

Retrievers

Instructor

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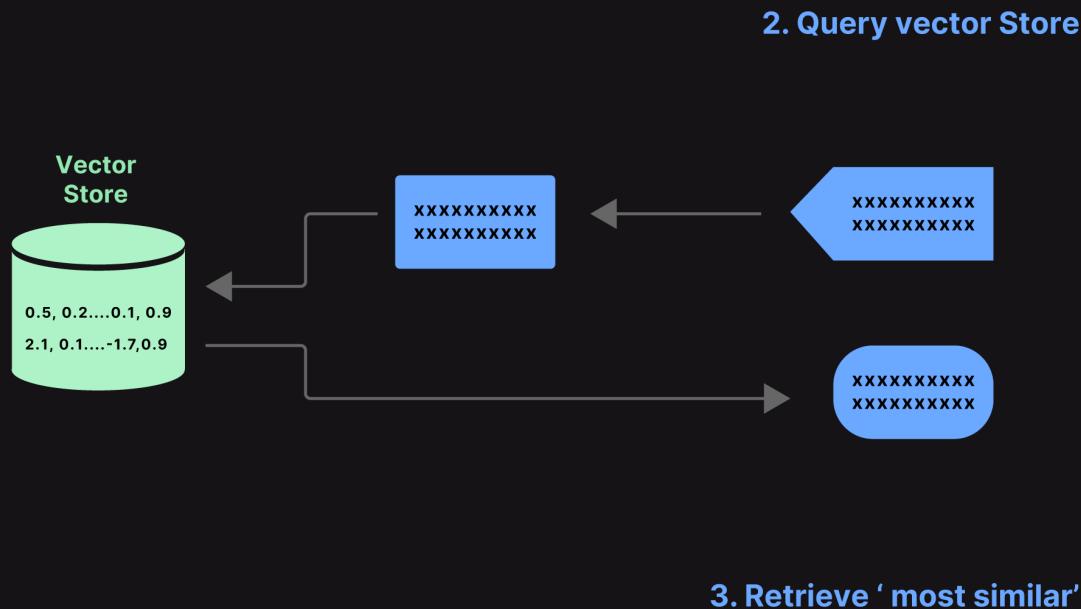
Outline

- Retrievers in LangChain
- Popular Retrieval Strategies
- Similarity or Ranking based Retrieval
- Similarity with Threshold Retrieval
- Multi-Query Retrieval
- Self-Query Retrieval

Outline

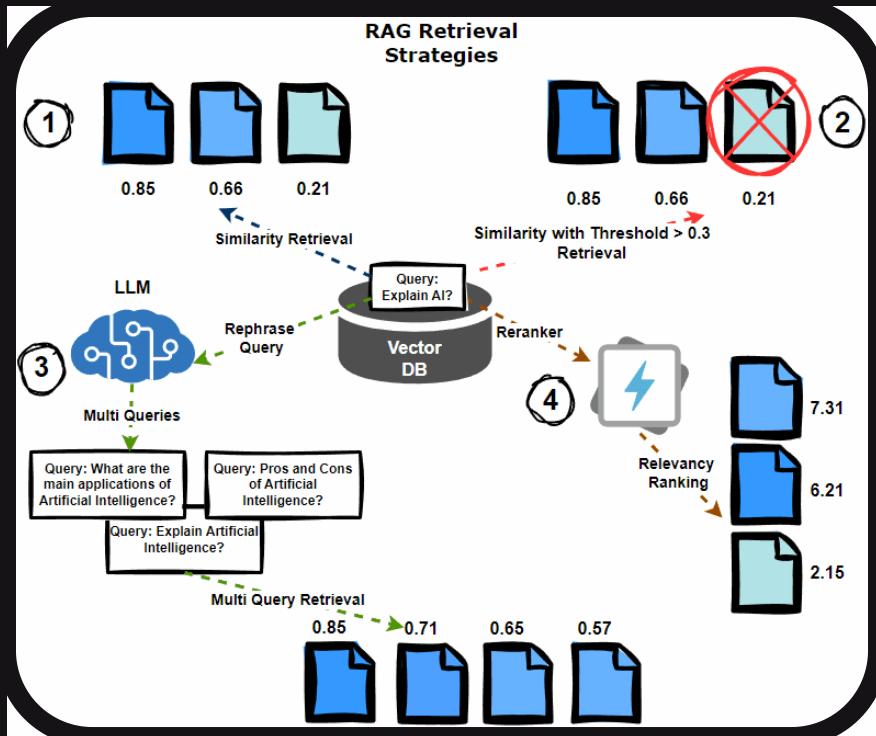
- Reranker Retrieval
- Ensemble Retrieval
- Hybrid Search Retrieval
- Contextual Compression Retrieval
- Parent Document Chunk Retrieval

Retrievers in LangChain



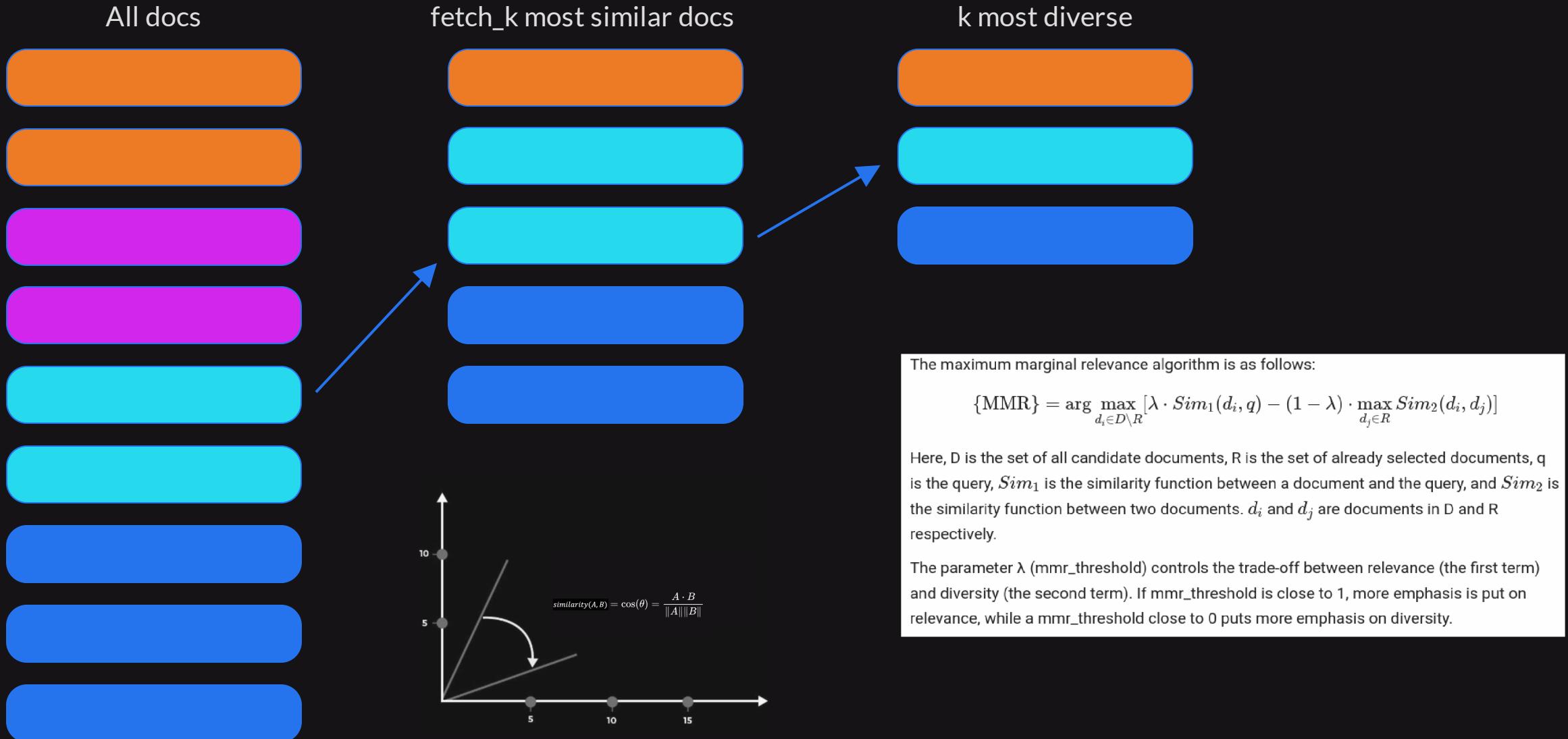
- LangChain supports API wrappers for all popular vector databases.
- "It also allows us to create retrievers using vector databases as a foundation."
- Retrievers use a retrieval strategy to retrieve similar documents for user queries

Popular Retrieval Strategies



- Similarity or ranking based
- Similarity with threshold
- Multi-query Retriever
- Reranker Retriever
- Ensemble Retriever

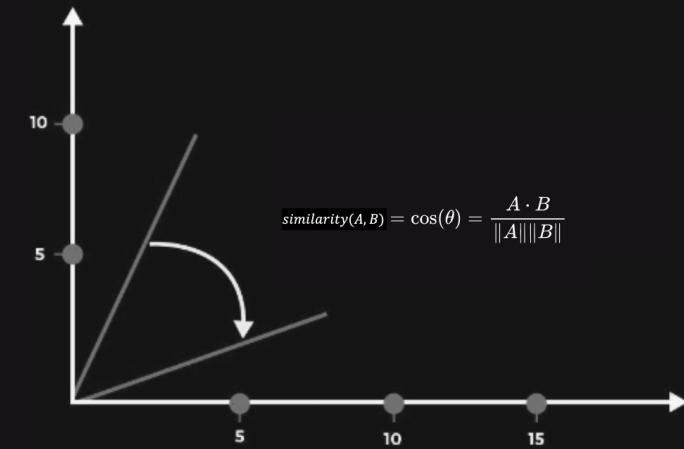
Similarity or Ranking based Retrieval



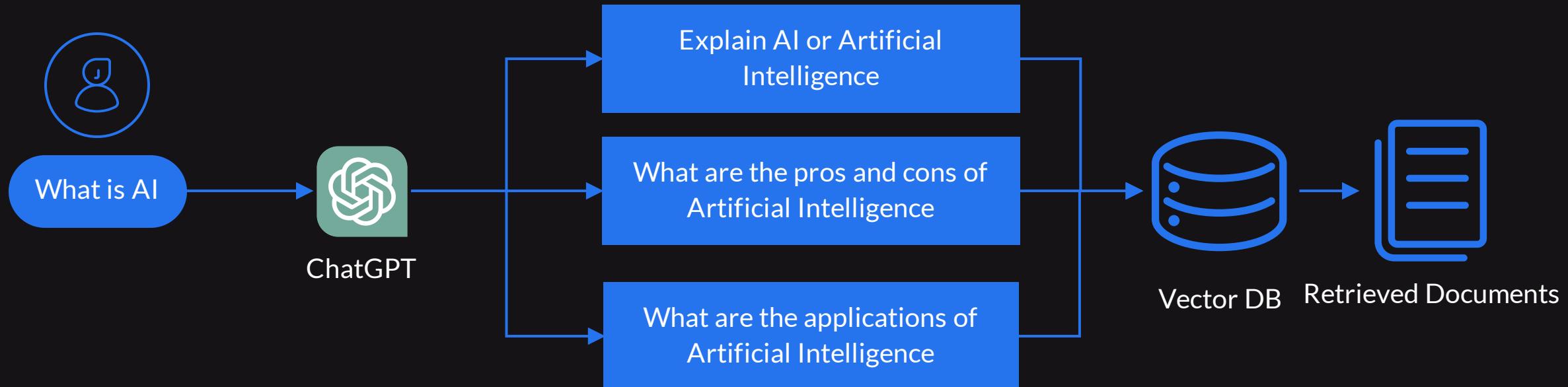
Similarity with Threshold Retrieval

The figure illustrates the process of retrieving the k most similar documents from a larger pool of "All docs". The "All docs" pool contains 10 documents, represented by colored bars: orange, orange, magenta, magenta, cyan, cyan, blue, blue, blue, and blue. The "fetch_k most similar docs" list shows the top 4 documents from this pool, also as colored bars: orange, cyan, blue, and blue. A blue arrow points from the fourth document in the "All docs" list to the fourth document in the "fetch_k most similar docs" list. To the right of the lists, a column labeled "Threshold>0.3" indicates the similarity score for each document: 0.76 (green checkmark), 0.63 (green checkmark), 0.44 (green checkmark), 0.21 (red X), and 0.19 (red X). This visualizes how a threshold is applied to filter the results.

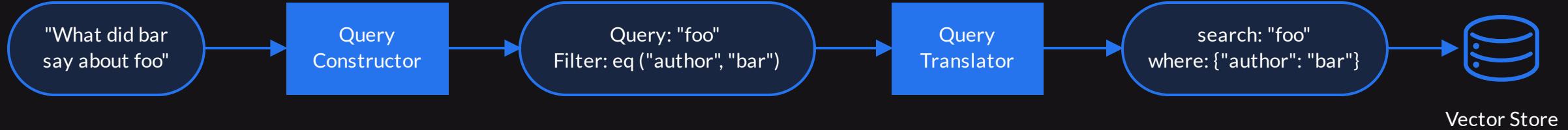
All docs	fetch _k most similar docs	Threshold>0.3
orange	orange	0.76 ✓
orange	cyan	0.63 ✓
magenta	blue	0.44 ✓
magenta	blue	0.21 ✗
cyan	blue	0.19 ✗
cyan		
blue		



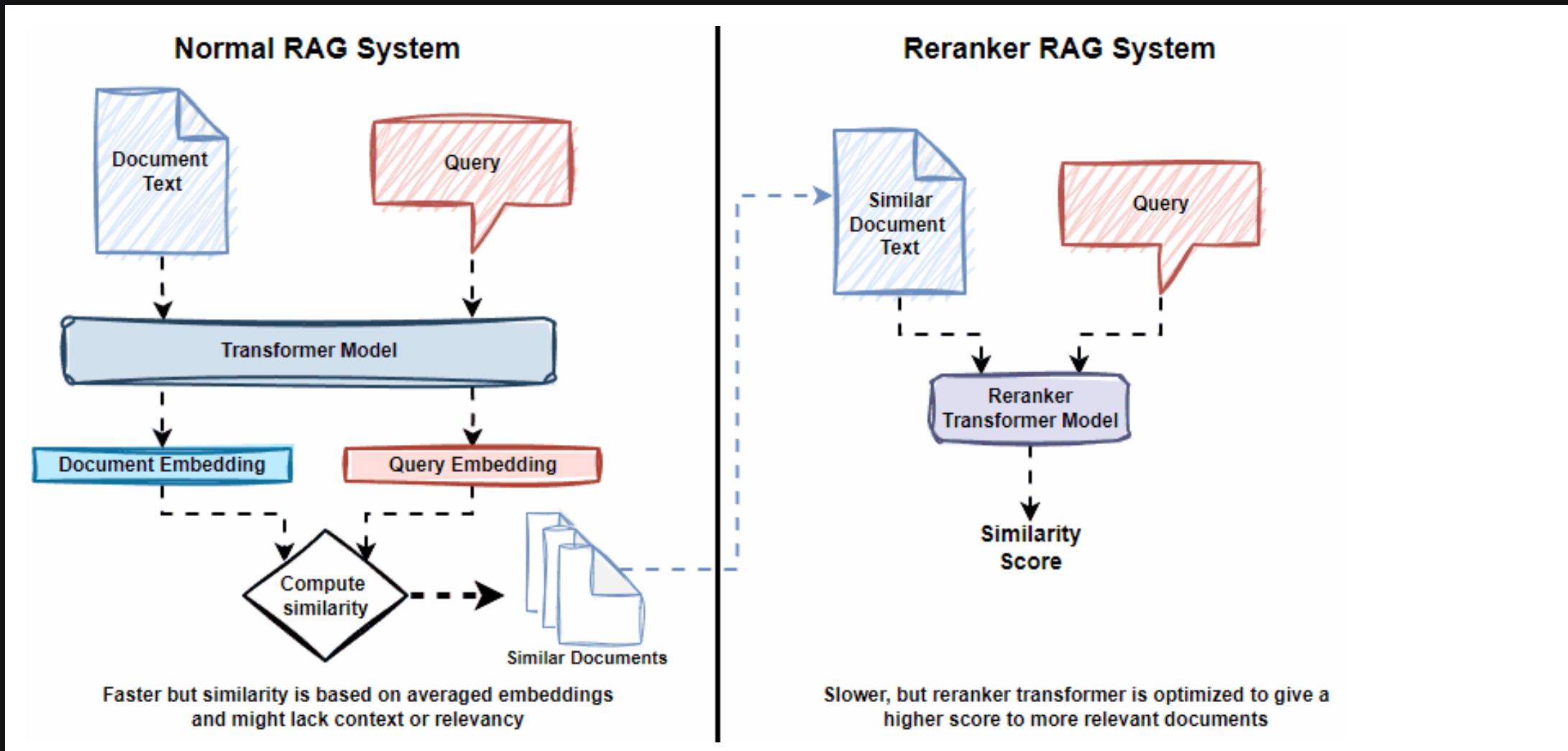
Multi-Query Retrieval



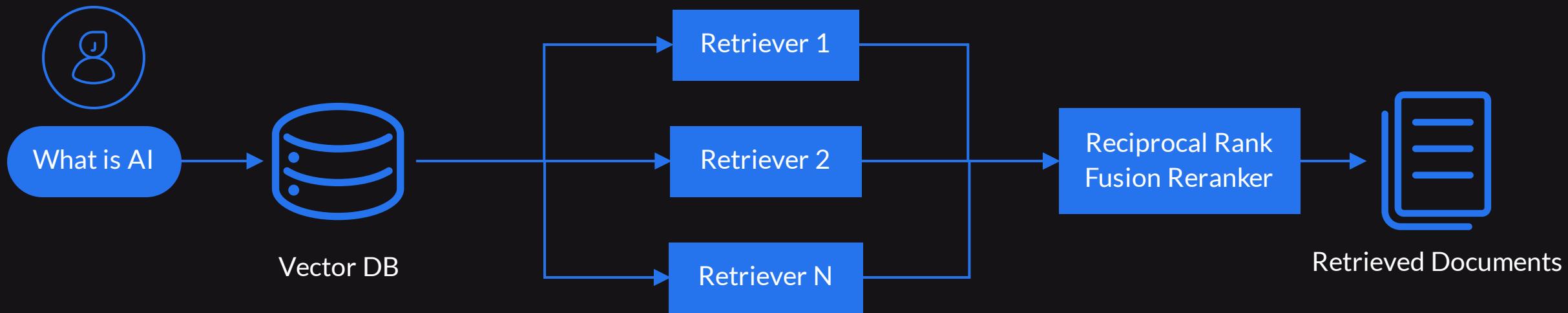
Self-Query Retrieval



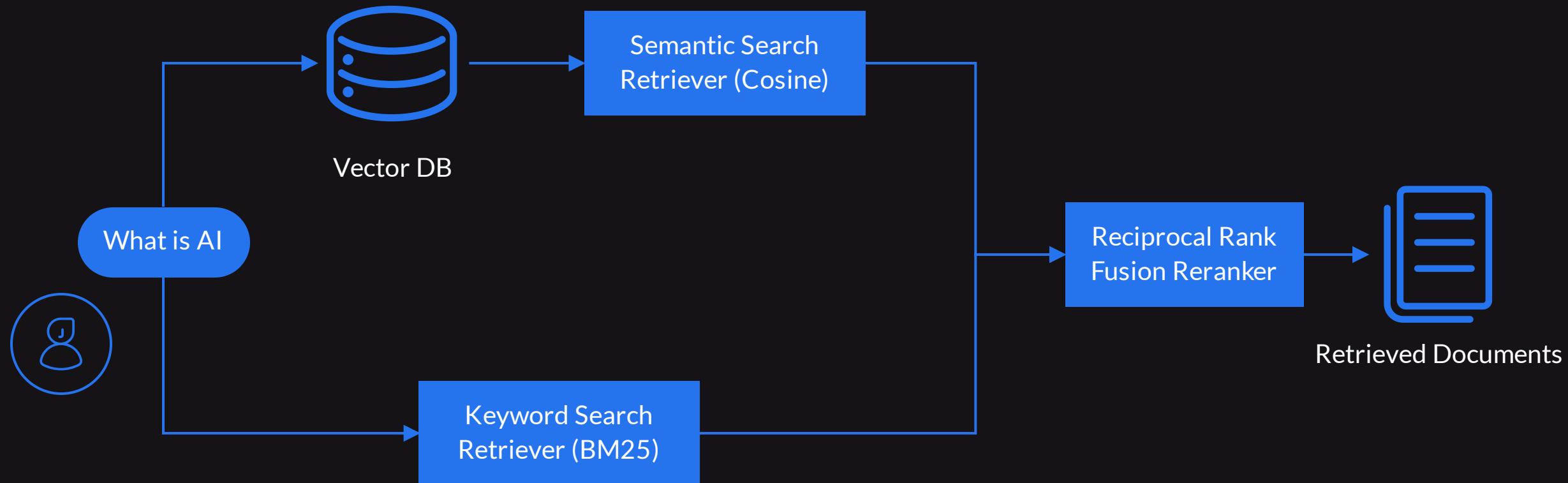
Reranker Retrieval



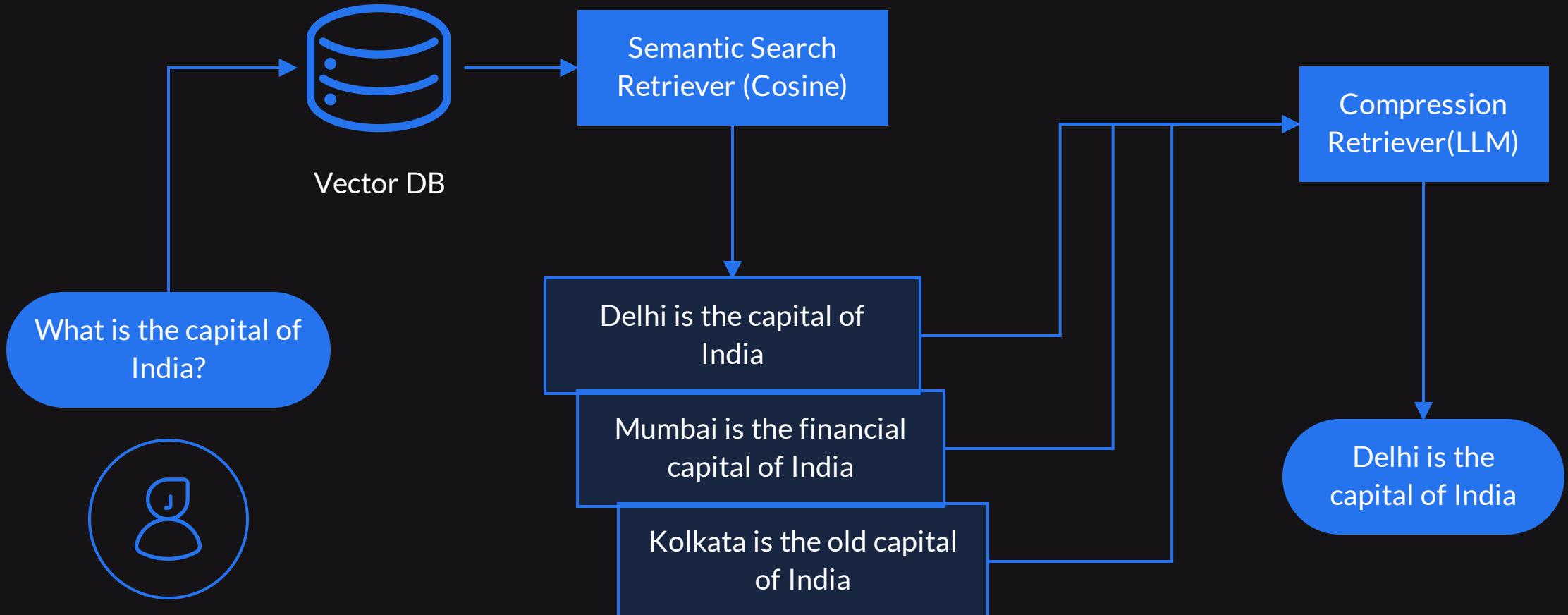
Ensemble Retrieval



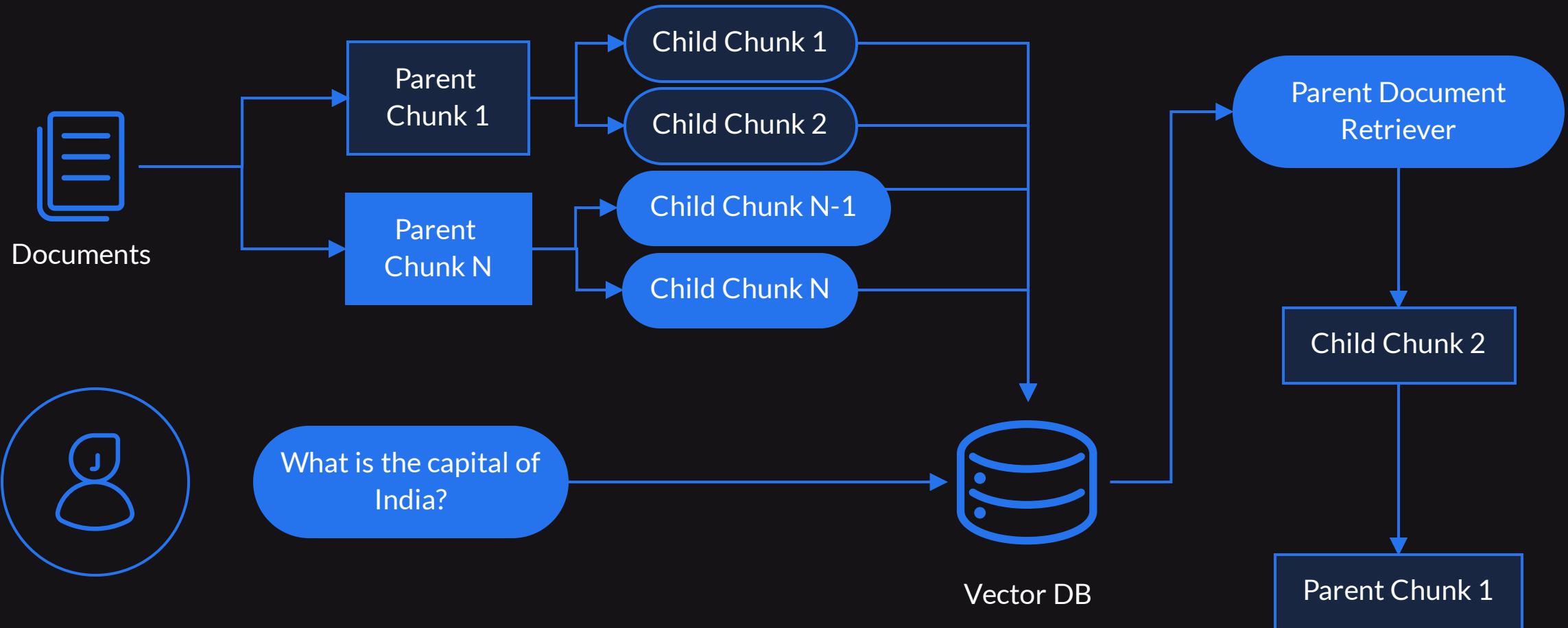
Hybrid Search Retrieval



Contextual Compression Retrieval



Parent Document Chunk Retrieval



Thank You
