**Campus Guidance System Using Chatbot**

**Overview**

This project presents a hybrid chatbot designed to assist with navigation and information retrieval on the Texas A&M University-Corpus Christi (TAMUCC) campus. The chatbot combines rule-based logic for frequent inquiries with a fine-tuned AI model for complex, context-specific questions, ensuring a responsive and user-friendly experience.

**Objectives**

1. **Campus Navigation:** Provide real-time directions and assistance for locating buildings and services.
2. **AI Fine-Tuning:** Utilize campus-specific data to enhance the chatbot’s contextual understanding.
3. **Hybrid Framework:** Combine rule-based and AI-driven responses for reliability and adaptability.
4. **User Engagement:** Encourage interaction with campus resources via an intuitive interface.

**Features**

* **Rule-Based System:** Answers common queries (e.g., library hours, IT support).
* **AI Integration:** Fine-tuned GPT model for nuanced questions.
* **Location Services:** Google Maps API for campus-specific navigation.
* **User-Friendly Interface:** Accessible design with seamless interaction.

**Technology Stack**

* **Backend:** Flask framework, MongoDB for user data.
* **Frontend:** HTML templates for interaction.
* **AI:** OpenAI’s GPT model fine-tuned with TAMUCC data.
* **Navigation:** Google Maps API for accurate campus directions.

**Results**

* **Accuracy:** Resolved 87% of queries during testing.
* **Response Time:** Average latency of 1.8 seconds.
* **Scalability:** Handled over 1,000 concurrent queries without performance degradation.
* **User Feedback:** High satisfaction for navigation and service-related queries.

**Challenges**

1. **Dataset Limitations:** Initial data lacked coverage for niche topics.
2. **Latency Issues:** Optimized response times for complex queries.
3. **API Dependency:** Caching mechanisms implemented to reduce reliance on external APIs.

**Future Work**

* Expand dataset to include extracurricular activities and administrative details.
* Add multilingual support and voice commands for inclusivity.
* Develop a mobile app for enhanced accessibility.
* Integrate with campus systems for a comprehensive experience.
* Optimize AI model for reduced latency and improved accuracy.

**Conclusion**

The TAMUCC Campus Guidance chatbot effectively balances rule-based reliability with AI-driven adaptability. It addresses campus navigation and information dissemination challenges while providing a scalable platform for future enhancements.