

RAG Task

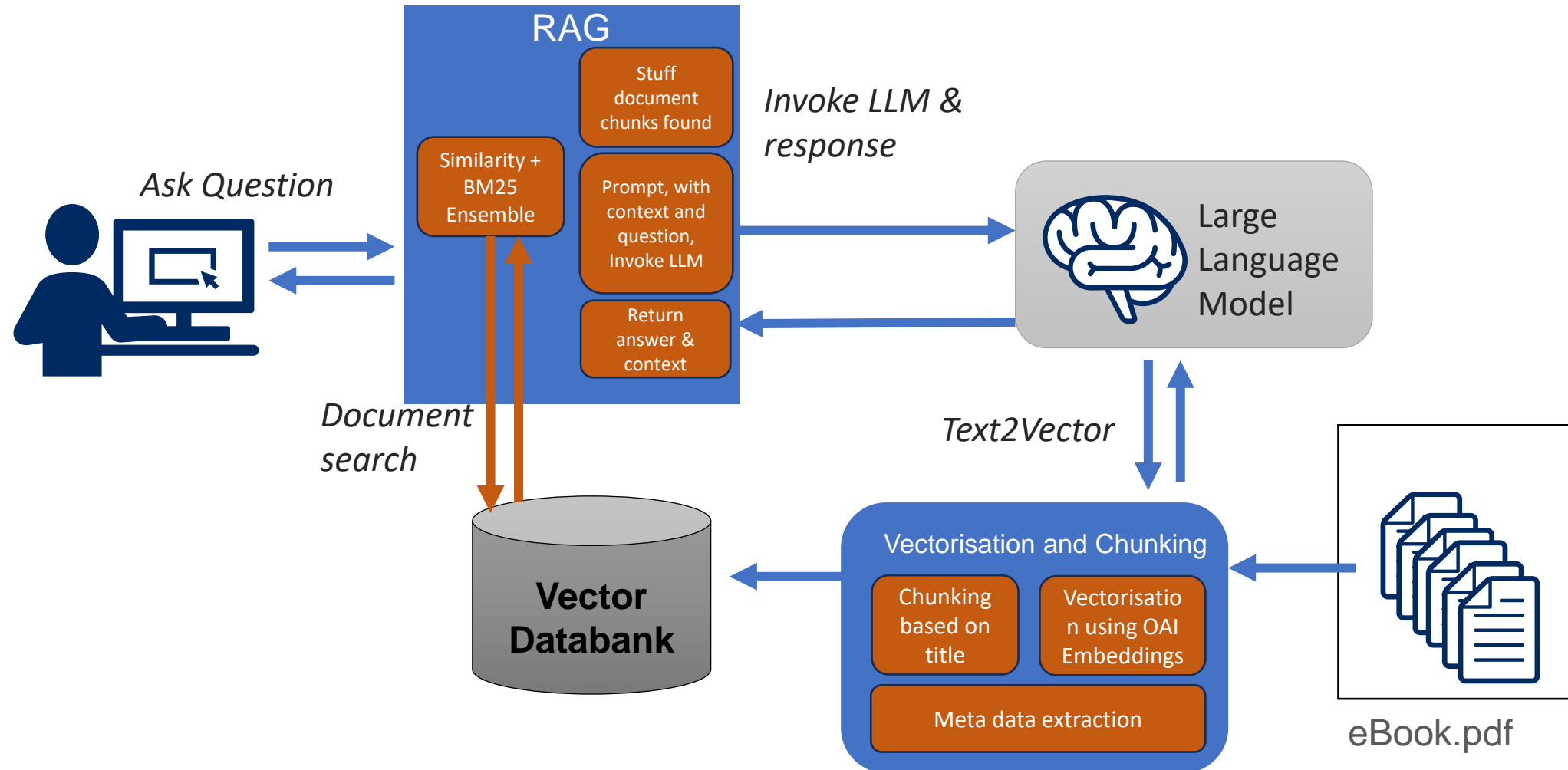
Logdify Recruitment

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Problem Statement

- Task is to develop a Python-based solution for a Retrieval-Augmented Generation (RAG) system.
- This solution should handle natural language queries and provide response to the question based on the input PDF document. (app/eBook.pdf)
- Utilize a vector database (of your choice) for extracting contextual insights from the provided PDF document, which will subsequently guide the answer formulation process.
- LangChain or LlamaIndex for this task (but you are not limited to these frameworks).

Overview



Results – Langchain Document Chunking

- Question : What are the keys to building a career in AI?

Ans : Building a career in AI involves several key steps and considerations:

Teamwork and Communication: AI projects often require collaboration. Improving your ability to work in teams, as well as your interpersonal and communication skills, is crucial.

Networking: Building a strong professional network can help propel your career forward. Instead of focusing on traditional networking, consider building communities where you can make genuine connections.

Job Search: Finding a job is just one step in a long career journey. It's important to approach this process thoughtfully, avoiding adversarial attitudes towards potential employers. Seek help from your community and consider incremental steps like informational interviews.

Personal Discipline: Developing good habits in areas like learning, exercise, sleep, and self-care can provide a foundation for long-term success and well-being.

Altruism: Helping others and lifting them up along your journey can lead to better outcomes for yourself as well.

Additionally, the broader framework for career growth in AI includes:

*****Learning Foundational Skills:*****

Continually enhancing your knowledge in key areas such as machine learning models, deep learning, software development, and relevant math like linear algebra and statistics.

*****Working on Projects:*****

Engaging in projects to deepen your skills, build a portfolio, and create impact. Start small and gradually take on more complex projects. Communication and leadership skills are important for explaining your work and guiding team projects.

*****Finding the Right Job:*****

Identifying roles that align with your skills and career goals. Seek advice from your community and consider the importance of potential teammates.

By focusing on these aspects, you can build a successful and fulfilling career in AI.

Results – Unstructured Document Chunking

- Question : What are the keys to building a career in AI?

Ans : The keys to building a career in AI include several important elements:

Learning Foundational Technical Skills:

Programming Fundamentals: Knowledge of programming is crucial for implementing complex AI systems.

Data Structures and Algorithms: Especially those related to machine learning, such as data frames and data manipulation algorithms.

Software Design: Understanding how to design software systems is important for creating scalable and maintainable AI solutions.

Familiarity with Python: Python is a widely-used programming language in AI and machine learning.

Keeping Up-to-Date: As AI technologies are continually evolving, staying current with new developments is more important than in more mature fields.

Working on Projects:

Identifying Worthwhile Ideas: Being able to select and scope projects that are valuable and align with career goals.

Building a Portfolio: Working on and documenting projects that demonstrate skill progression and technical competency.

Finding a Job:

Networking: Building a supportive community of friends and allies who can help in your career journey.

Job Search Framework: Following predictable steps such as selecting companies, preparing for interviews, and negotiating roles and benefits.

Being Part of a Community:

Supportive Networks: Engaging with a community can provide support and opportunities throughout your career.

Continuous Learning:

Career-Long Process: Learning foundational skills is an ongoing process, and keeping up with evolving technologies is crucial.

Building a career in AI involves a combination of technical skill development, practical project experience, strategic job searching, and active participation in a community.

Results – Only with similarity search retriever

- Question : What are the keys to building a career in AI?
- Ans : The keys to building a career in AI, as outlined in the provided context, include:
 - **1. Learning Foundational Technical Skills:** This involves gaining the necessary knowledge and expertise in areas fundamental to AI, such as machine learning, data science, and programming.
 - **2. Working on Projects:** Applying the learned skills to practical projects helps in honing abilities and gaining real-world experience.
 - **3. Finding a Job:** Securing employment in the AI field to further develop skills and gain professional experience.
 - **4. Being Part of a Community:** Engaging with a community of AI professionals and enthusiasts for support, networking, and continuous learning.

These steps are essential for building a successful and sustainable career in AI.

Conclusion

- The RAG system successfully met the task's test conditions.
- After manual inspection of the results:
 - Title-based chunking using the Unstructured package combined with an ensemble retriever produced the most accurate answers.
 - Fixed-length chunking with the LangChain splitter and a similarity-only retriever did not yield satisfactory answers.
- Since there is no ground truth (expected answers), these conclusions are subjective.

```
ab5cdc5/ tests.xml -----
===== 4 passed, 16 warnings in 44.79s =====
sivahari@sivahari-VirtualBox:~/lodgify/2/c7947c52-25b5-409d-87c0-f294aab5cdc5$ vim app/app.py
sivahari@sivahari-VirtualBox:~/lodgify/2/c7947c52-25b5-409d-87c0-f294aab5cdc5$
```