

Use Case Document

Retrieval-Augmented Generation (RAG) Application

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Introduction

The Use Case Document describes how the Retrieval-Augmented Generation (RAG) Application is utilized to enhance AI-generated responses by retrieving relevant external knowledge. This document ensures that the system meets business requirements by outlining a step-by-step process for its usage. The RAG system is designed to improve AI response accuracy, support knowledge-intensive applications, and provide real-time retrieval of information.

Explanation of Use Case Contents

This document follows a structured use case format, including details such as actors, preconditions, postconditions, normal flows, alternative flows, and error handling scenarios. Each section is designed to clarify the expected behavior of the system and how it interacts with users.

Use Case: AI-Powered Information Retrieval

Created By: AI Solutions Inc.

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Description

The AI-powered RAG system retrieves external knowledge and incorporates it into AI-generated responses. Users input a query, and the system searches knowledge bases, retrieves relevant documents, and generates an informed response.

Actors

- **Primary Actor:** End-user interacting with the AI system
- **Secondary Actors:** External knowledge bases, API integrations, AI model

Preconditions

- User has access to the system and submits a valid query.
- External knowledge bases are operational and accessible.
- AI model is trained and optimized for retrieval-augmented responses.

Postconditions

- AI system provides a response enhanced by retrieved external data.
- Retrieved documents are logged for auditing and quality improvements.
- User feedback may be collected to refine AI responses.

Flow

- User submits a query via the RAG interface.
- System validates the query and identifies key concepts.
- Retrieval module searches external knowledge bases for relevant data.
- System ranks and selects the most relevant retrieved documents.
- AI model generates a response incorporating retrieved knowledge.
- Response is displayed to the user.
- User provides optional feedback on response accuracy.

Alternative Flows

If external knowledge bases do not return sufficient data, the AI system defaults to its internal training data and provides a response with a disclaimer indicating limited external validation.

Exceptions

- If the external API is unavailable, the system notifies the user and suggests retrying later.
- If the query is malformed, the system prompts the user to refine it.

Requirements

- The system must adhere to data security and privacy regulations.
- Responses should be generated in under 2 seconds.
- The system must log all interactions for continuous improvement.

Sponsor Acceptance

Approved by the Project Sponsor:

Date: _____

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