TEAM

BYTEUS

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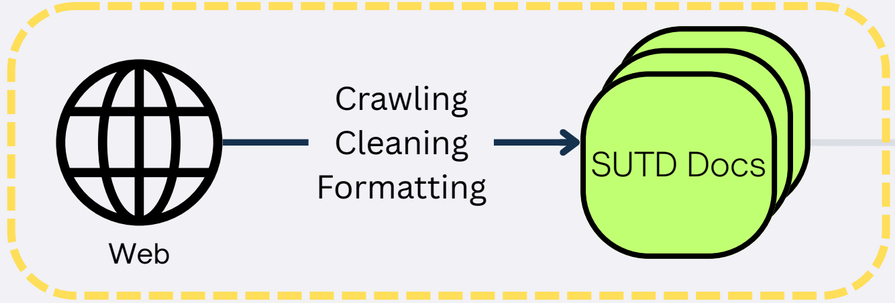
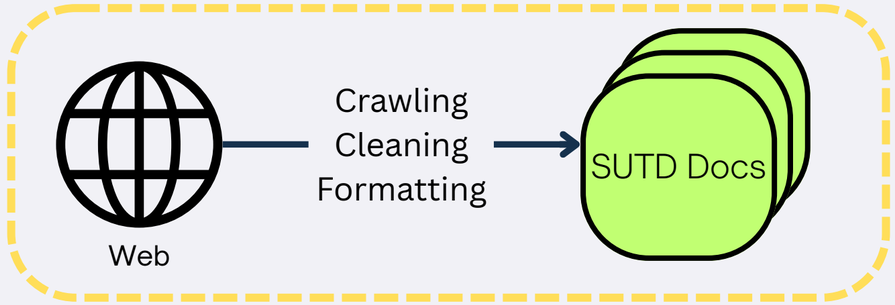
RAG PIPELINE

Requirements of the Chatbot

- Direct Answer
- Source of the Answer
- Further Links



RAG PIPELINE



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Initial Approach

Tried saving SUTD pages as PDFs

Change to LangChain RecursiveWebLoader

Crawled pages with JavaScript rendering

Target only SUTD Site

Focus Solely on SUTD Website

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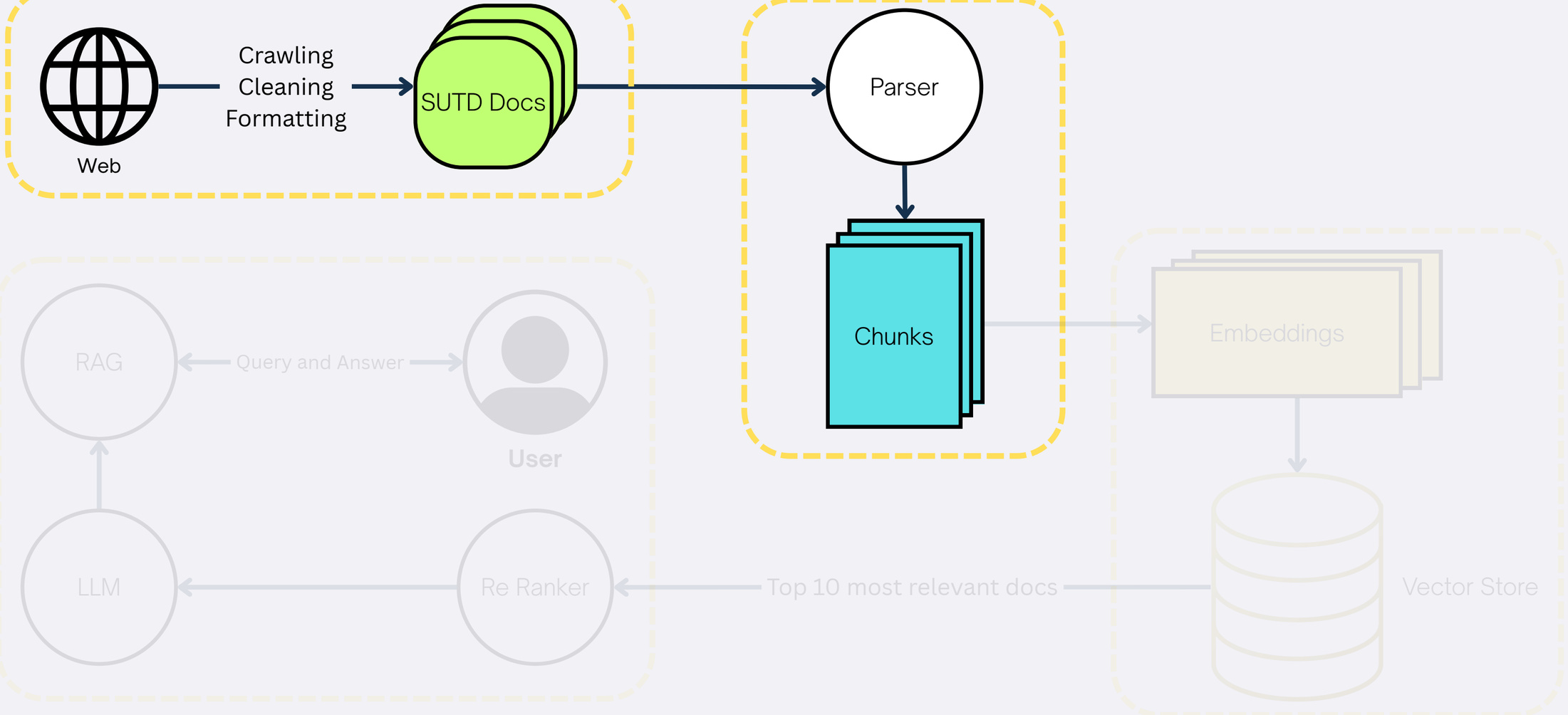

RAG PIPELINE

One Chunk per page

Large Chunks that exceeds context window

Document-based Chunking

Hierarchical chunking using markdown headers

Graph-Based URL Tree

combining parent-child sections with similar topics

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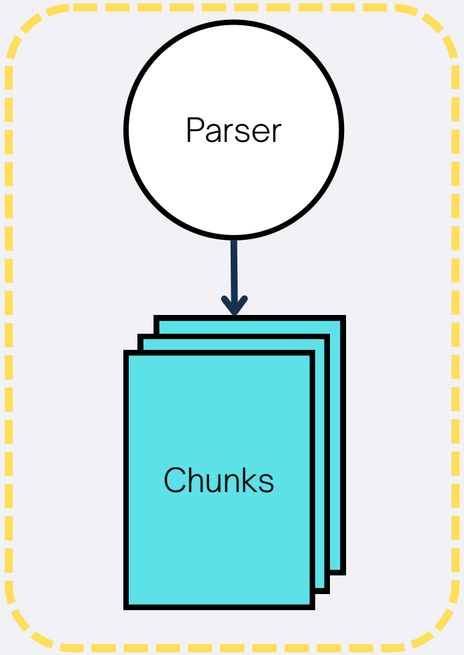
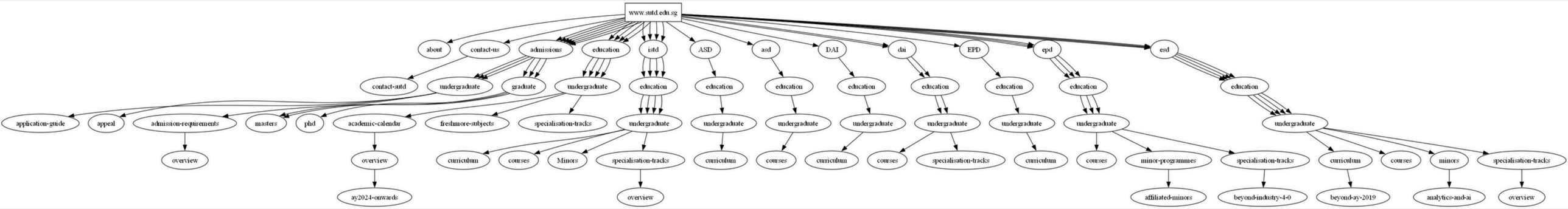


0 RAG PIPELINE



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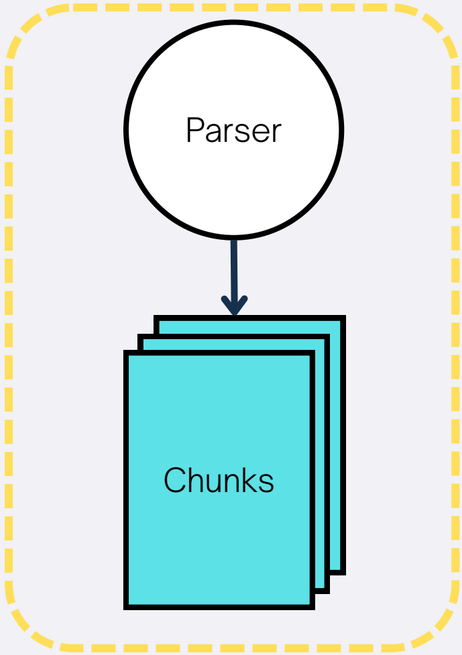

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Semantic Chunking

Chunking based on semantic similarity.

chunk_size = 1000
chunk_overlap = 100
min_chunk_size = 100

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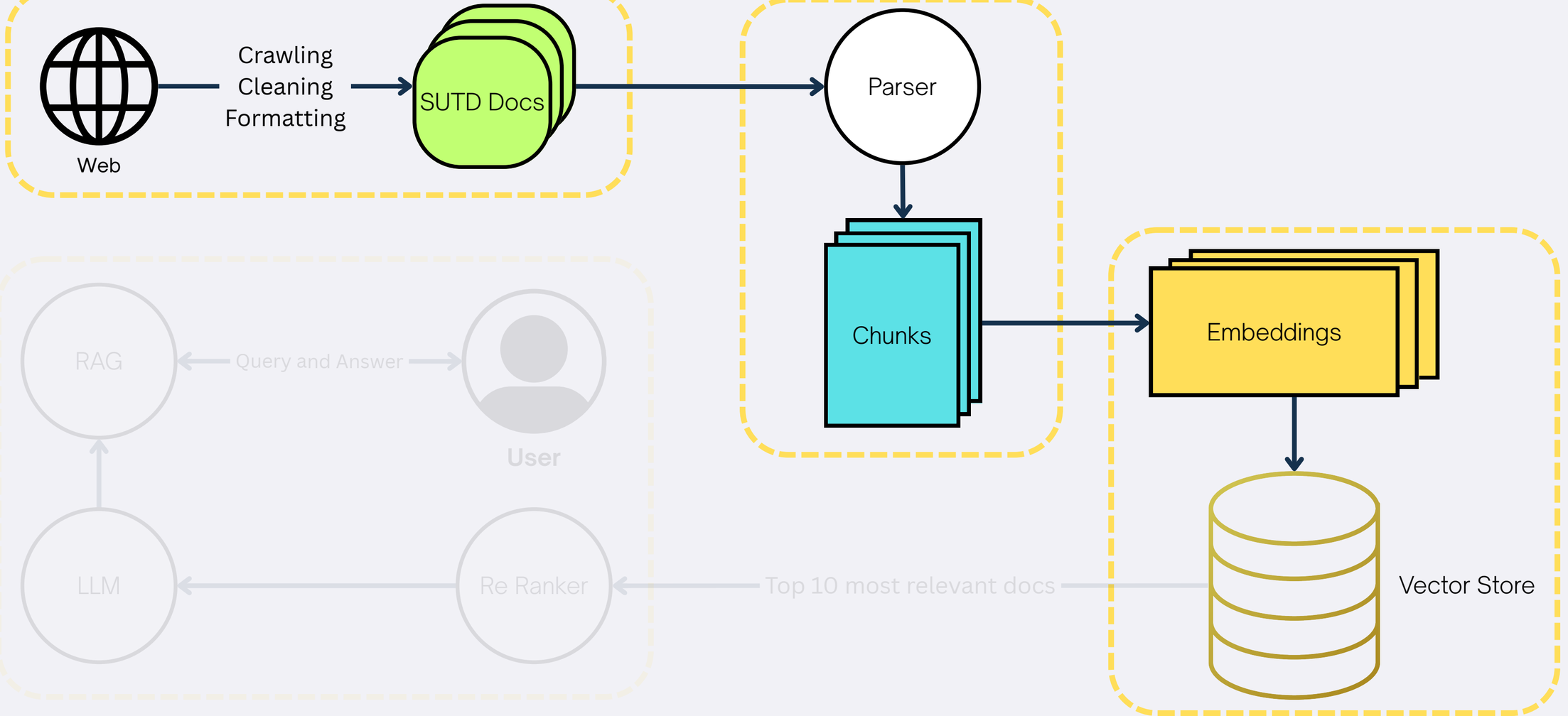

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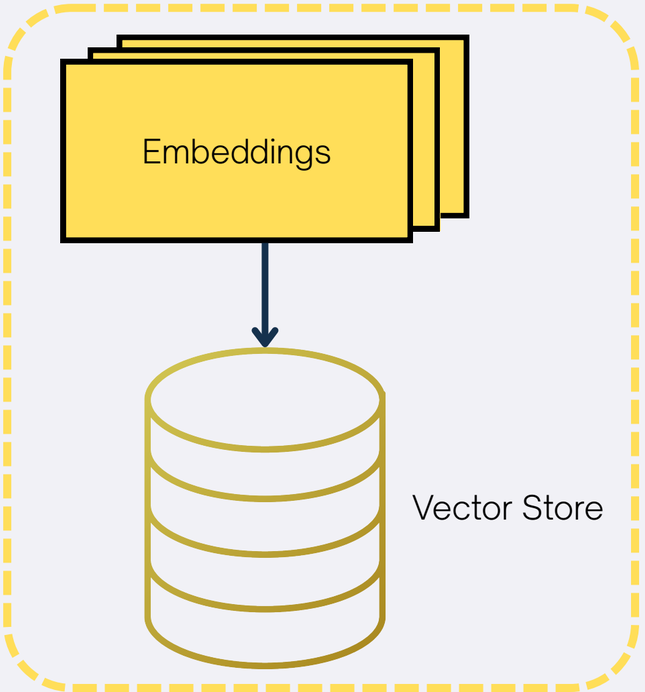
FAISS (Facebook AI Similarity Search)

A highly efficient vector store with fast query performance and accurate similarity matching.



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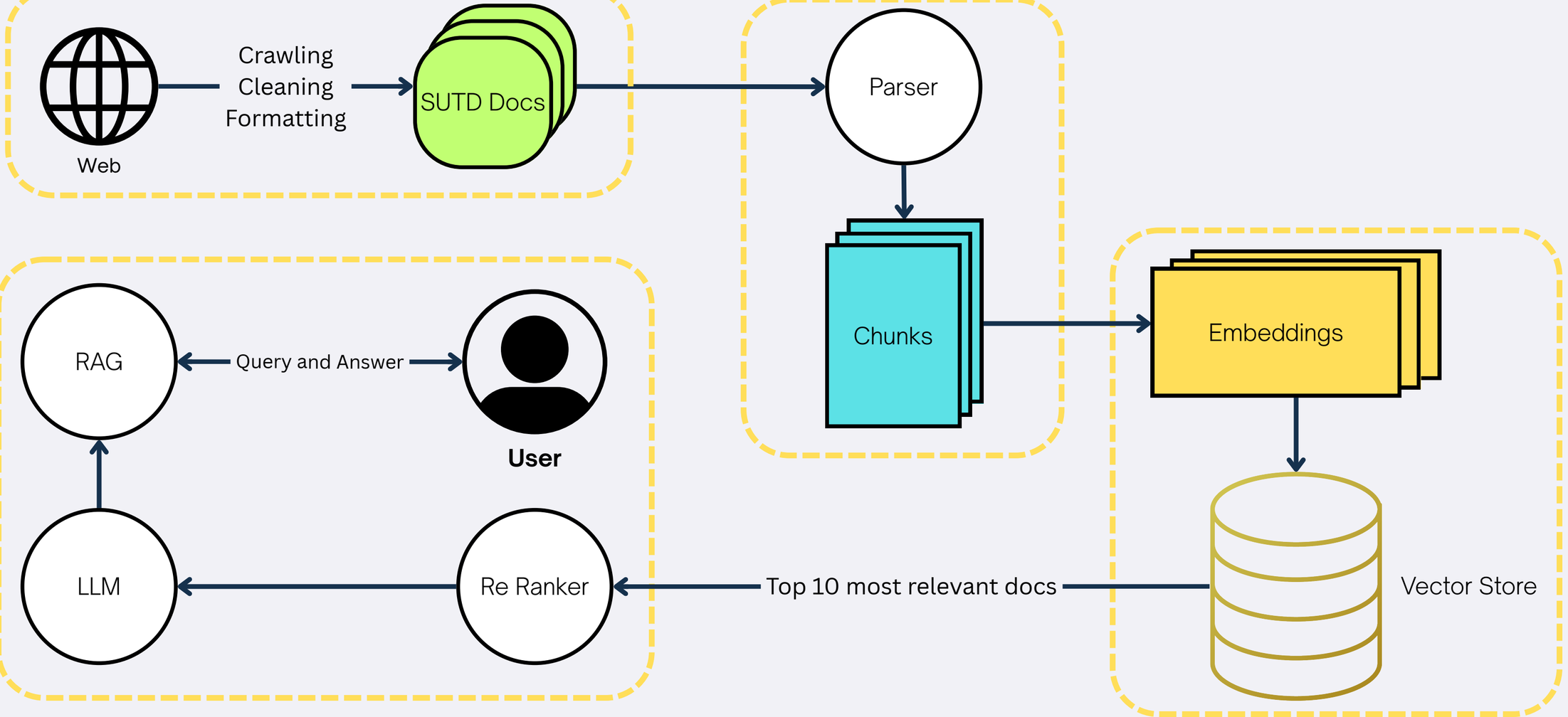
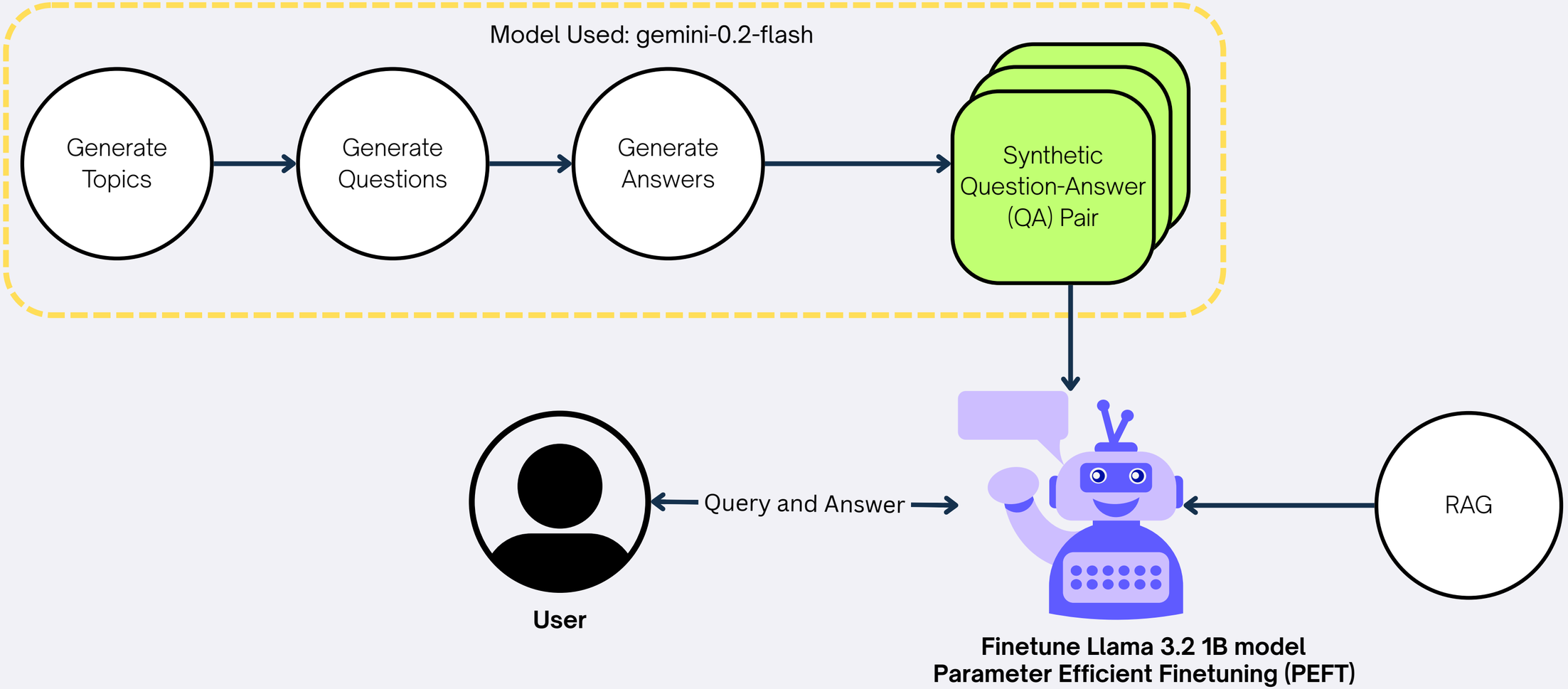
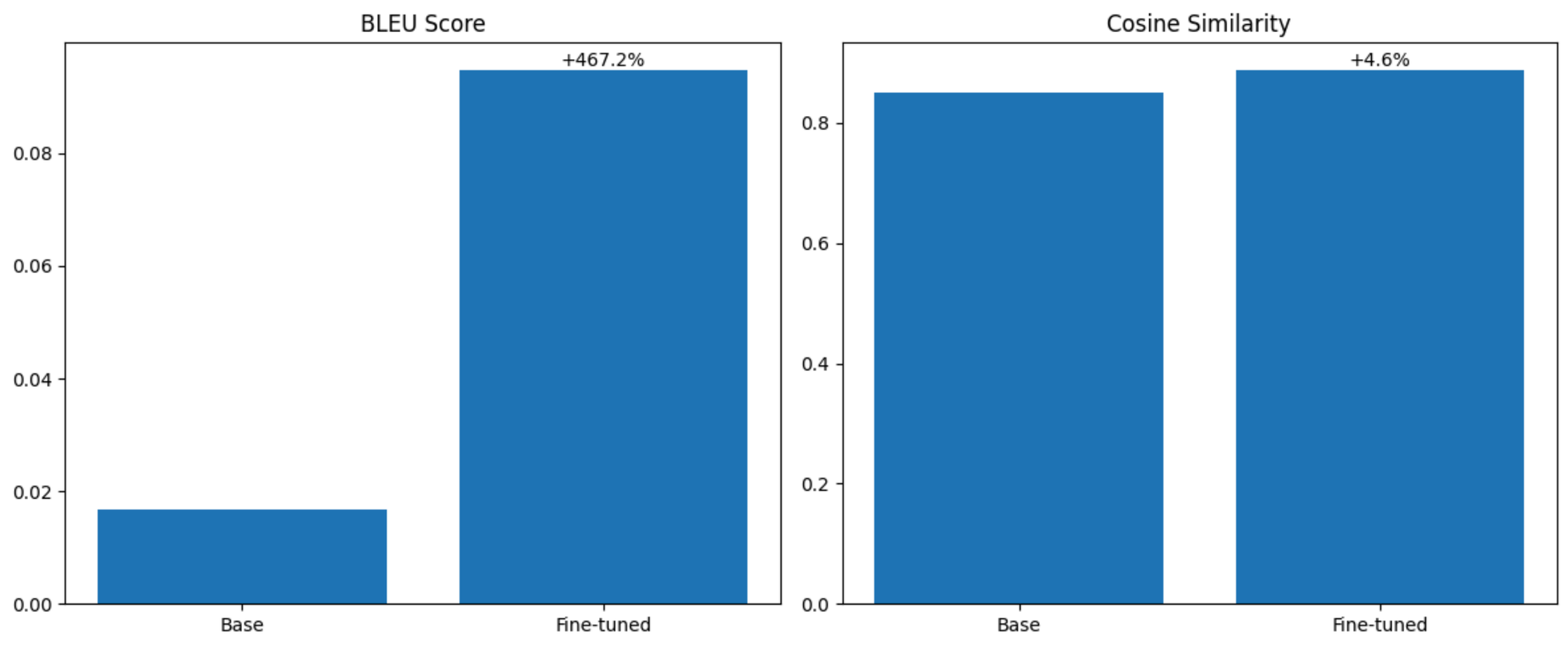


FINETUNING LLMS



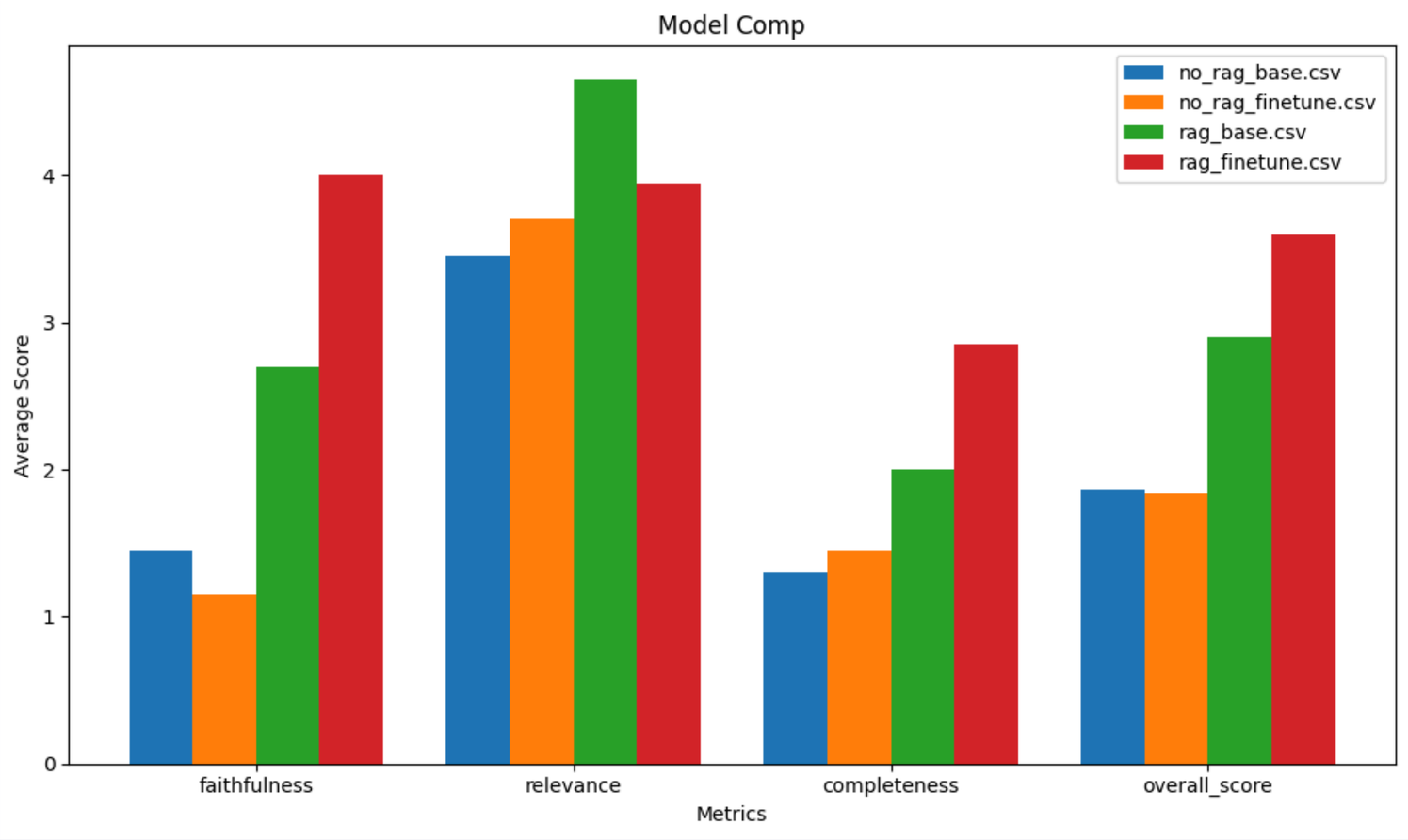
05 EVALUATION

- BLEU SCORE & COSINE SIMILARITY



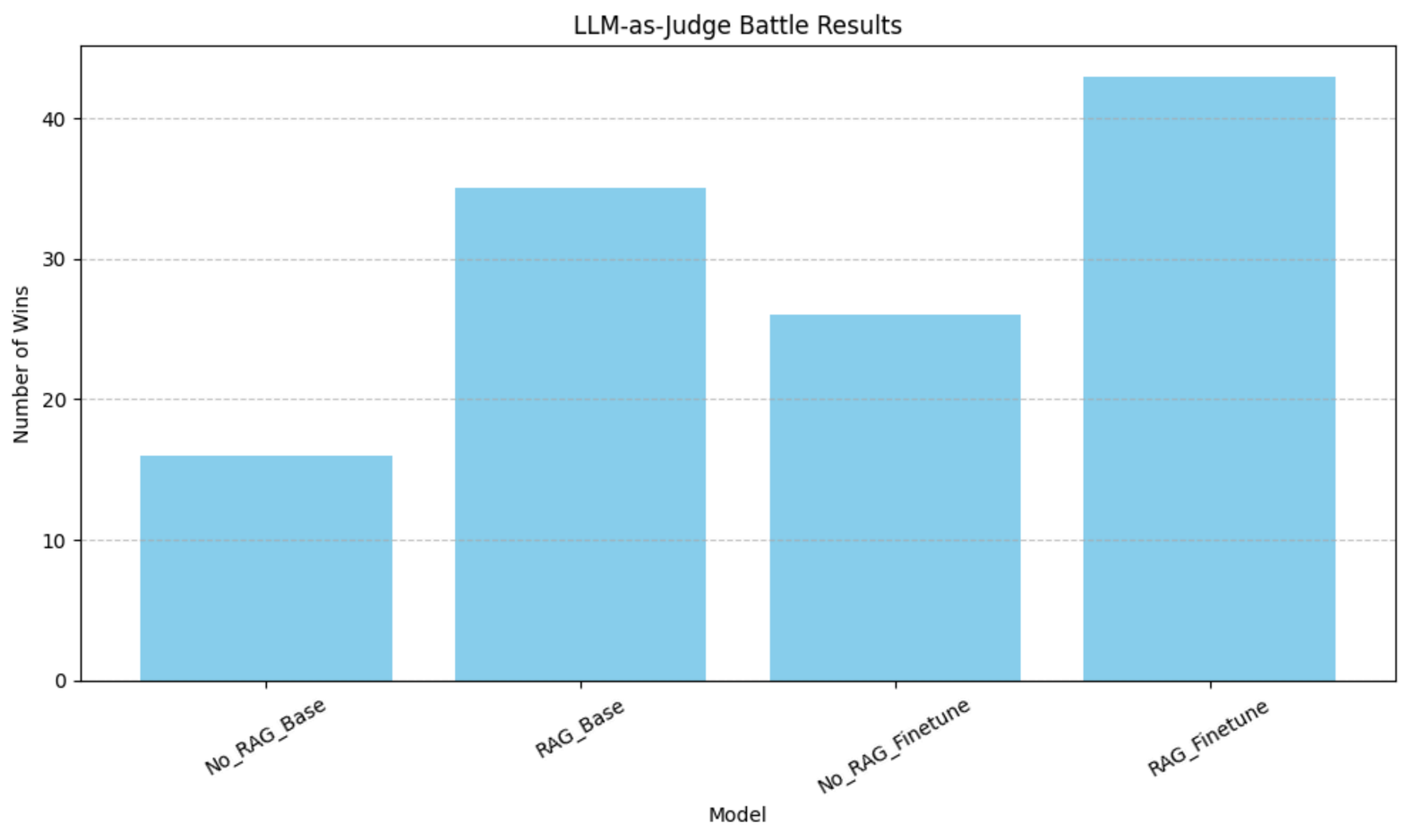
LLM-AS-A-JUDGE - QA EVALUATION

Model Used: gemini-0.2-flash



LLM-AS-A-JUDGE - BATTLES

Model Used: gemini-0.2-flash



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