Software Requirements Specification
CSC4351 Capstone 1

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AI Graduate Program Direction Chatbot

Objective:
Build an AI chatbot that can be used in the department for answering FAQs and student inquiries.

The system must contain:

AI automation of answering graduate student inquiries

Can develop it for graduate program first by training it on the graduate handbook

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Introduction / Overview

- The AI Graduate Program Direction Chatbot is an intelligent system designed to automate the process of answering frequently asked questions (FAQs) and student inquiries for the graduate program. The chatbot is specifically developed to assist students in navigating the program by providing quick and accurate responses based on the data extracted from the graduate handbook. This system streamlines communication, reduces the workload on departmental staff, and ensures that students can access information at any time.

General description

- The AI Graduate Program Direction Chatbot is designed to simplify the way students interact with the graduate program department. The target users are graduate students who need assistance with administrative inquiries related to their program. The chatbot provides an intuitive and easy-to-use interface that offers personalized responses to commonly asked questions, such as program requirements, deadlines, course registration, and other general information.
- This system helps in:
- Reducing manual workload for the department.
- Enhancing student experience by providing immediate and accurate information.
- Supporting students in decision-making and program navigation.
- Key benefits include accessibility, ease of use, and the ability to integrate it into existing platforms like a university's website or student portal.
- Offer guidance on graduate program policies.

Functional Requirements

- Automated Inquiry Handling: The system must process and respond to common student inquiries, such as program details, deadlines, and requirements, based on the graduate handbook.
- Natural Language Processing (NLP): The chatbot should understand and interpret students' questions in natural language and provide relevant responses from the handbook.
- FAQ Training and Updates: The system must have the capability to be continuously updated with new FAQs and relevant changes in the graduate program.
- Query Logging and Feedback Collection: The chatbot must log all student inquiries and responses for future analysis, and collect feedback on the helpfulness of its answers.
- Multi-Platform Support: The chatbot should be able to integrate with web platforms, mobile applications, and university systems like student portals and email.

Interface Requirements

- Web Interface: The chatbot will be embedded into the university's website, providing a conversational interface that students can interact with.
- API Integration: The system must include APIs for integrating the chatbot into other platforms like mobile apps or student information systems.
- Administrative Dashboard: A backend interface will be provided for department staff to update the FAQs, monitor chatbot activity, and view logs of student interactions.

Performance Requirements

- Response Time: The chatbot must respond to user inquiries within 3 seconds on average.
- Scalability: The system should handle at least 100 simultaneous users without degradation in performance.
- Accuracy: The chatbot should maintain a 99.5% accuracy rate in answering student inquiries based on the content of the graduate handbook.

Design Constraints

- Training Data Limitation: The initial scope of the chatbot will be limited to graduate program inquiries, with its knowledge base coming directly from the graduate handbook. Expanding to other domains requires retraining.
- Platform-Specific Constraints: The chatbot must be compatible with the university's existing platforms and infrastructure, which may limit its functionality or require certain frameworks.
- Security and Privacy: The system must comply with FERPA (Family Educational Rights and Privacy Act) and ensure that no sensitive student information is stored or mishandled.
- Hardware LImitation: The system would be more efficient to use a cloud_based structure to handle variable loads and storage amount of data.

Non-Functional Attributes

- Security: The chatbot must employ encryption for all communication between the user and the system, ensuring no data leaks occur.
- Portability: The chatbot should be portable across multiple platforms, including web browsers, mobile devices, and other communication tools.
- Reliability: The system must be available 99.9% of the time to ensure consistent service for students.
- Scalability: As the user base grows, the system should scale appropriately without performance loss.
- Data Integrity: All updates made to the graduate handbook or FAQs must reflect immediately in the chatbot's responses without data loss.

Preliminary Schedule and Budget

Schedule:

Week 1-2: Requirement analysis and dataset collection from the graduate handbook.
Week 3-4: Development of the chatbot's basic NLP engine and response framework.
Week 5-6: Integration with university platforms and testing.
Week 7-8: Feedback collection, performance tuning, and full deployment.

Budget:

Software Licenses (NLP API, hosting): $2,000
Development Team (2 developers, 2 months): $20,000
Testing and Maintenance: $5,000
Total Estimated Budget: $27,000

Appendices

- Acronyms:
- FAQ: Frequently Asked Questions
- NLP: Natural Language Processing
- FERPA: Family Educational Rights and Privacy Act
- API: Application Programming Interface

- References:
- Graduate Handbook 2024
- University Website and Resources