CREDIT JOURNEY

GenAI Specialist - Technical Assignment

Business focus:

"Cloud AI Bank" operates in several countries. It has a centralised team, that is responsible for customer onboarding according to the compliance requirements.

After a very successful customer campaign, they are overwhelmed with daily new customer requests from all different markets.

The current process is described as following:

1. *A potential customer calls the bank to express the wish of becoming the customer of the bank.*
2. *The customer service hotline talks with the customer and understands the need and then asks the customer to provide the identification documents (e.g., photocopy of the passport or ID card etc., depending on the country specific business procedures) to a centralized secured email address.*
3. *The onboarding team manually processes each of the mail, checks the ID and verifies the identify against the national registry.*
    a. *If the documentation is not missing or invalid, the onboarding team replies to the request via the email explaining the situation according to a pre-defined template, which ends the unsuccessful flow of the onboarding process.*
    b. *If the documentation is complete and legit, based on the customer address retrieved from the national registry, onboarding team forward the customer request to the responsible branch according to the internal reference manuals, which depending on the country, exist in various formats (PDFs, Confluence pages, internal websites) and may change frequently due to organizational changes.*
4. *The advisor in the branch receives the internal email and relevant documents, creates the customer manually in the existing system by typing in the customer's name, address, ID and other personal information.*
5. *The advisor then sends out a templated congratulation email to the customer including the predefined customer manual, which ends the successful flow of the onboarding process.*

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Assignment tasks:

You are a GenAI Specialist at “Cloud AI Bank”, your task is to build a prototype for the customer onboarding.

Here are some inspirations after the workshop with the business organisations:

- Allow users to make enquiries to become the customer in natural language via chat or call.
- Provide accurate, context-specific answers to request, and require needed documents and information sourced only from the business procedure rules
- Verify the documents against national registry automatically and respond the user accordingly with the onboarding result.
- Notify the internal responsible branch of the successfully onboarded customer for continuous customer support and advisory.

Design and build an agentic GenAI solution, which will improve and automate the existing process. Please complete the following 2 tasks and provide the relevant deliverables.

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Assignment tasks:

Task 1: Solution architecture & design

- Design a high-level architecture diagram for the solution.
- Justify your choice of specific services, frameworks and infrastructure.
- Explain where and how you would integrate the agentic GenAI elements (tools/services/data sources etc.) in this architecture, and how they interact the core LLM.
- Briefly outline your strategy for document ingestion, chunking, and embedding generation.
- Reflect on trade-offs you made and potential improvements for a production system (e.g., security, monitoring, cost controls).
- Write a ARCHITECTURE.md file that includes the above design, diagram and justifications.

Task 2: Core Implementation

- Implement a minimal, working proof-of-concept, reflecting the different key elements in your designed architecture.
- Illustrate the data Ingestion and tokenisation based on the provided business procedure documents attached to the assignment.
- Implement text chunking and generate embeddings using a model.
- Store the embeddings and their metadata in a vector database of your choice
- Demonstrate how to provide real-time data when generating the response (i.e., information about the user from national registry).
- Demonstrate how to provide dynamic context to the LLM that is separate from the vector store (i.e., additional business rules that is not originally provided).
- Integrate to the external services needed REST API to create the customer.
- Create simple interface that accepts the user queries and returns the generated responses based upon the richer, multi-source context provided.
- Provide an IaC based method to deploy your entire stack.
- Write a concise README.md file that explains: e.g. How to set up and run the project, etc.

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Assignment tasks:

Deliverables

Please submit a single link to a Git repository (e.g., GitHub, GitLab) containing:

1. Solution elements required in the Task 1 and 2 above.
2. (Optional but appreciated) A 5-minute solution walk-through video where you walk through your code, diagram, and demo the working system.

Note to the Candidate

We understand that your time is valuable. The goal is not to build a perfect, production-grade system but to demonstrate your thought process and technical capabilities along with your business understanding and problem-solving skills.

Focus on the core functionalities, instead of everything/edge cases to be time efficient, and please keep a track of the time spent and document the effort accordingly.

You are welcome to use any open-source libraries or frameworks to accelerate development.

We look forward to seeing your solution!