

Risk Management Plan

Retrieval-Augmented Generation (RAG) Application

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Date

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Introduction

The purpose of this Risk Management Plan is to define the process of identifying, assessing, mitigating, and monitoring risks associated with the Retrieval-Augmented Generation (RAG) Application project. As with any AI-based project, there are uncertainties related to data quality, model performance, and infrastructure scalability. Effective risk management is essential to minimizing project disruptions and ensuring successful deployment.

Top Three Risks

- **Data Source Reliability:** External knowledge bases may change access policies or go offline, impacting system performance. Mitigation: Implement data caching strategies and diversify data sources.
- **Model Hallucination:** The AI model may generate incorrect or misleading responses. Mitigation: Implement confidence scoring and user feedback loops to improve response accuracy.
- **Scalability Challenges:** The system may struggle to handle high query volumes, causing latency issues. Mitigation: Optimize model inference speed and utilize cloud-based auto-scaling solutions.

Risk Management Approach

A structured risk management process has been established for the RAG project. Risks are identified, evaluated, and prioritized based on probability and impact. High-priority risks are continuously monitored and incorporated into the project schedule, with mitigation

strategies executed proactively. Lessons learned from risk incidents will be documented for future improvements.

Risk Identification

Risks were identified through expert interviews, historical reviews of similar AI projects, and a risk assessment meeting with key stakeholders. Identified risks were categorized and documented in the project’s Risk Register. The project team used the Crawford Slip method to gather risk inputs from multiple sources, ensuring a comprehensive assessment.

Risk Qualification and Prioritization

Each risk was evaluated using a probability-impact matrix. Risks with high likelihood and significant consequences were given priority, ensuring appropriate mitigation strategies were implemented. A scoring system was used to rank risks based on their potential impact on the project timeline, budget, and deliverables.

Risk Monitoring

High-impact risks are included in the project schedule and monitored throughout the project lifecycle. Assigned risk managers will report status updates during bi-weekly project meetings. Any risk triggers will be documented, and mitigation responses will be activated promptly. Continuous risk assessment will be conducted to account for emerging risks.

Risk Mitigation and Avoidance

- The project team has developed strategies for mitigating each identified risk. These include:
- Using multiple data sources to minimize dependency on any single provider.
 - Implementing real-time monitoring to detect performance bottlenecks.
 - Enforcing robust validation mechanisms to filter AI-generated outputs.
 - Allocating contingency budgets for unforeseen technical challenges.

Risk Register

Risk	Probability	Impact	Mitigation Strategy	Owner
Data Source Unavailability	High	High	Implement caching and failover mechanisms	Technical Lead
Model Bias	Medium	High	Regular model audits and dataset diversification	AI Ethics Lead
Budget Overrun	Medium	Medium	Quarterly financial reviews and	Project Sponsor

cost control
measures

Sponsor Acceptance

Approved by the Project Sponsor:

Date: _____

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