

Hit rate and MRR

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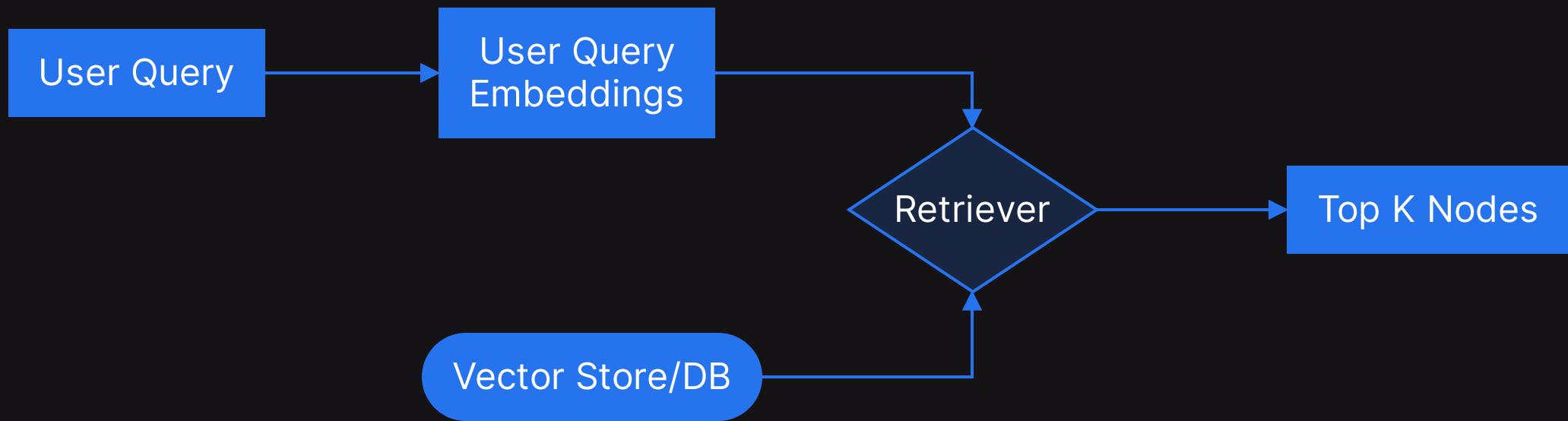
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Evaluation Metrics

- Retriever Evaluation Metrics
 - Hit rate
 - Mean Reciprocal Rank (MRR)
- Response Evaluation Metrics
 - Faithfulness
 - Relevancy
 - Correctness
 - Semantic Similarity
 - Guideline

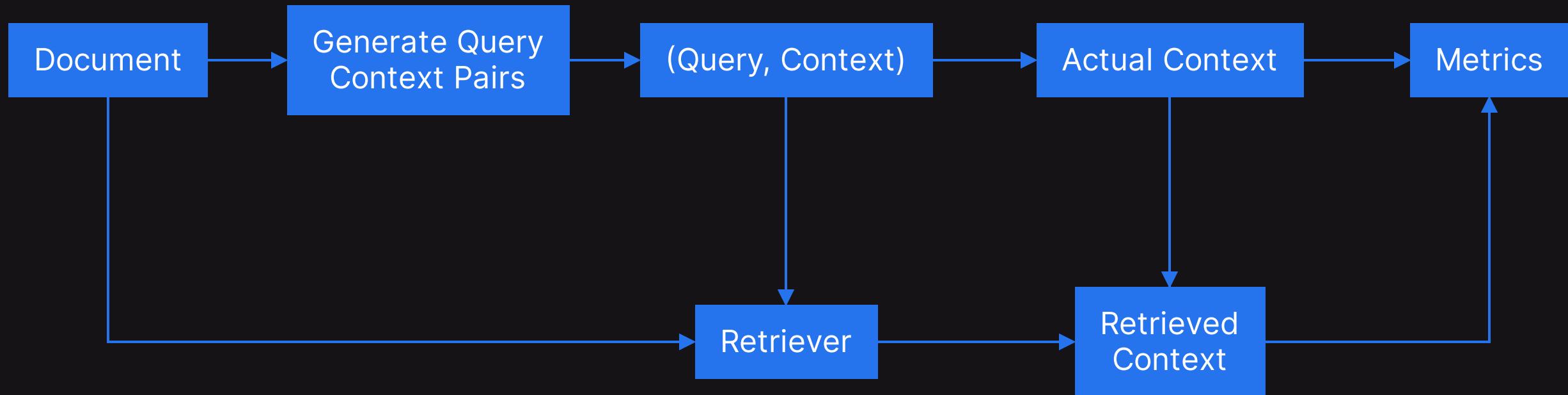
Introduction



Retriever Evaluation Metrics

- Hit rate
- Mean Reciprocal Rank

Retriever Evaluation Metrics



Hit rate

Define the fraction of queries where the correct context is found within the top-k retrieved contexts.

Hit Rate

Query	Actual Node	Retrieved Nodes (Top K = 3)	Hit Rate
Q1	N1	N2, N3, N1	1
Q2	N3	N3 , N5, N1	1
Q3	N3	N1, N2, N4	0

Hit Rate

Query	Actual Node	Retrieved Nodes (Top K = 3)	Hit Rate
Q1	N1	N2, N3, N1	1
Q2	N3	N3 N5, N1	1
Q3	N3	N1, N2, N4	0

Hit rate: $(1+1+0)/3 = 66.7\%$

Challenge with Hit Rate

Doesn't take into account the position of the retrieved nodes

Challenge with Hit rate

		Retrieved Nodes Top K = 3	
Query	Actual Node	Retriever 1	Retriever 2
Q1	N1	N2, N3, N1	N1 , N2, N3
Q2	N3	N3, N5, N1	N3, N5, N1
Q3	N3	N1, N2, N4	N1, N2, N4

Hit rate of both retrievers is 66.7%

Mean Reciprocal Rank (MRR)

- Takes into account the position of the actual node in the retrieved set of nodes
- Evaluates the system's accuracy by looking at the rank of the highest-placed relevant nodes.

Mean Reciprocal Rank (MRR)

Query	Actual Node	Retrieved Nodes	Position (order) of Actual Node within the Retrieved Nodes	Query Reciprocal Rank
Q1	N1	N2, N3, N1	3	1/3
Q2	N3	N3 N5, N1	1	1/1
Q3	N3	N1, N2, N4	0	0

Mean Reciprocal Rank (MRR)

Query	Actual Node	Retrieved Nodes	Hit Rate	MRR
Q1	N1	N2, N3, N1	1	1/3
Q2	N3	N3, N5, N1	1	1/1
Q3	N3	N1, N2, N4	0	0

Hit rate: $(1+1+0)/3 = 66.7\%$

MRR: $(1/3+1+0)/3 = 4/9 = 44.4\%$

Thank You
