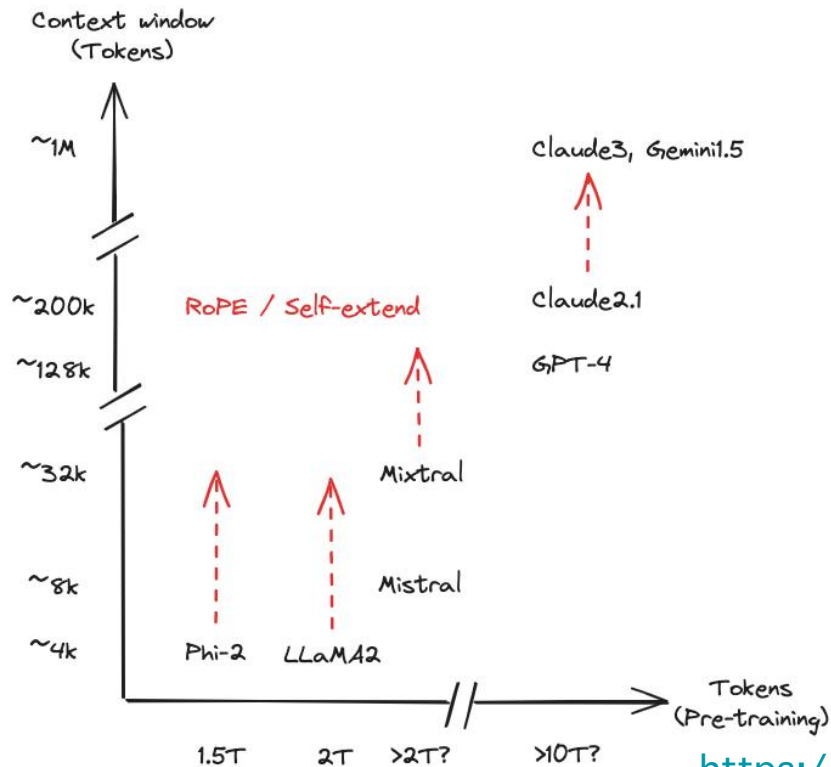


# RAG from scratch: Overview

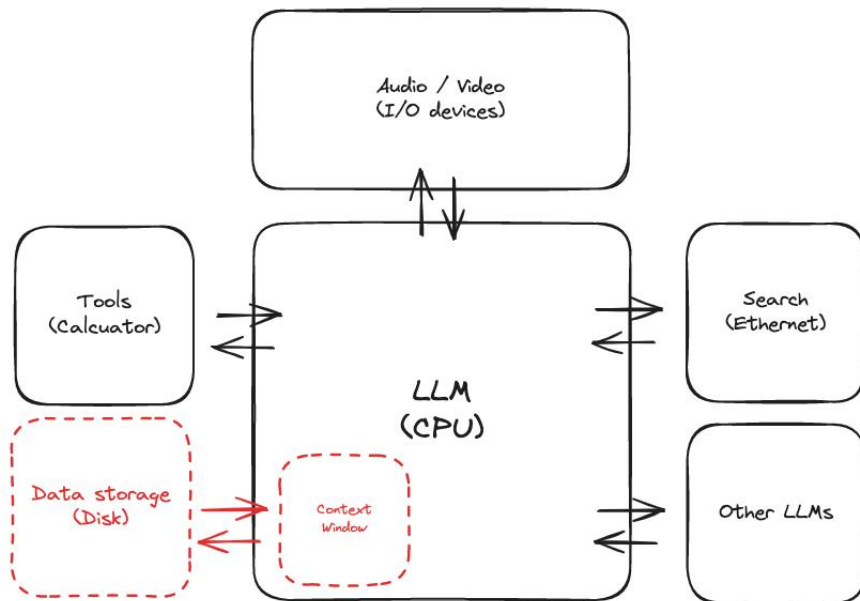
Lance Martin  
Software Engineer, LangChain  
[@RLanceMartin](https://twitter.com/RLanceMartin)

> 95% of the world's data is “private”, but we can “feed it” to LLMs

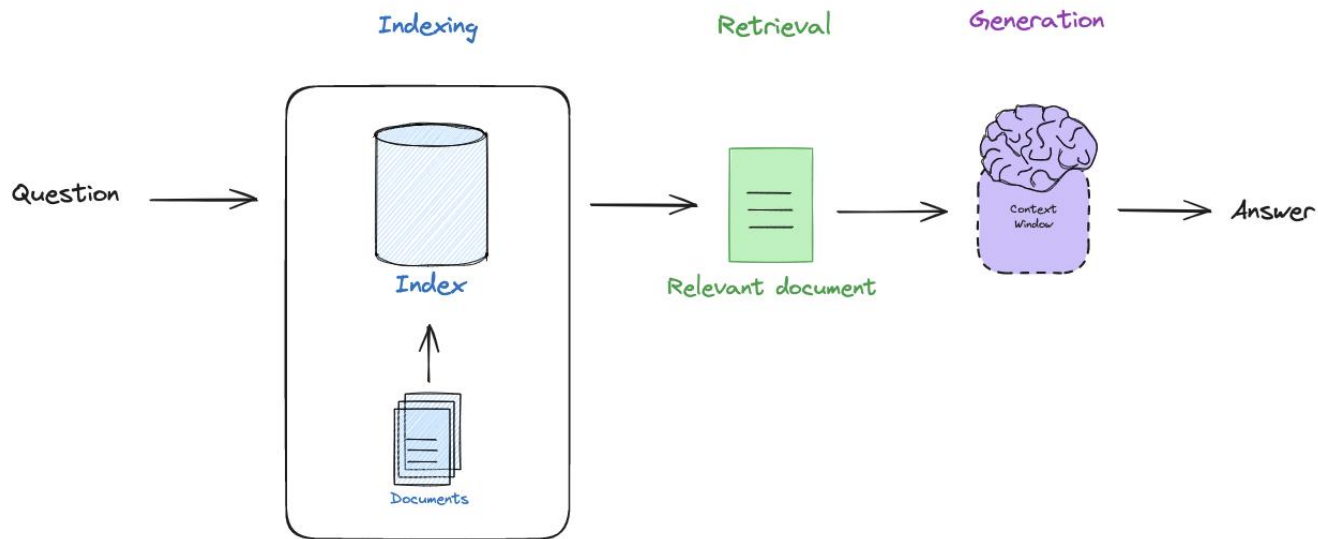


<https://huggingface.co/blog/mixtral>  
<https://x.com/RihardJarc/status/177808216159520812>

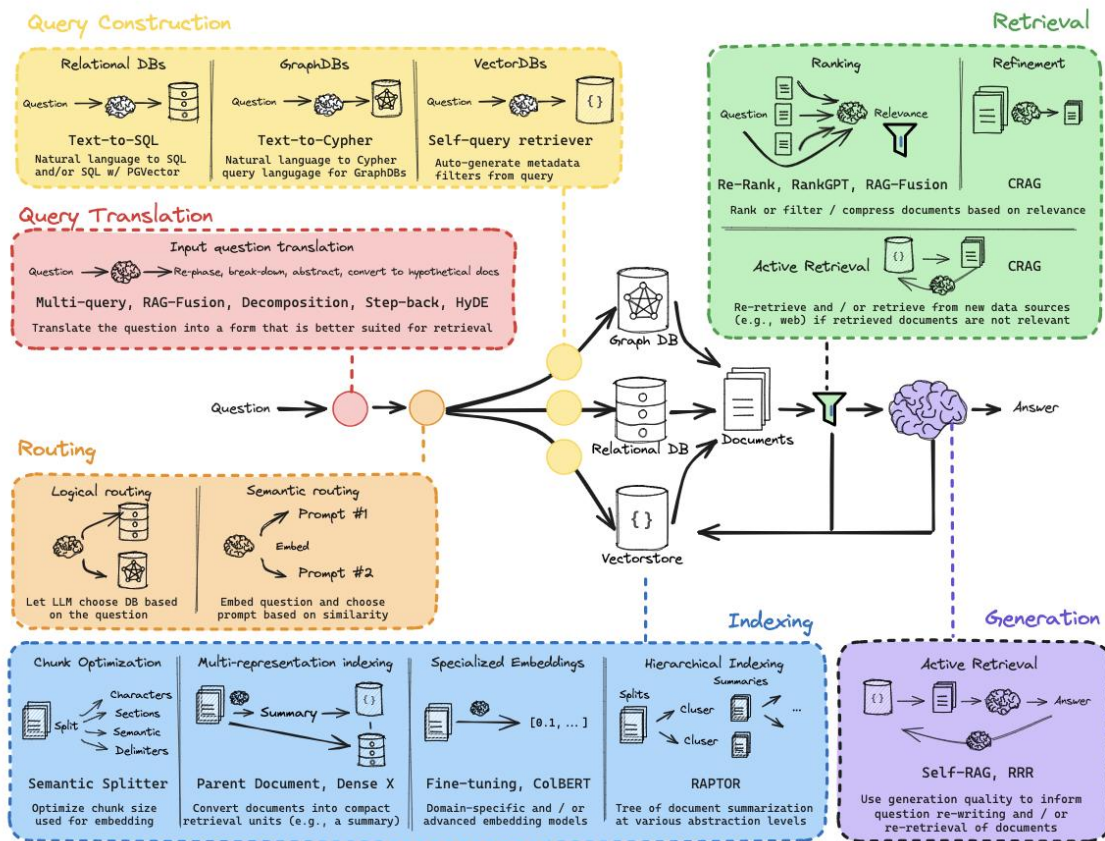
## Connecting LLMs to external data is a central need



# Retrieval Augmented Generation



# We'll start from scratch, and build up to state of the art in RAG



# Outline

## Basics

- Indexing
- Retrieval
- Generation

## Advanced

- Query transformations
- Routing
- Query construction
- Indexing
- Retrieval
- Generation

## Code walk-through