Model Risk Management with Retrieval Augmented Generation (RAG)

Overall Project Plan

This project focuses on the importance of managing model metadata to effectively manage model-related risks and increase observability over models, integrated seamlessly into day-to-day business use using genAI powered chatbot.

Logistics

- A shared google folder and github classroom to save project files including meeting notes, progress log, and meeting recordings.
- Google colab to write and share code, then saved onto github classroom for submission.
- This Google doc to keep track of progress and miscellaneous.
- Whatsapp for instant messaging.

Mentor Meetings: Mondays 10:30am ET → Zoom calls

Weekly Progress Log

Date	To-Do	Status
Jan 29, 2024	- Kickoff Meeting with Mentors - All Members - Perform preliminary research into model metadata and graph databases.	Done
Feb 5, 2024	- Follow-up meeting with Mentors - Tom and David - Research synthetic data generation methods using ChatGPT and python packages. - David to use API to load data into neo4j	Done

	● Jerry and Phil
	   ○ Research alternative base data sources
	   ○ Jerry to generate json files for DB schema
	   ○ Phil to generate overall graph DB Schema on Mural	

Feb 12, 2024	● Follow-up meeting with Mentors
	● Numan to research the orchestrator and build a simple demonstration that coordinates the data pipeline between the user, LLM and graph DB.
	● Jerry and Phil
	   ○ Generate json files for Reports
	● David
	   ○ Continue to load json files into neo4j
	● Tom
	   ○ Generate json files for models
		● Done

Feb 19, 2024	● Follow-up meeting with Mentors
	● Data Augmentation
	   ○ Tom to create additional json files for more reports
	   ○ Phil and Tom to review the json files
	   ○ David will upload the new json files once complete
	● Orchestrator
	   ○ Numan and Jerry to work on upgrades and improvements.
	   ○ Create standard queries.
	   ○
		● Done

Feb 26, 2024	● Follow-up meeting with Mentors ● Data Augmentation	● Done

	○ Tom to create additional json files for model versions
	○ Phil and Tom to review the json files
	○ David will upload the new json files once complete
	● Orchestrator
	  ○ Numan and Jerry to work on upgrades and improvements including conversation UX.
	  ○ Create additional standard queries.	

Mar 4, 2024	● Follow-up meeting with Mentors
	● Data Augmentation
	  ○ Tom to fix data issues with the original set of synthetic data
	  ○ David will upload the new json files once complete
	● Orchestrator
	  ○ Numan and Jerry to work on upgrades and improvements including conversation UX.
	  ○ Create additional standard queries.
	  ○ Implement Fuzzy Match
		● Done

Mar 11, 2024	● Follow-up meeting with Mentors
	● Data Augmentation
	  ○ Tom to roughly double the size of synthetic data
	  ○ David will upload the new json files once complete
	● Orchestrator
	  ○ Numan and Jerry to work on upgrades and improvements including conversation UX.
		● Done

	○ Create additional standard queries. ○ Finish implementing Fuzzy Match ○ Setup Testing Regime	
Mar 18, 2024	● Follow-up meeting with Mentors ● Orchestrator 　○ Numan and Jerry to work on the new orchestrator workflow, separating common and uncommon questions. 　○ Create new intent matching and parameter extraction 　○ Setup Testing Regime	● Done
Mar 25, 2024	● Follow-up meeting with Mentors ● Testing Regime 　○ Tom to create testing questions. ● Orchestrator 　○ Numan and Jerry to work on improving the new orchestrator workflow, separating common and uncommon questions. 　○ Improve intent matching and parameter extraction	● Done
Apr 1, 2024	● Follow-up meeting with Mentors ● Testing Regime 　○ Tom to create more testing questions as well as answers. 　○ Numan to implement an automatic testing script. ● Diagrams 　○ David to implement diagrams for certain common questions.	● Done

Apr 8, 2024	- Follow-up meeting with Mentors - Testing Regime - Tom to create even more testing questions as well as answers. - Numan to improve the automatic testing script. - Prompt Template - Phil and Jerry to work on improving the prompt template	Done
Apr 15, 2024	- Follow-up meeting with Mentors - Testing Regime - Numan to further improve the automatic testing script. - Prompt Template - Phil and Jerry to work on further improving the prompt template	Done
Apr 22, 2024	- Follow-up meeting with Mentors - Prompt Template - Phil and Jerry to work on further improving the prompt template - Final Presentation - Whole team works on slides for DSI Final Presentation	Done
Apr 29, 2024	- Follow-up meeting with Mentors - Final Presentation - Whole team works on slides for KPMG Final Presentation - Final Report - Whole team works on Final Report Sections	Done
May 6, 2024	- Follow-up meeting with Mentors - Final Presentation - Whole team works on slides for KPMG Final Presentation - Final Report	Done

		○ Whole team works on Final Report Sections	