Project Title: Building an LLM-Powered Chatbot for Disaster Response

Project Description:

This project focuses on building an LLM-based chatbot to assist users in finding relevant information related to urgent needs (e.g., food, water, shelter) or available offers during disasters. The bot ingests and processes data from a real-world disaster event, such as flooding or wildfire, and stores it in a database. Given a user query, the bot retrieves relevant documents from the database and prepares an answer for the user. The bot also shows several high-level stats, such as the number of shelter requests per city and the most frequently donated items, among others.

Project Type: Engineering

Internship Batch:
- **Batch 1:** May 11 to July 10, suitable for Education City students, i.e., CMUQ, TAMUQ and HBKU students

Duties/Activities:

- Develop an interface/UI to enable end-user interactions
- Use LLMs to process data to perform the following tasks
  - Document classification
  - Relevant information extraction (e.g., locations, time, requested/offered items)
  - Maintain a vector database
- Use appropriate similarity algorithms to retrieve relevant documents
- Develop an interface to show important visualization and distributions of the data

Required Skills:

- Proficiency in Python and experience with machine learning, particularly NLP and LLMs.
- Experience with vector databases and approximate nearest neighbors (ANN) algorithms is a plus.
- Basic front-end development skills and API integration are also beneficial.
- Strong problem-solving abilities and attention to detail are essential.

Preferred Intern Academic Level: rising junior or rising senior

Learning Opportunities:

Interns will gain hands-on experience with LLMs for location and item extraction, vector databases, and ANN algorithms. They will develop skills in building AI interfaces and integrating machine learning models into real-world applications. Additionally, interns will work with real-world crisis data and create dashboards to visualize distribution patterns of items and locations, providing valuable insights into the field of AI-driven crisis management.

Expected Team Size: *2*

Mentors

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