How JP Morgan Built An AI Agent for Investment Research with LangGraph | LangChain Interrupt

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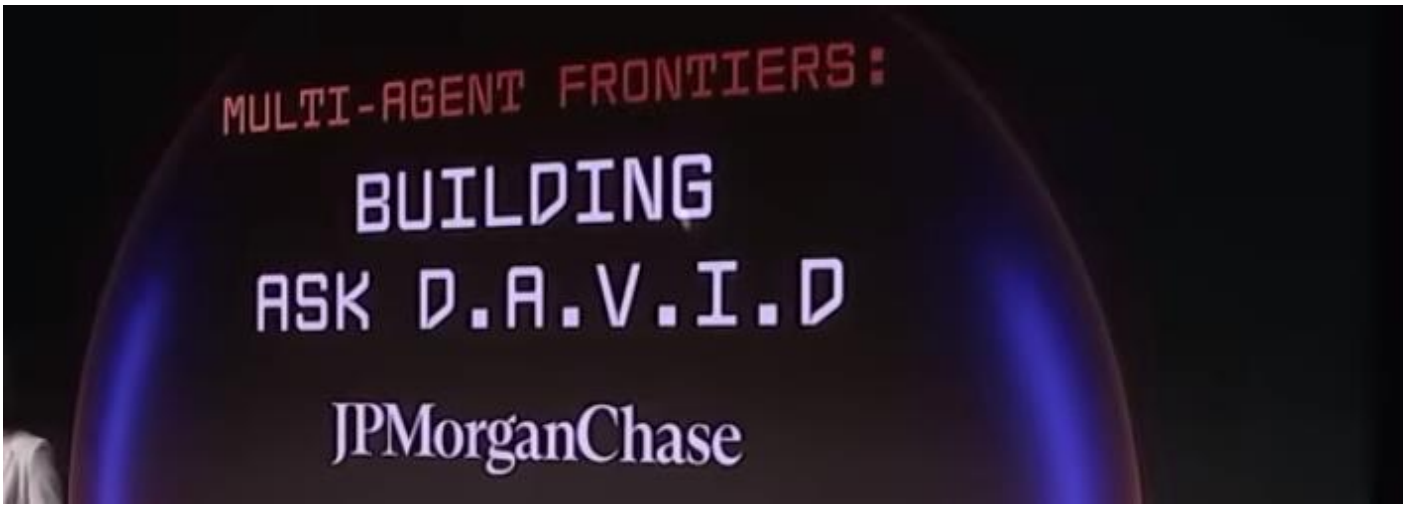
David Odomirok and Zheng Xue from JP Morgan Chase Private Bank reveal how they built "Ask David" - a sophisticated multi-agent AI system designed to automate investment research for thousands of financial products. With billions of dollars in assets at stake, this isn't just another chatbot - it's an enterprise system built with human oversight for high-stakes financial decisions.



Tomorrow

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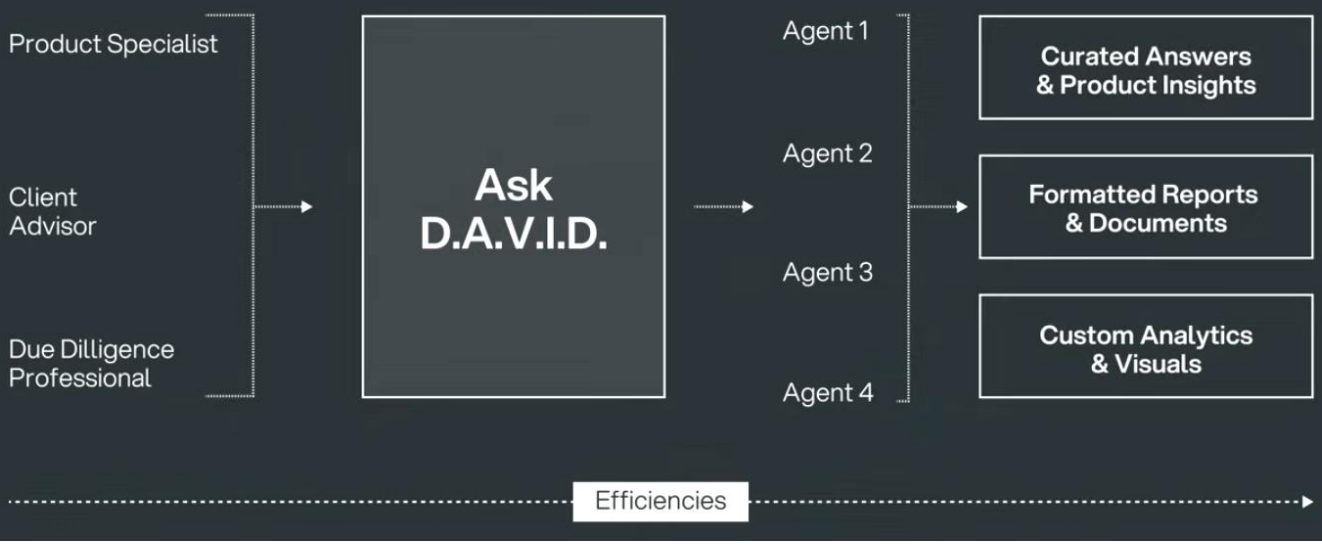

Domain Knowledge

Structured Data →
RDS, Data mesh

Unstructured Data →
Emails, Meeting notes, Zoom

Proprietary Models and Analytics →
APIs, Libraries

The Approach

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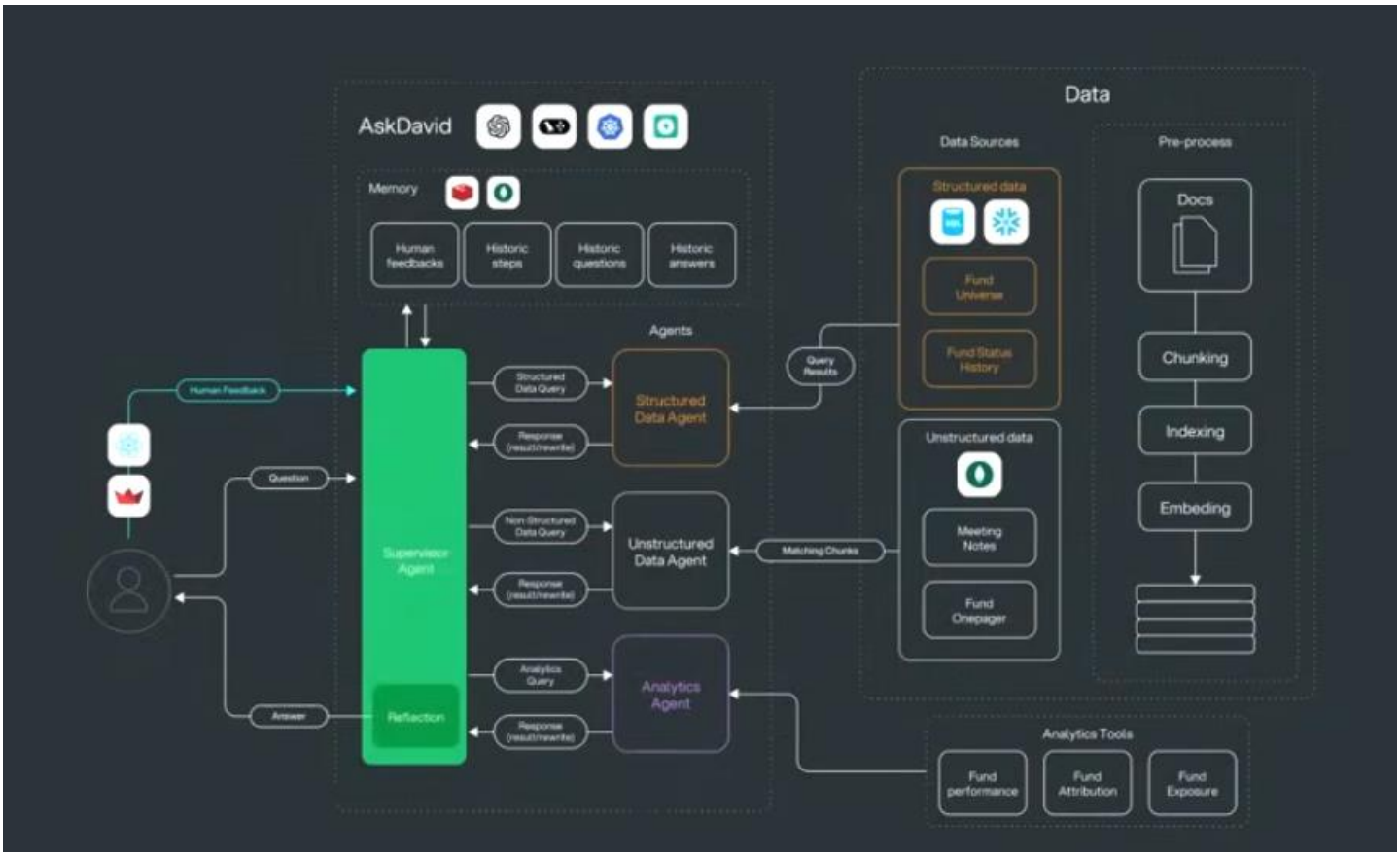
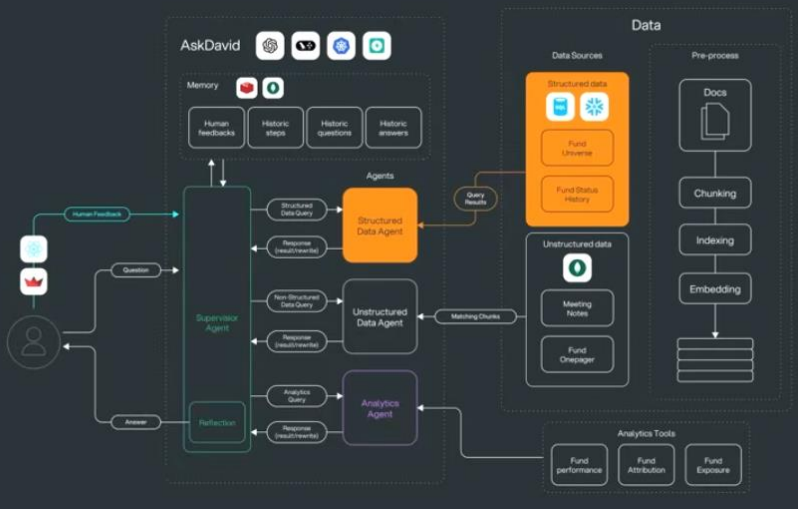
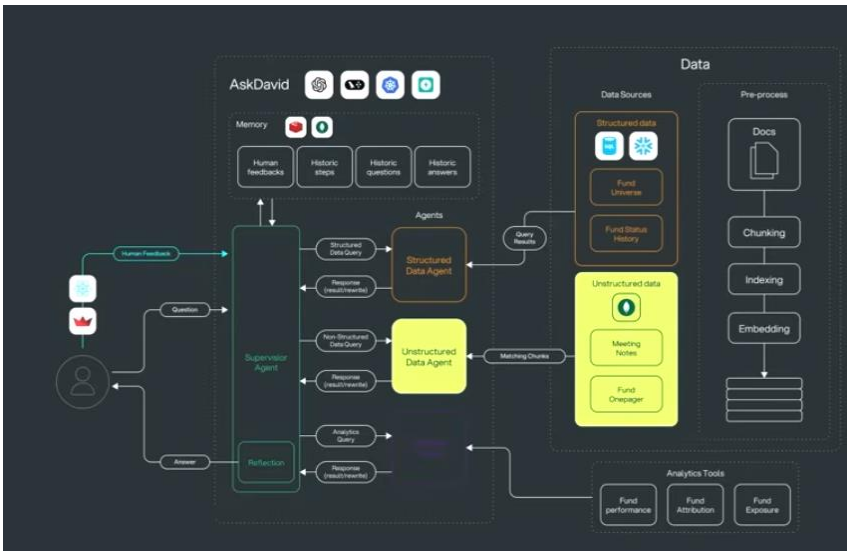




Supervisor Agent:

- Acts as the orchestrator
- It receives questions from users and determines a plan to provide answers
- This may involve engaging one or more of the specialized sub-agents, depending on the nature of the query
- It incorporates human in the loop to ensure the accuracy and reliability
- It also has access to long term memory

Structured Data AI Agent:
This agent translates natural language queries into SQL or GraphQL to retrieve answers from databases or APIs, and then uses a large language model (LLM) to summarize the results.



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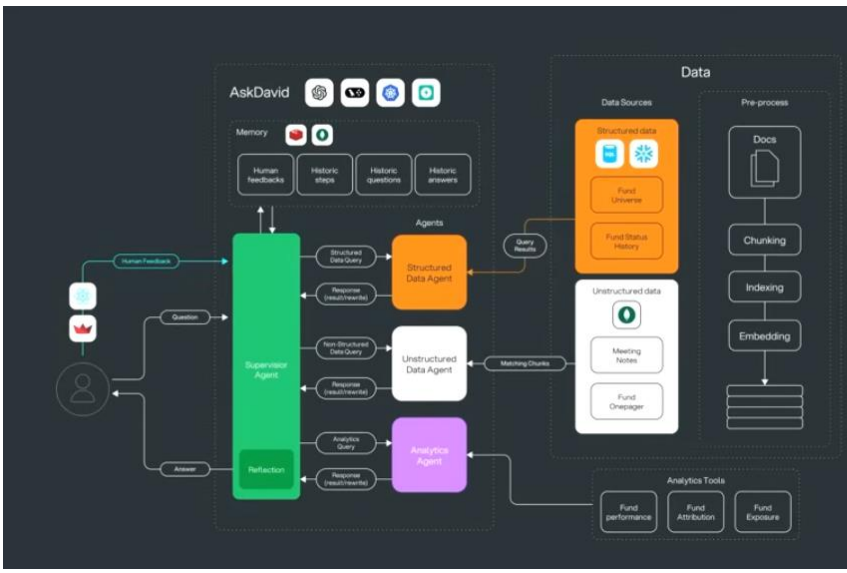

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Analytics Agent:
ReAct agent with access to analytics APIs as tools.

Graph: Workflow

Example: Why was a fund terminated?

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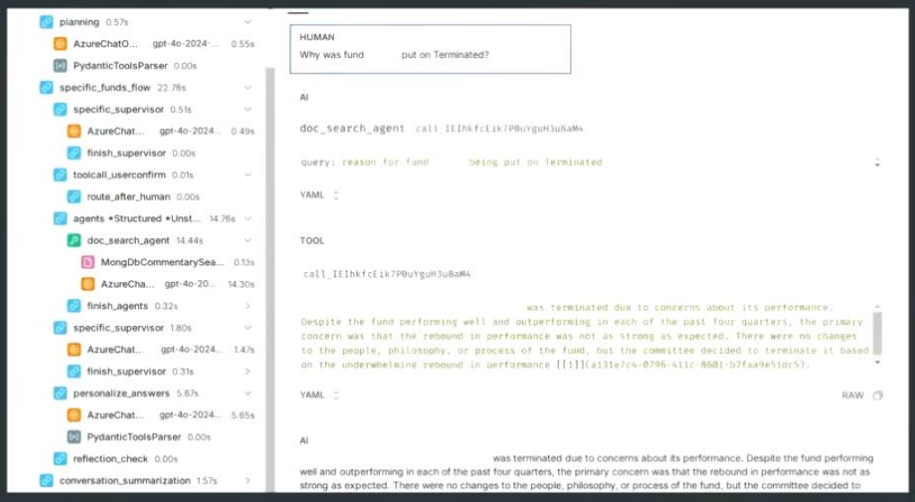
Planning
- Determines the intention
- Invokes the corresponding subgraph

Subgraph - Specific Funds Flow
- delegates to doc_search_agent

Doc Search Agent
- Conducts mongoDB search to retrieve relevant information

Supervisor
- Personalization based on the role of human
- Reflect to ensure the accuracy and relevancy of answers
- Summarize conversation, update memory, and return answer



Lessons Learned

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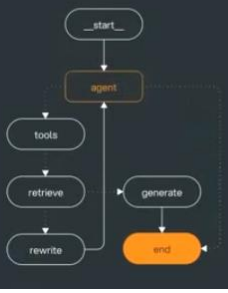
Lesson 1: Start Simple and Refactor Often

1

2



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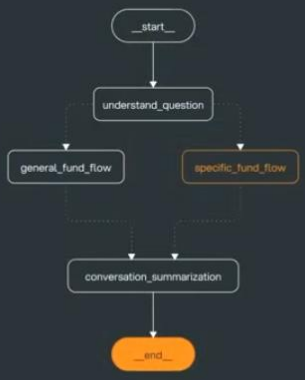

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Lesson 2: Evaluation Driven Development

→ GenAI has much shorter dev phase than traditional AI projects, which enables rapid prototyping and iteration

→ Domain Confidence requires extensive evaluation and refinement

- Independent Evaluation of Subagents: Assess subagents and the whole flow separately.
- Diverse Metrics for Agent Types: Tailor metrics to the agent design.
- Evaluation with/without Ground Truth: Not all metrics need ground truth; valuable insights can be gained without it.
- LLM as Judge + Human SME Review: Use automated evaluations to scale and reduce SME workload.

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Lesson 3: Human SME in the Loop

Initial Accuracy	Quick Improvements	Additional Improvements	Last Mile
Apply GenAI directly	• Chunking strategy • Search methodology • Prompt engineering	• Workflow enhancements • Sub-graphs	• Hardest • May be not achievable • Human SME in the loop

Iterate fast, evaluate early, include Human SME in the loop

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Thank you!

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May 14th, 2025

@ Interrupt,
The AI Agent Conference
by Langchain