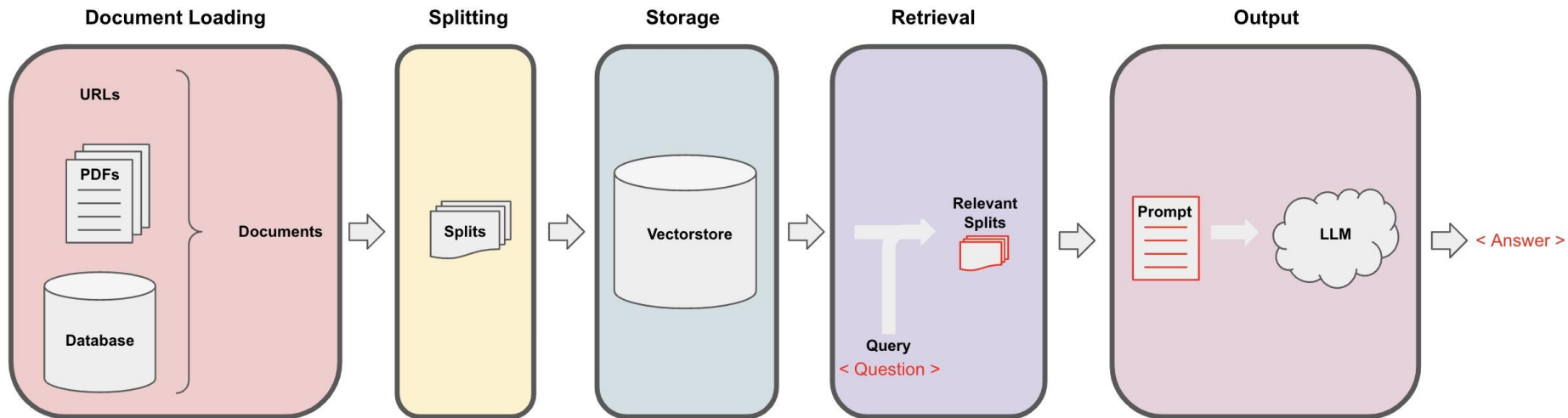




Financial Pandalist

QA RAG



Tech Stacks



Vertex AI

LangChain  

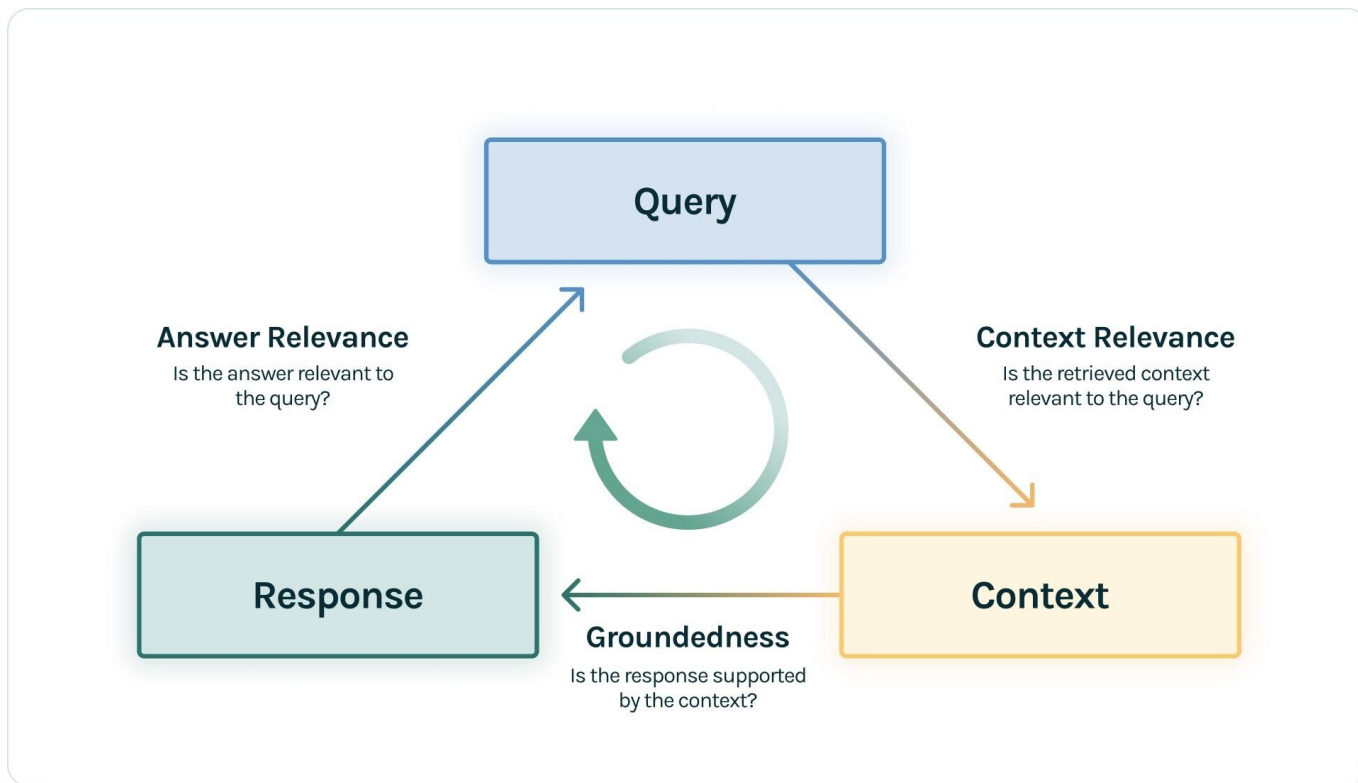


chroma

Retrieval Chain Types

1. Stuff
2. Map reduce
3. Refine
4. Map re-rank

The RAG Triad



Evaluation Questions

1. What is the company's total revenue, and how has it changed over the past few years?
2. What are the main sources of revenue for the company?
3. How has the company's profitability (net income) trended over time?

...

19. Are there any legal or regulatory issues that the company discloses in the 10-K?
20. How might these issues impact the company's operations and financial performance?

Evaluation Results on 4 Chain Types

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Retrieval Stuff Chain

Records Feedback Functions

App ID	User Input	Response	Answer Relevance	Groundtruth	Correctness
Retrieval Stuff Chain	"Does the company pay div..."	"Alphabet has never declar..."	1	1	0.9
Retrieval Stuff Chain	"How might these issues im..."	"The company's operating..."	0.9	1	0.8
Retrieval Stuff Chain	"Are there any legal or regu..."	"Yes, the company disclos..."	0.9	1	0.9
Retrieval Stuff Chain	"What industry trends and c..."	"The continuing shift from a..."	0.2	1	0.3
Retrieval Stuff Chain	"How does the company pay..."	"Google positions itself as a..."	0.9	1	0
Retrieval Stuff Chain	"Are there any strategic init..."	"Yes, the company's strate..."	1	1	0.9
Retrieval Stuff Chain	"What insights does the Man..."	"The Management Discusstio..."	1	1	0.8
Retrieval Stuff Chain	"How does the company an..."	"The company assesses and..."	1	1	0.8
Retrieval Stuff Chain	"How are the key risks addr..."	"The risk factor mentio..."	1	0.8	0.5
Retrieval Stuff Chain	"How does the company fin..."	"The company finances th..."	0.5	1	0.5
Retrieval Stuff Chain	"What significant investmen..."	"The primary use of capital..."	0.2	1	0.2
Retrieval Stuff Chain	"How much debt does the c..."	"The company has a total de..."	0.8	0.8	0.9
Retrieval Stuff Chain	"What is the overall finan..."	"The company's balance she..."	0.8	0.8	0
Retrieval Stuff Chain	"How does the company ma..."	"The company manages fi..."	0.9	1	0.8
Retrieval Stuff Chain	"How does the company sp..."	"The company's spending c..."	0.9	1	0.8
Retrieval Stuff Chain	"What is the company's oper..."	"The company's operating ex..."	1	0.8	0.5
Retrieval Stuff Chain	"What are the major compa..."	"The questions we answer..."	0	0	0
Retrieval Stuff Chain	"How have operating expen..."	"Operating expenses increa..."	1	0	0.2
Retrieval Stuff Chain	"What are the company's pri..."	"The company's prioritizab..."	1	0	0.2
Retrieval Stuff Chain	"What are the main sources..."	"The main sources of revenu..."	0.9	1	0
Retrieval Stuff Chain	"What is the company's total..."	"The company's total revenu..."	0	0	0.5

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Retrieval Refine Chain

Records Feedback Functions

App ID	User Input	Response	Answer Relevance	Groundtruth	Correctness
Retrieval Refine Chain	"Does the company pay div..."	"The company has never de..."	1	1	0.9
Retrieval Refine Chain	"How might these issues im..."	"The company's operating..."	0.9	0.93333333	0.8
Retrieval Refine Chain	"Are there any legal or regu..."	"Yes, the company disclos..."	1	1	0.9
Retrieval Refine Chain	"What industry trends and c..."	"The following table as a..."	0.7	0.16666667	0
Retrieval Refine Chain	"How does the company pay..."	"Google positions itself as a..."	0.9	0	0
Retrieval Refine Chain	"Are there any strategic init..."	"Yes, there are strategic init..."	1	0.8	0.9
Retrieval Refine Chain	"What insights does the Man..."	"The Management Discusstio..."	1	1	0.8
Retrieval Refine Chain	"How does the company an..."	"The company assesses and..."	1	1	0.8
Retrieval Refine Chain	"What are the key risk factor..."	"The key risk factors mentio..."	0.8	1	0.5
Retrieval Refine Chain	"How does the company fin..."	"The company finances th..."	0.5	1	0.5
Retrieval Refine Chain	"What significant investmen..."	"The company has a total eq..."	0.8	0.20871429	0.2
Retrieval Refine Chain	"How much debt does the c..."	"The company has a total de..."	0.8	0.75	1
Retrieval Refine Chain	"What is the overall finan..."	"The company's balance she..."	1	0.75	0
Retrieval Refine Chain	"How does the company ma..."	"The company manages fi..."	0.9	1	0.2
Retrieval Refine Chain	"What is the company's oper..."	"The company's operating c..."	1	1	0.8
Retrieval Refine Chain	"How have operating expen..."	"Operating expenses inflat..."	1	0.5	0.9
Retrieval Refine Chain	"What are the major compo..."	"The major components of..."	0.8	0	0
Retrieval Refine Chain	"How has the company's pri..."	"The company's prioritizab..."	1	0	0.2
Retrieval Refine Chain	"What are the main sources..."	"The main sources of revenu..."	0.9	1	0
Retrieval Refine Chain	"What is the company's total..."	"The company's total revenu..."	1	0	0.5

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Retrieval Map-reduce Chain

Records Feedback Functions

App ID	User Input	Response	Answer Relevance	Groundtruth	Correctness
Retrieval Map-reduce Chain	"Does the company pay div..."	"The company has never de..."	1	1	0.9
Retrieval Map-reduce Chain	"How might these issues im..."	"The company's operating..."	0.9	1	0.8
Retrieval Map-reduce Chain	"Are there any legal or regu..."	"Yes, the company's legal..."	1	1	0.9
Retrieval Map-reduce Chain	"What industry trends and c..."	"Shareholders and other..."	0.4	1	0.6
Retrieval Map-reduce Chain	"How does the company pay..."	"The company positions its..."	0.9	1	0
Retrieval Map-reduce Chain	"Are there any strategic init..."	"Yes, the company's strate..."	1	1	0.9
Retrieval Map-reduce Chain	"What insights does the Man..."	"The company's performance..."	0.9	0.8	0.8
Retrieval Map-reduce Chain	"How does the company an..."	"The company assesses th..."	0.8	1	0.8
Retrieval Map-reduce Chain	"How are the key risks addr..."	"The questions to be addr..."	0.2	0	0
Retrieval Map-reduce Chain	"How does the company fin..."	"The company finances th..."	0.9	1	0.5
Retrieval Map-reduce Chain	"What significant investmen..."	"The company did not invest..."	0	0	0.2
Retrieval Map-reduce Chain	"How much debt does the c..."	"The company has a total de..."	1	1	0.9
Retrieval Map-reduce Chain	"What is the overall finan..."	"The company's balance she..."	1	1	0
Retrieval Map-reduce Chain	"How does the company ma..."	"The company manages fi..."	0.9	1	0.2
Retrieval Map-reduce Chain	"What is the company's oper..."	"The company's operating c..."	1	1	0.8
Retrieval Map-reduce Chain	"How have operating expen..."	"Operating expenses increa..."	0.9	0.8	0.9
Retrieval Map-reduce Chain	"What are the major compa..."	"The major components of..."	1	0	0
Retrieval Map-reduce Chain	"How has the company's pri..."	"The company's prioritizab..."	0.8	0	0.2
Retrieval Map-reduce Chain	"What are the main sources..."	"The company does not sta..."	0	0	0
Retrieval Map-reduce Chain	"What is the company's total..."	"The company's total revenu..."	0	0	0.5

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Retrieval Map-re-rank Chain

Records Feedback Functions

App ID	User Input	Response	Answer Relevance	Groundtruth	Correctness
Retrieval Map-re-rank Chain	"Does the company pay div..."	"The company has never de..."	1	1	0.9
Retrieval Map-re-rank Chain	"How might these issues im..."	"These issues could impact..."	0.9	1	0.8
Retrieval Map-re-rank Chain	"Are there any legal or regu..."	"Yes, the company's disclo..."	1	1	0.9
Retrieval Map-re-rank Chain	"What industry trends and c..."	"The continuing shift from a..."	0.3	1	0.4
Retrieval Map-re-rank Chain	"How does the company pay..."	"This document does not an..."	0	0	0.2
Retrieval Map-re-rank Chain	"Are there any strategic init..."	"Yes, the company is invest..."	1	0.8	0.9
Retrieval Map-re-rank Chain	"What insights does the Man..."	"The company's financial..."	0.8	0.8	0.8
Retrieval Map-re-rank Chain	"How does the company an..."	"The company assesses th..."	0.8	1	0.8
Retrieval Map-re-rank Chain	"What are the key risk factor..."	"The risk of political instab..."	0.3	0	0
Retrieval Map-re-rank Chain	"How does the company fin..."	"The company finances th..."	0.9	1	0.5
Retrieval Map-re-rank Chain	"What significant investmen..."	"The company has a total eq..."	0.8	0	0.2
Retrieval Map-re-rank Chain	"How much debt does the c..."	"The company has \$14.17 b..."	0.8	1	1
Retrieval Map-re-rank Chain	"What is the overall finan..."	"This document does not an..."	0	0	0
Retrieval Map-re-rank Chain	"How does the company ma..."	"This document does not an..."	0	0	0.2
Retrieval Map-re-rank Chain	"What is the company's oper..."	"The company's operating c..."	1	1	0.8
Retrieval Map-re-rank Chain	"How have operating expen..."	"Operating expenses increa..."	1	1	0.9
Retrieval Map-re-rank Chain	"What are the major compo..."	"This document does not an..."	0	0	0
Retrieval Map-re-rank Chain	"How has the company's pri..."	"This document does not an..."	0	0	0.2
Retrieval Map-re-rank Chain	"What are the main sources..."	"This document does not an..."	0	0	0
Retrieval Map-re-rank Chain	"What is the company's total..."	"This document does not an..."	0	0	0.3

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Evaluation Results



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App Leaderboard

Average feedback values displayed in the range from 0 (worst) to 1 (best).

Retrieval Map-reduce Chain [Ⓢ]

Records	Average Latency (Seconds)	Total Cost (USD)	Total Tokens	Context Relevance	Answer Relevance	Groundedness
20	1.55	\$0	0	0.48 ● low	0.72 ▲ medium	0.63 ▲ medium

Retrieval Map-rerank Chain [Ⓢ]

Records	Average Latency (Seconds)	Total Cost (USD)	Total Tokens	Context Relevance	Answer Relevance	Groundedness
20	1.55	\$0	0	0.5 ● low	0.5 ● low	0.49 ● low

Retrieval Refine Chain [Ⓢ]

Records	Average Latency (Seconds)	Total Cost (USD)	Total Tokens	Context Relevance	Answer Relevance	Groundedness
20	1.55	\$0	0	0.49 ● low	0.92 ■ high	0.68 ▲ medium

Retrieval Stuff Chain [Ⓢ]

Records	Average Latency (Seconds)	Total Cost (USD)	Total Tokens	Context Relevance	Answer Relevance	Groundedness
20	1.55	\$0	0	0.5 ● low	0.78 ▲ medium	0.8 ■ high



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