Dear Hiring Committee,

I am excited to apply for the **Business System Analyst** position at the City of Beaverton. With a strong foundation in data analysis, business process optimization, and technical system implementation, I bring a unique combination of technical expertise and collaborative problem-solving skills that align perfectly with your department's mission to enhance enterprise applications and support city operations.

In my recent role as a **Technical Lead** with **Women in Big Data**, I mentored a team from University of Portland to develop innovative solutions using Retrieval-Augmented Generation (RAG) architecture, culminating in a third-place finish in a competitive hackathon (Varsity 2024). This experience honed my skills in guiding cross-functional teams, documenting workflows, and delivering projects under tight deadlines. Additionally, my internship at **HiddenLayer** allowed me to build scalable model libraries and optimize machine learning workflows in Databricks, which strengthened my technical aptitude and reinforced the importance of clear communication across diverse teams.

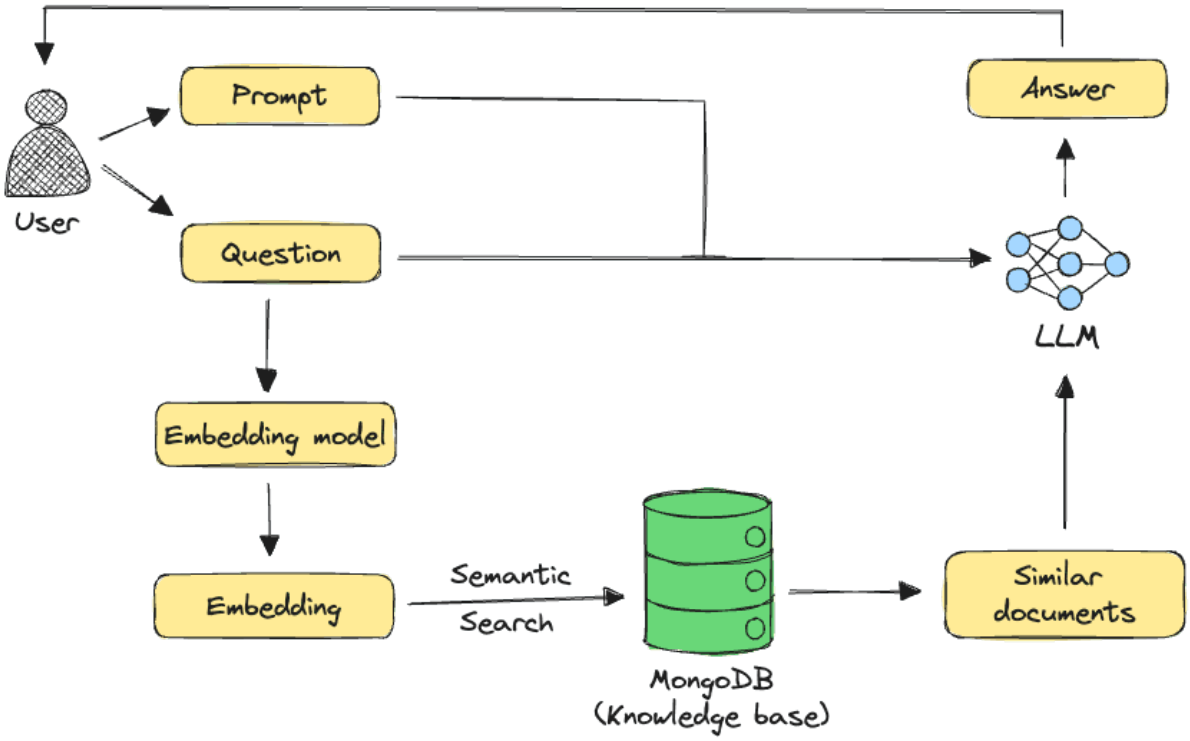
Beyond my professional expertise, my academic projects during my master's program focused on leveraging data-driven technologies to solve real-world challenges. I created tools for scientific paper summarization and legal document retrieval, which required meticulous analysis and iterative improvement—skills that directly translate to optimizing business processes and aligning technology solutions with strategic goals.

The opportunity to contribute to the City of Beaverton's ITS Department resonates with my desire to make a meaningful impact in the public sector. My adaptability, analytical mindset, and ability to communicate technical concepts to diverse audiences position me to successfully support your mission of delivering high-quality services to the Beaverton community.

Thank you for considering my application. I would be honored to contribute to the City of Beaverton's vision for innovation and service excellence and would welcome the opportunity to discuss how my skills and experiences align with this role.

Sincerely,
Manisha Yadav

Retrieval-augmented generation, as the name suggests, aims to improve the quality of pre-trained LLM generation using data retrieved from a knowledge base. The success of RAG lies in retrieving the most relevant results from the knowledge base. This is where embeddings come into the picture. A RAG pipeline looks something like this:



In the above pipeline, we see a common approach used for retrieval in genAI applications — i.e., semantic search. In this technique, an embedding model is used to create vector representations of the user query and of information in the knowledge base. This way, given a user query and its embedding, we can retrieve the most relevant source documents from the knowledge base based on how similar their embeddings are to the query embedding. The retrieved documents, user query, and any user prompts are then passed as context to an LLM, to generate an answer to the user's question.