NOTEBOOK

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Hybrid Search RAG

Text → Embedding

Documents

D1 →
D2 → vectors
D3 →
⋮
D4 →

Vector database
{vector store DB}

→ Response
.!!

Prompt
Template
+
LLM
↓
Answer

user query → vector search
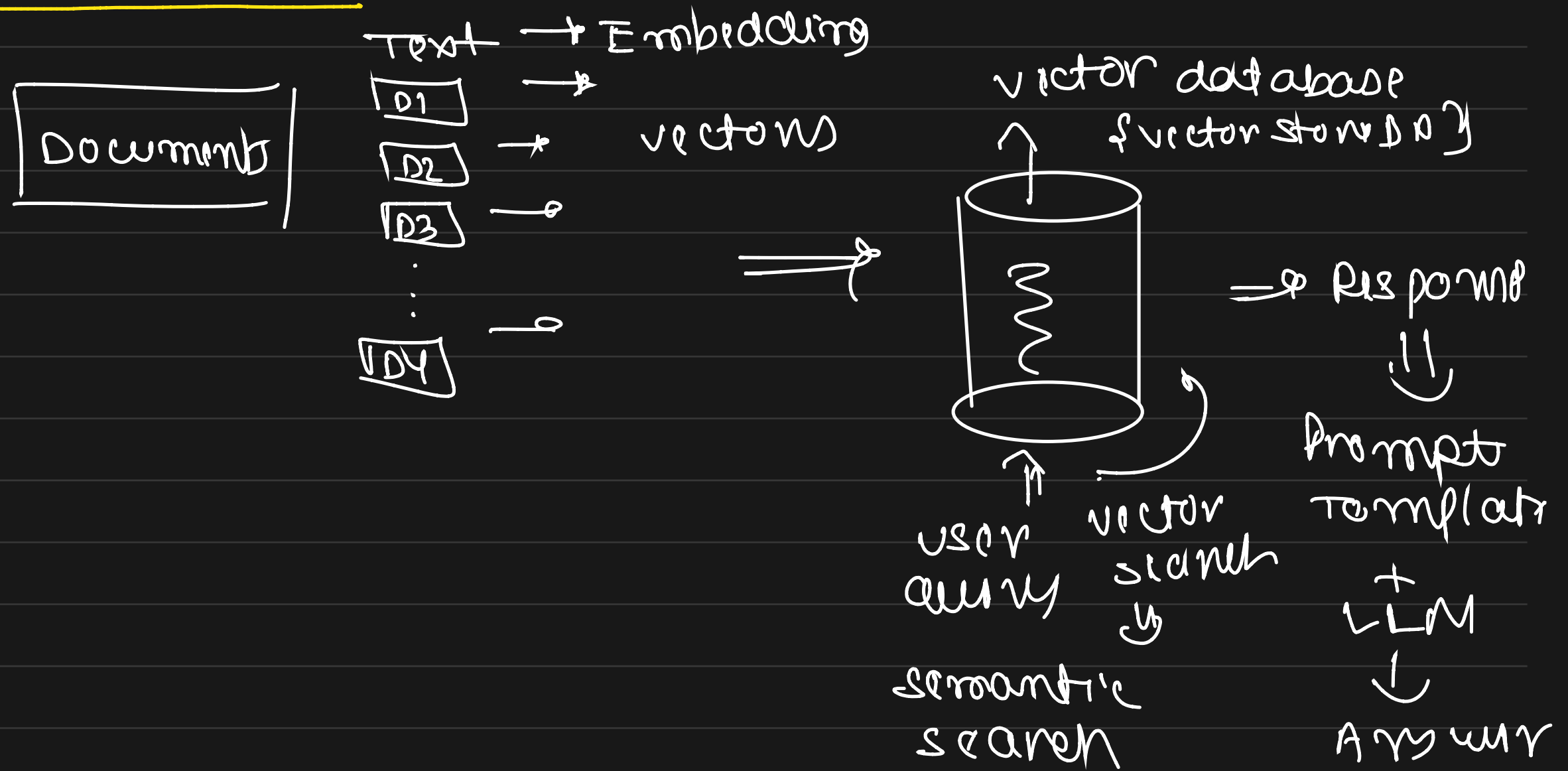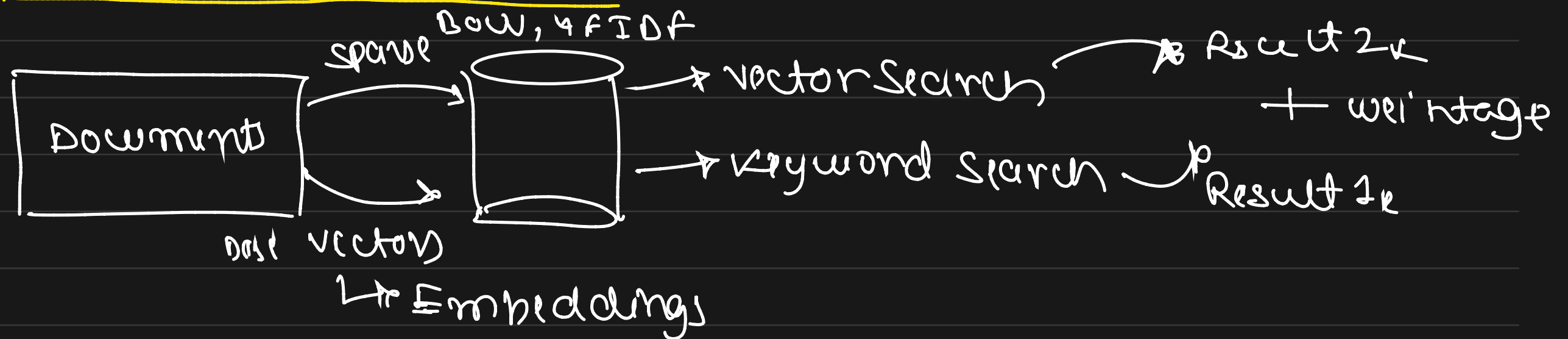→ semantic search
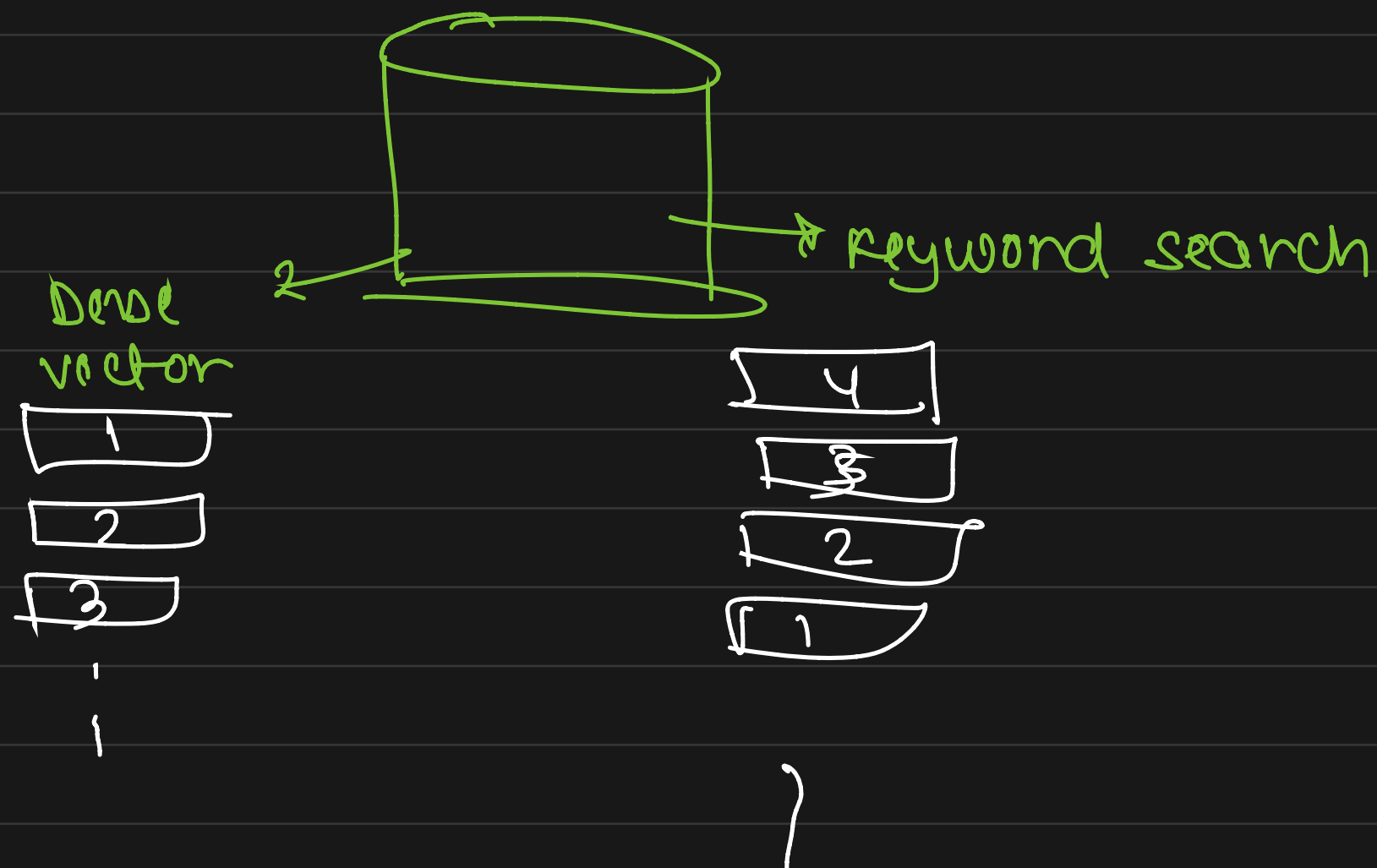
Hybrid Search → combining multiple search techniques
① semantic Search → Dense vector search
② syntactic search → Exact search → Keyword search
Text → sparse Matrix (0's and 1's)

How Hybrid Search works?

Document → space → BoW, 4FIDF → Vector Search → Result 2k
Document → Dase vectors → Keyword Search → Result 1k
          ↳ Embeddings

Result 2k + weightage
Result 1k

Reciprocal Rank Fusion in Hybrid Search

Dense vector
| 1 |
| 2 |
| 3 |
|
1

→ Keyword search
| 4 |
| 3 |
| 2 |
| 1 |

)

Final score $= \sum \dfrac{1}{(C+Rd)}$ $C =$ Depends on various database

$(1-60)$

$= \sum 1/Rd$

Graph knowlidge Search $(\,\cdot\,$