



AI Tutor: Generating Exercises & Solutions Using LLM & RAG

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Objectives & Goals

Why do we need AI Tutor?

1. Automate exercise generation and solutions
2. Improve personalized learning with AI
3. Enhancing knowledge

Technologies Used

1. LLM
2. RAG
3. Sentence Transformer
4. BART Transformer
5. Frameworks & Tools : Python & Hugging Face

LLM and RAG

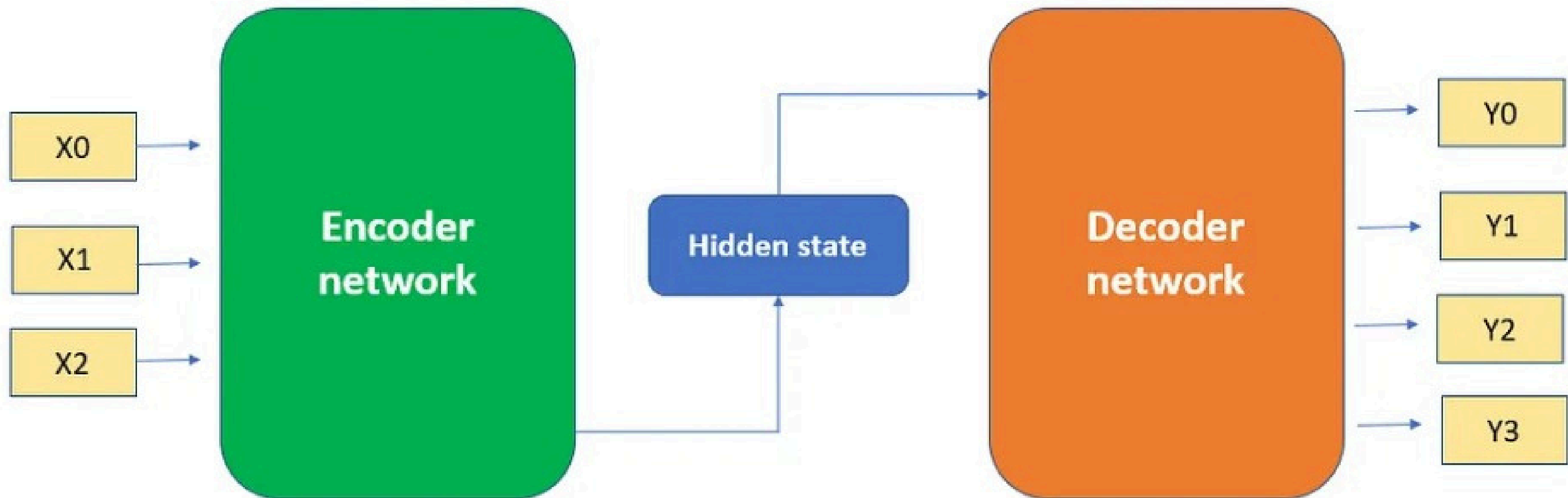
- **What LLM alone can do?**

LLM alone can generate response but it may be not accurate. Sometimes it gets hallucinate.

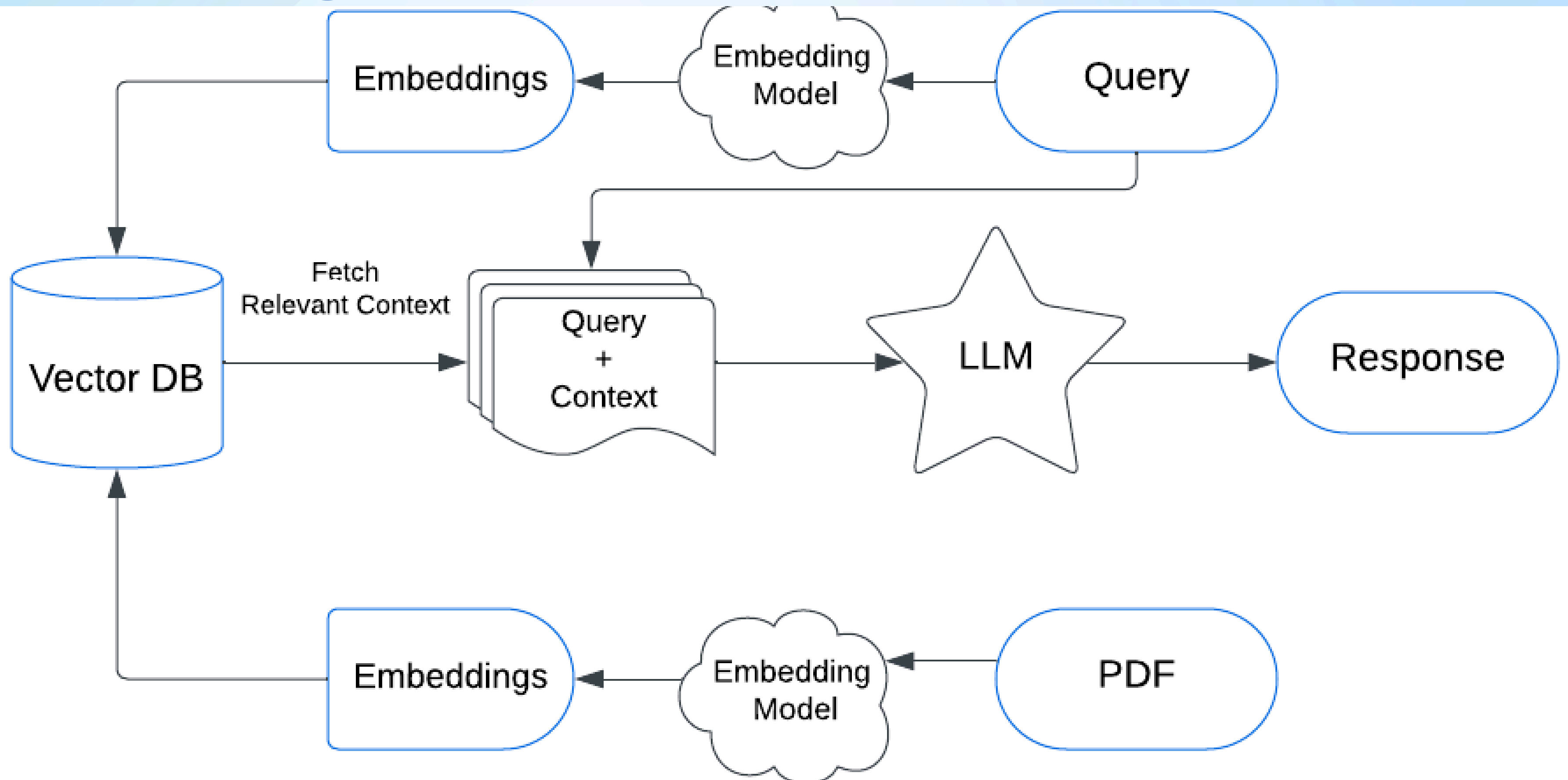
- **What RAG + LLM can do?**

RAG retrives the relevant information and feeds it to the LLM. SO LLM gives accurate response.

LLM Architecture



Workflow

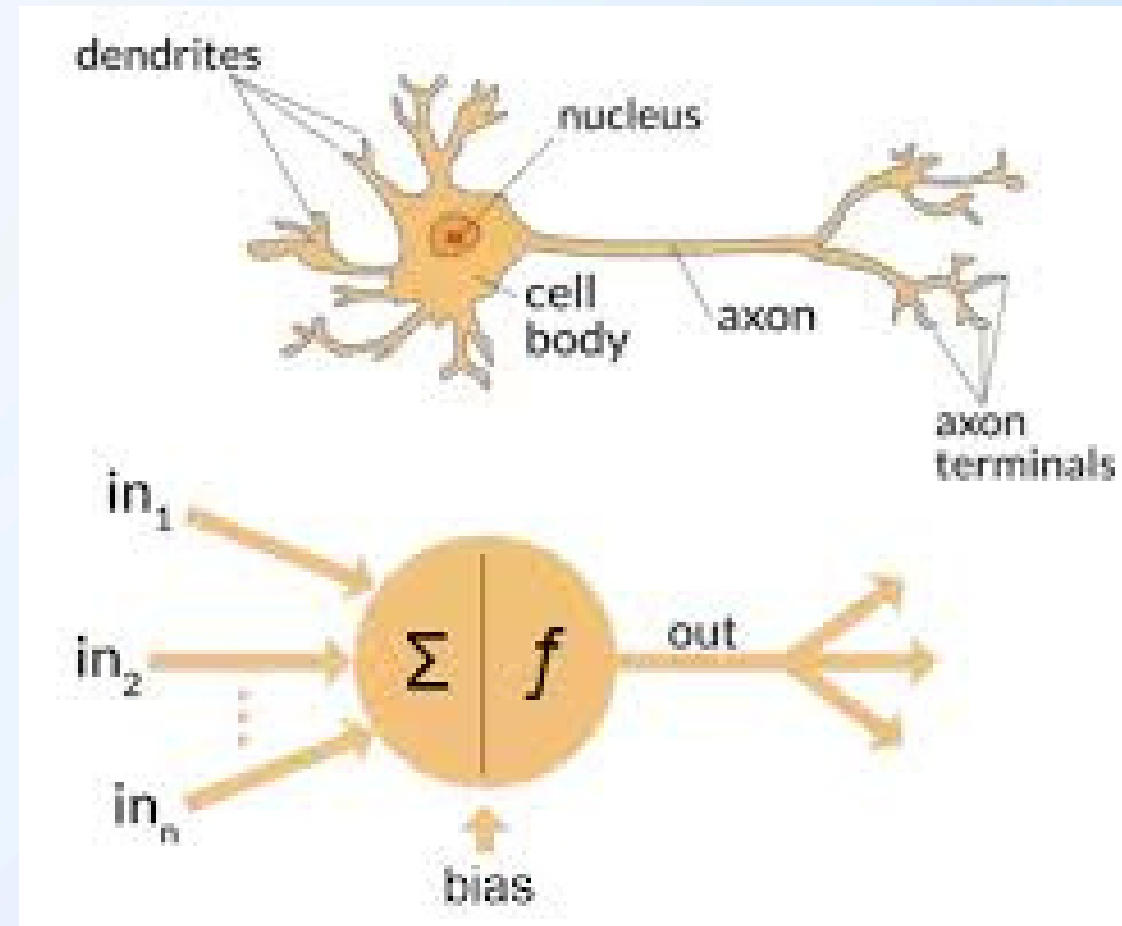


Further Development

- large PDF as input



- Images



- Video



Conclusions

1. AI-powered system extracts information from PDFs.
2. Generates Summaries & Solutions
3. Improves Personalized Learning

The background features a vibrant, abstract design. It consists of flowing, wavy lines in various shades of blue and green, creating a sense of movement. Interspersed among these lines are several geometric shapes, primarily hexagons, in white and dark blue. These shapes are clustered in the corners, with a larger group in the bottom-left and another in the top-right, leaving the center area more open for the text.

Thank You