoin price in INR"
}
12. Click Execute to view results.