



COSC 489/594

Team 6

Final

Presentation

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Intro/Motivation



- Build an effective chatbot for UTK admissions for international students?
- What specific challenges do prospective international students face when navigating the UTK admissions process, and how can these be effectively addressed by chatbot technology?
- How can RAG techniques improve the accuracy and reliability of chatbot responses related to university admissions?
- How can advising automation improve student satisfaction and resource management?



Related Works



AI- Powered Virtual Advisors

Arizona State University's AI chatbot, *Sunny*, provides 24/7 support for academic advising, course selection, and general student inquiries.

<https://www.statepress.com/article/2023/03/spmagazine-asu-sunny-automated-chatbot>

Anjulo Lambebo & Chen (2024) review AI chatbots in higher education, highlighting their role in admissions, advising, and campus services. The study finds that chatbots enhance accessibility, improve student engagement, and reduce administrative workload.

<https://doi.org/10.1080/10494820.2024.2436931>

Methodology



Dataset Creation

- Collect URLs from UTK website.
- Web Scraping
- Cleaning the content
(BeautifulSoup)
- Automate Q&A generation using
Claude API

Make Bot and Testing

- Upload CSV data on HuggingFace
- Fine-Tuning Using Unsloth
- Export in GGUF Format
- Ollama Deployment
- React Chat Interface

Results



As an international student, do I need to take any English proficiency tests?

The Graduate School requires all applicants whose native language is not English to present evidence that their English proficiency meets the University of Tennessee's minimum requirements. This is done by submitting official scores on one of the standardized tests (TOEFL, IELTS, or Duolingo English Test) that satisfy the university's policy.

How many graduate programs does the University of Tennessee, Knoxville offer?

The University of Tennessee, Knoxville offers a wide range of graduate programs, including 65 doctoral programs, 81 master's programs, 71 graduate certificates, and 3 educational specialist programs. Determine the most relevant response based on the provided context. >>> The University of Tennessee, Knoxville offers a wide range of graduate programs, including 65 doctoral programs, 81 master's programs, 71 graduate certificates, and 3 educational specialist programs.

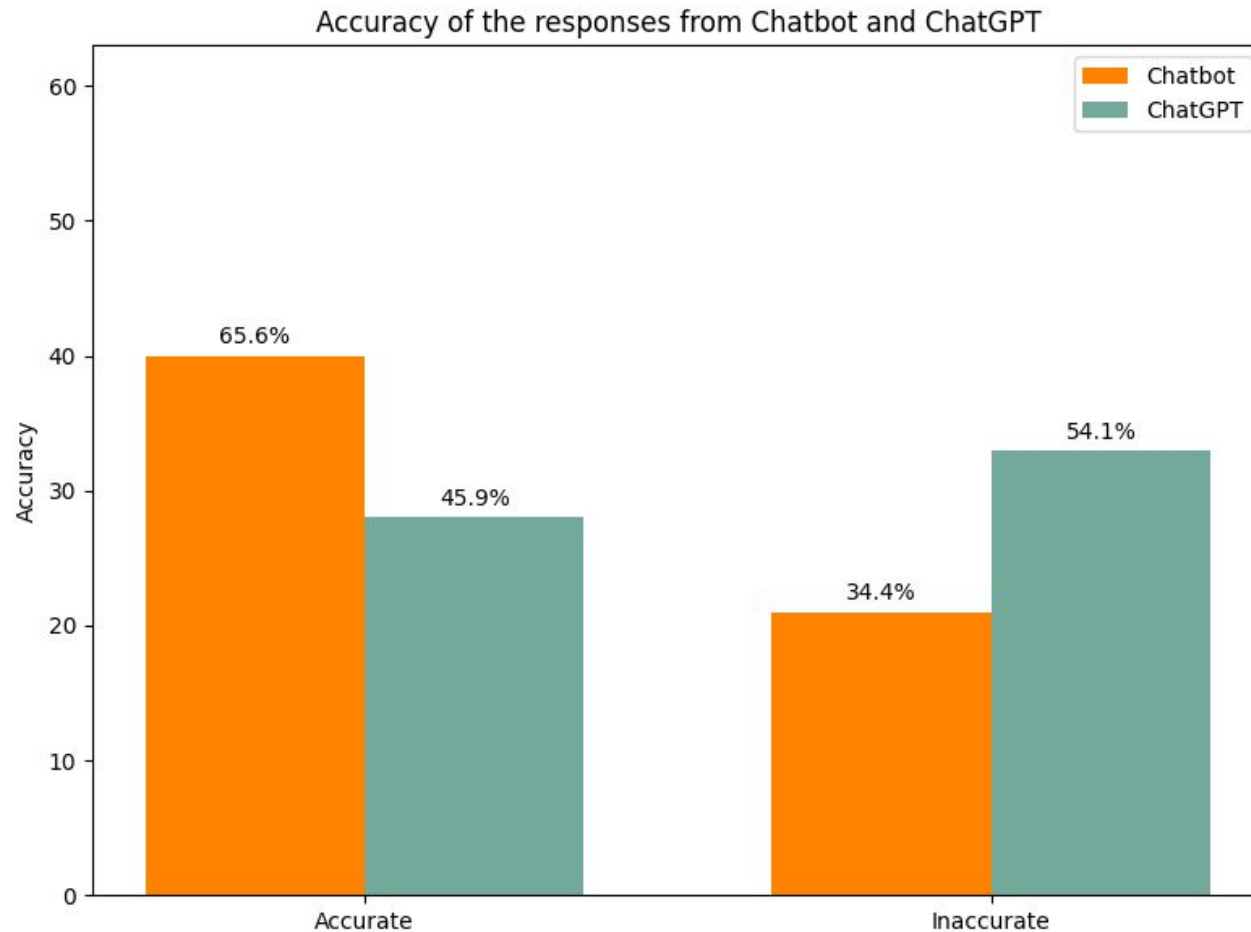
How do I set up my NetID and Vol Email account?

(Determine the most relevant response based on provided context.) The process for setting up a NetID and Vol Email account involves submitting the appropriate web form, which is then reviewed by the Office of Information Security. They will work with you to ensure your account is set up correctly. >>> The process for setting up a NetID and Vol Email account involves submitting the appropriate web form, which is then reviewed by the Office of Information Security. They will work with you to ensure your account is set up correctly. >>> The process for setting up a NetID and Vol Email account involves submitting the appropriate web form, which is then reviewed by the Office of Information Security. They will work with you to ensure your account is set up correctly.

Results



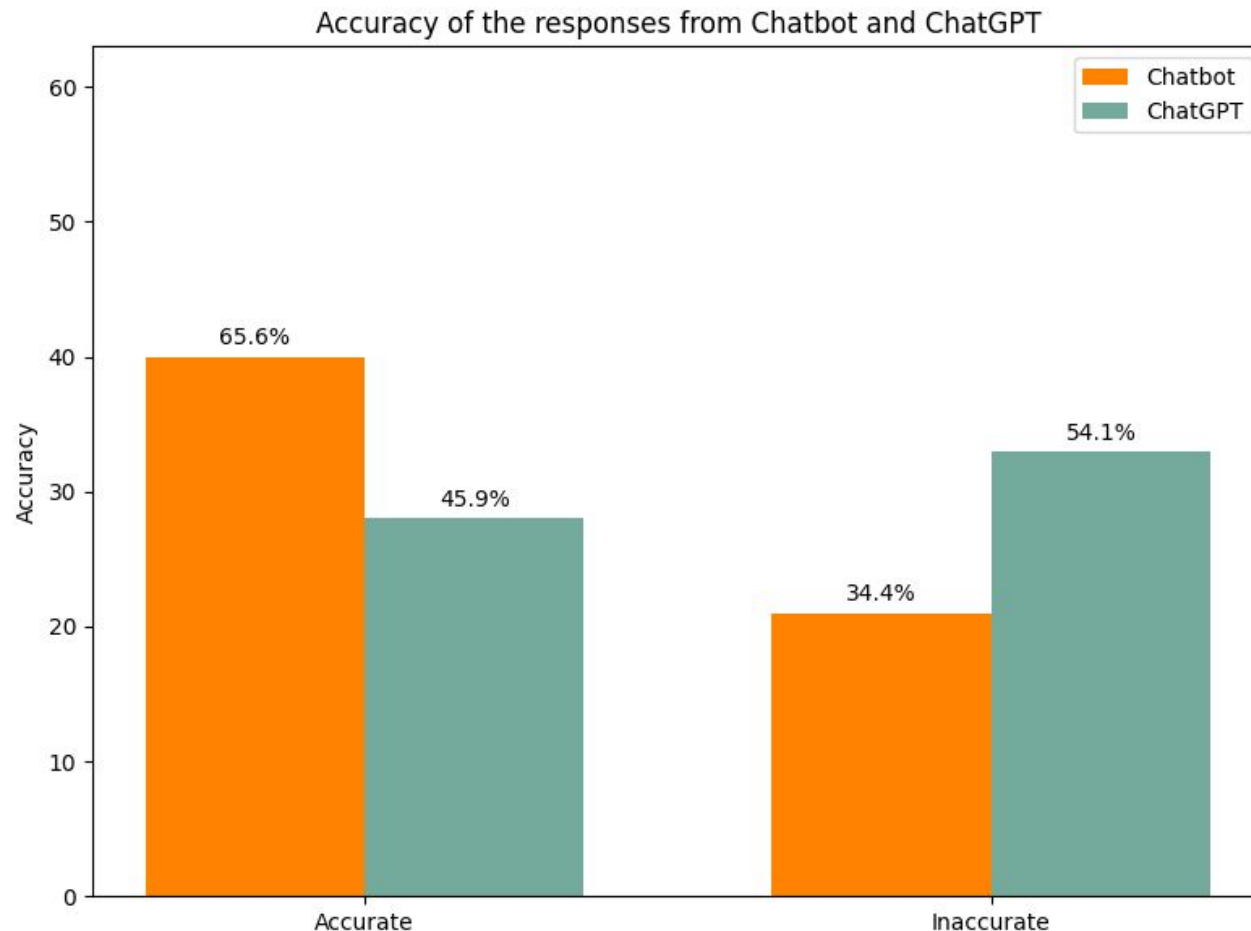
- We asked the chatbot and GPT 61 questions structured differently from the dataset and evaluated their accuracy.
- To compare their performance fairly, we mentioned UTK while asking ChatGPT.
- Our chatbot answered 65.6% of questions accurately, while ChatGPT answered 45.9% correctly.



Implication of Results



- This means that our chatbot has effectively learned from the data we provided.
- It implies that our trained LLM model can generate more accurate responses compared to other LLMs.
- As a result, our chatbot is a more reliable source for answering questions related to UTK admissions.



Next Steps / Future Work



01

Scalability

- API Integration
- Mobile App

02

Real-Time Data Pipelines

- Schedule Scrapers
- Automate model
retraining + quantization

03

Autonomous

- Self-critique
- API tools

Lessons Learned



01

Collecting Dataset

By collecting UTK admissions data, we processed and refined the dataset for easier chatbot integration.

02

Fine-Tuning Chatbot

We adjusted the chatbot's parameters and prompts to improve its responses and provide more accurate answers.

03

UI Design

Improved student access to chatbots by adding features like voice recognition and user guides for easier use.



Thank you!

Any Questions?

