Analytics Vidhya

Real-world Applications of the Tool Use Pattern

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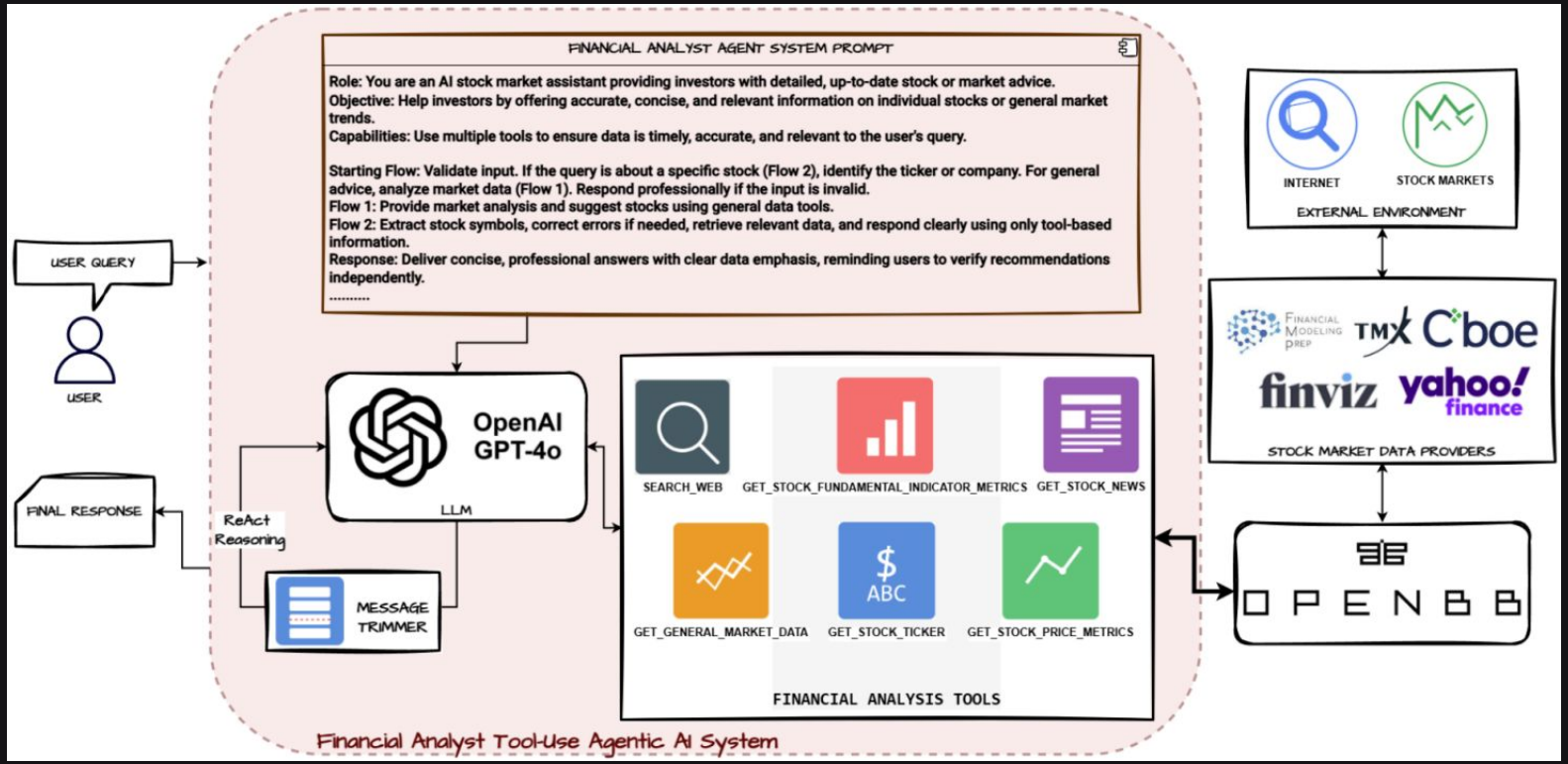
Financial Analyst Tool Use Agent



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Workflow: Financial Analyst Tool Use Agent

User Query: User asks about stocks or market trends.

Agent Instructions: GPT-4o is instructed to act as a financial advisor with detailed system instructions.

Flow Logic:

- ***Flow 1*:** For general market queries → use market-level tools.
- ***Flow 2*:** For specific stocks → identify ticker, fetch detailed data.

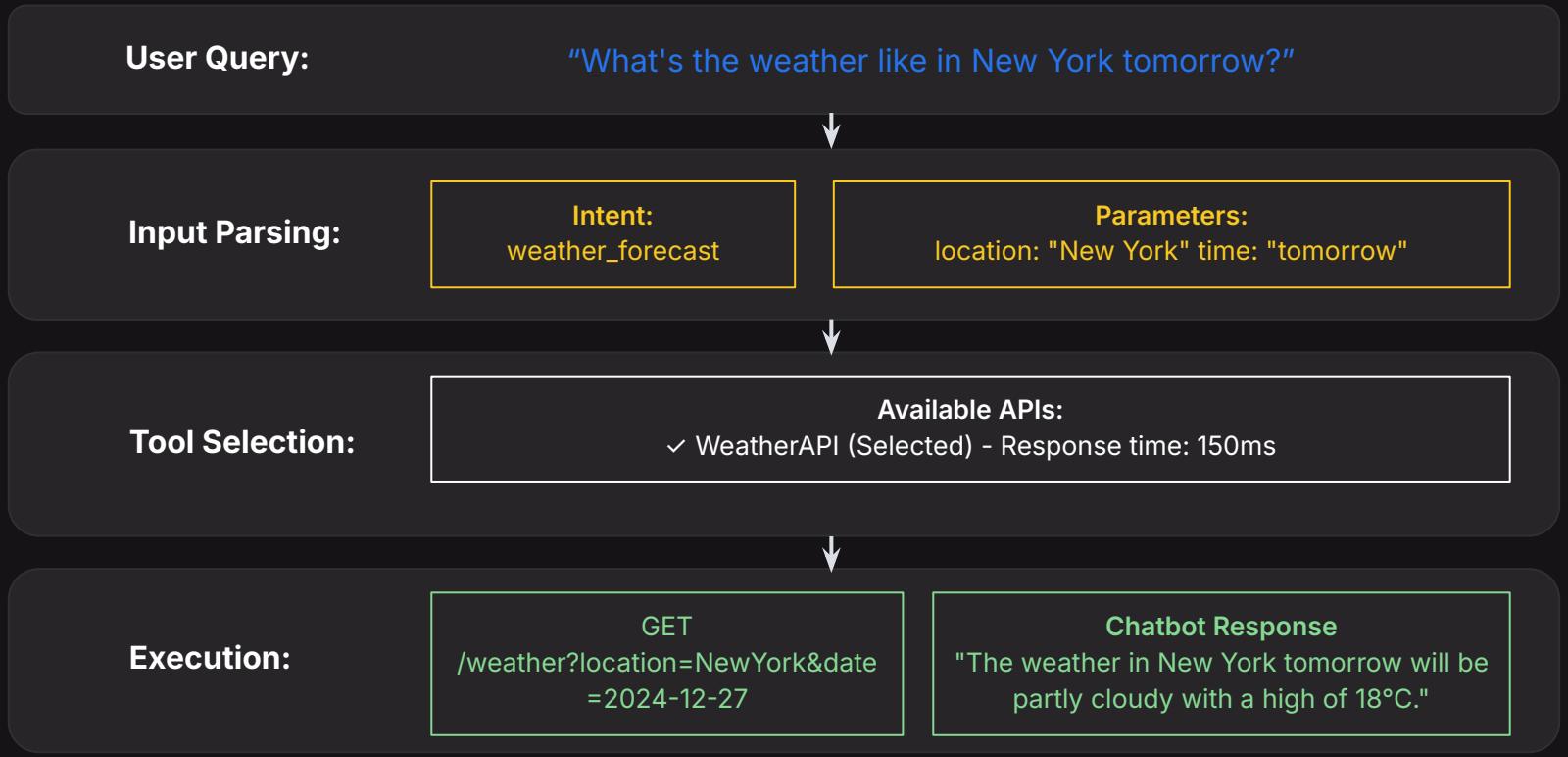
Tool Use: GPT-4o uses financial tools (e.g., price metrics, news, fundamentals) via OpenBB & market APIs.

External Data: Real-time data from Yahoo Finance, Finviz, TMX, etc.

Response Loop: Reason, fetch, observe, generate until accurate final response.

Final Output: Clean, tool-backed financial insights delivered to the user.

AI Weather Chatbot



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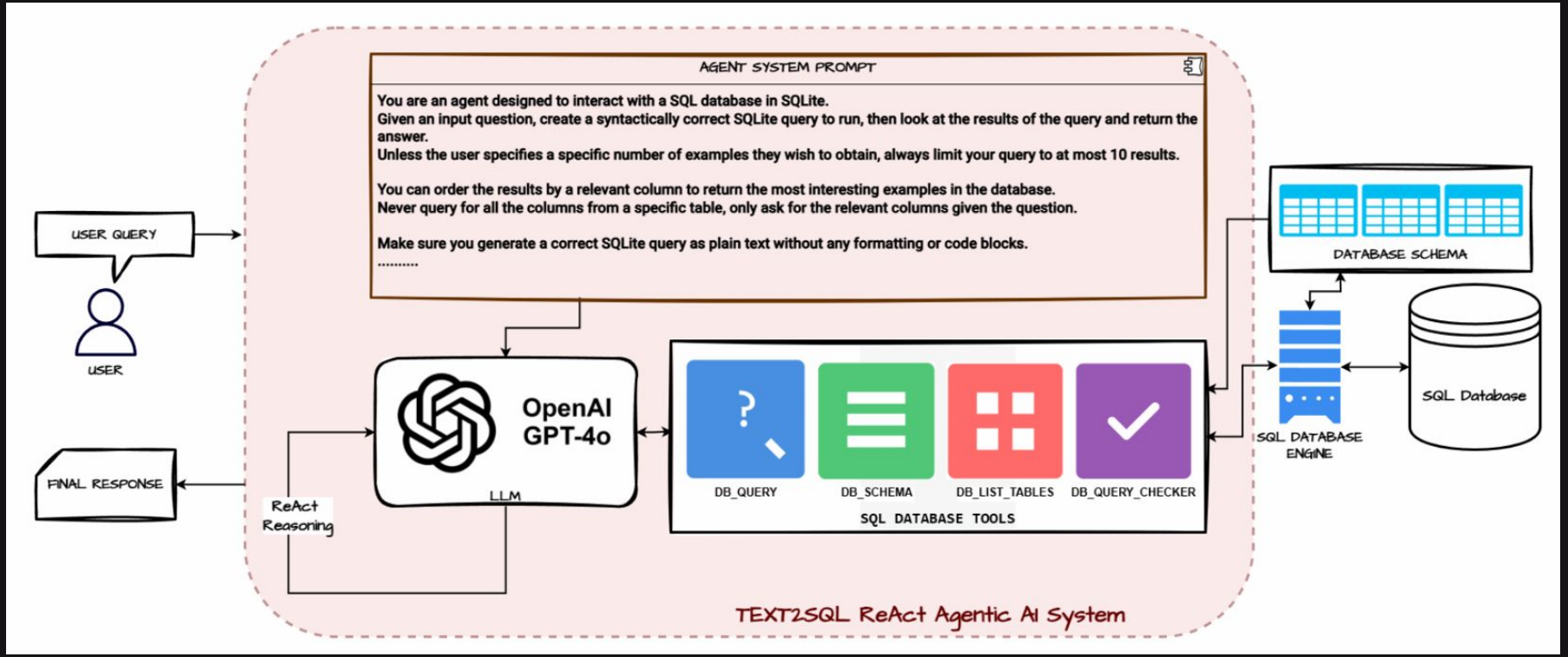
Text2SQL Tool Use Agent



Workflow: Financial Analyst Tool Use Agent

User Query: User asks a question about the database.

Agent Instructions: GPT-4o is guided to understand user query, create a SQL query, execute and generate responses.

Tool Use: `DB_QUERY`, `DB_SCHEMA`, and `DB_LIST_TABLES` help GPT-4o understand the database tables, schema and create a SQL Query.

Tool Use: The query is validated using `DB_QUERY_CHECKER` and run against the actual SQL database using `DB_QUERY` to get results.

Data Source: System refers to database schema and tables for accurate results.

ReAct Loop: Think → Query → Validate → Fix (if needed) → Respond.

Final Output: Accurate, SQL results are returned as a human-like response to the user.

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E-Commerce Bot: Multi-Tool Orchestration

User Query:

"Is the blue wireless headphone in stock? Can I get it delivered by Friday?"

Query Analysis:

Intent: check_availability | Product: Blue Headphone | Timeline: Friday | Actions: Stock Check, Delivery Check

Parallel Tool Execution:

Inventory API:
GET /inventory/check
Response:
{ "product_id": "1234", "in_stock": true, "quantity": 25 }

Shipping API:
POST /delivery/check
Response:
{ "available": true, "delivery_date": "Friday", "shipping_cost": 10 }

Pricing API:
GET /price/calculate
Response:
{ "base_price": 79, "total_price": 89, "currency": "USD" }

Integrated Response:

"Yes, the blue wireless headphone is in stock (25 units available). I can confirm delivery by Friday. Total cost including shipping will be $89."

Thanks!

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