Chatbot using RAG (Retrieval Augmented Generation)

KnowRA+ by WNS Global Service

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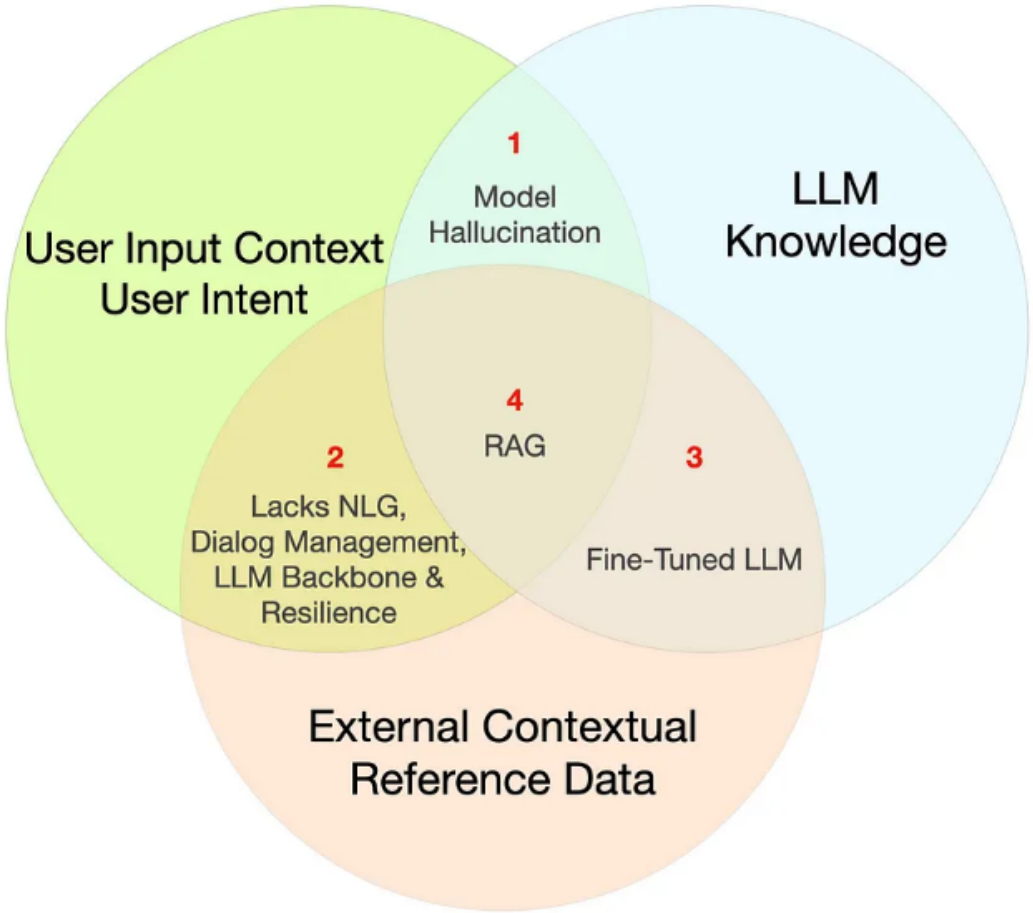
Introduction

RAG is an **AI framework** for retrieving facts from an external knowledge base to ground large language models (LLMs) on the most accurate, up-to-date information and to give users insight into LLMs' generative process.
RAG specifically focuses on **combining retrieval and generation AI techniques** to provide context-aware responses. It excels in tasks where it needs to retrieve information from a large database and then generate coherent responses based on that retrieved data.

RAG overview



Why Retrieval-augmented generation ?

- **Hallucinations:** refers to instances where the model confidently returns an incorrect or fabricated response.
- **Knowledge Cut-offs:** LLM model has a training end date, post which it is unaware of events or developments. This limitation means that the model's knowledge is frozen at the point of its last training date.
- **Personalization:** As LLM training dataset is not very relevant to organization usecase.

Problem Statement

As Organizations struggle to unlock information from **private PDF files, facing complexity and inefficiency in data extraction**. This challenge hampers their ability to leverage internal knowledge effectively, **leading to missed opportunities** for enhanced customer interactions and a **competitive edge in the market**.

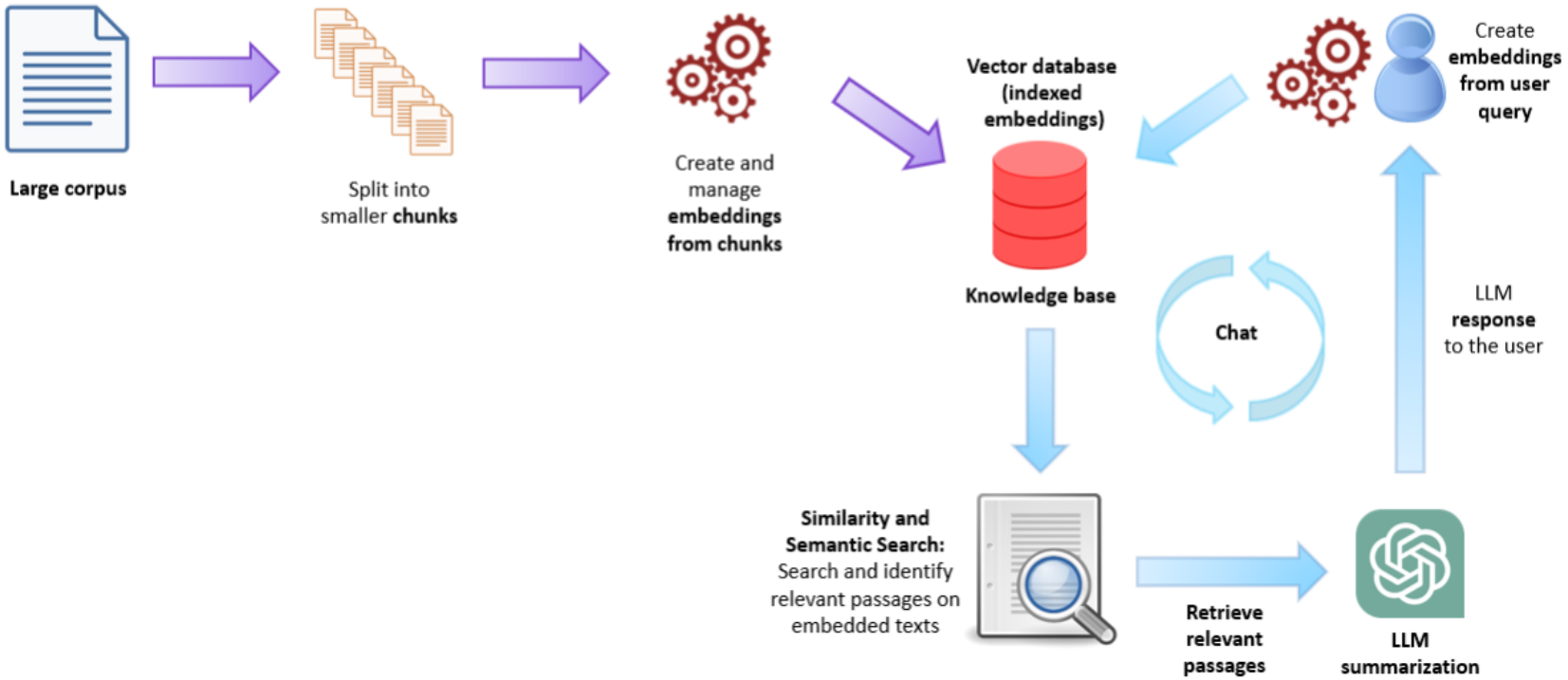
Solution

Create a chatbot based on RAG technique.

KnowRA+ Product Overview

KnowRA+ revolutionizes customer support by intelligently harnessing knowledge from private PDF files through an innovative chatbot. Bridging the gap in data accessibility, it ensures secure information retrieval, elevating user experience. With its robust RAG model integration and NLU capabilities.

Methodology



Objective

- Goal of KnowRA+ is to address challenges by traditional method by providing a comprehensive solution that facilitates the creation of intelligent chatbots tailored to individual organizations' private PDF files.
- Product aims to balance security, customization, and scalability to empower businesses in leveraging their data for enhanced customer

References

- Levonian, Z., Li, C., Zhu, W., Gade, A., Henkel, O., Postle, M.E. and Xing, W., 2023. Retrieval-augmented Generation to Improve Math Question-Answering: Trade-offs Between Groundedness and Human Preference. arXiv preprint arXiv:2310.03184.
- Siriwardhana, S., Weerasekera, R., Wen, E., Kaluarachchi, T., Rana, R. and Nanayakkara, S., 2023. Improving the domain adaptation of retrieval augmented generation (RAG) models for open domain question answering. Transactions of the Association for Computational Linguistics, 11, pp.1-17.