JackBot: Developing a Chatbot Using Google's Generative AI Technology

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Abstract

Navigating the vast campus of Stephen F. Austin State University (SFA) and finding accurate information has always been a challenge for students. The existing chatbot on the SFA website, while helpful, requires users to select an office before typing their concerns, which can be inefficient. Recognizing the gap, the project JackBot seeks to enhance the user experience by leveraging Google's Generative AI technology.

o **Purpose:** Improve the functionality of the existing chatbot by using Google's Gemini API.

o **Goal:** Provide a more intuitive and accessible way for students to get their questions answered directly, without pre-selecting categories.

Figure 1. Current Chatbot used by SFASU

Benefit

JackBot provides several advantages to enhance the university experience:

o **Immediate Assistance:** JackBot is available 24/7, providing immediate help and reducing the need for in-person visits or lengthy searches through the university's website. This makes it easier for students to get the information they need, whenever they need it.

o **Timely Responses:** JackBot delivers timely and accurate responses to student inquiries, streamlining the information retrieval process.

o **User Satisfaction:** The chatbot enhances overall user satisfaction and engagement through its responsive and friendly interactions. Students feel more connected and supported by the university.

o **Insightful Analysis:** By analyzing interactions, JackBot helps the university gain valuable insights into common student concerns and areas needing improvement.

Methods & Tools

The JackBot model was trained by utilizing Google's Gemini API. The training process involved several key steps to ensure the chatbot can handle a wide range of queries effectively.

o Collected and organized addresses and phone numbers for all SFASU campus locations.

o Utilized the Gemini API to train the model.

o Used Visual Studio Code to write simple code in Python for calling the API.

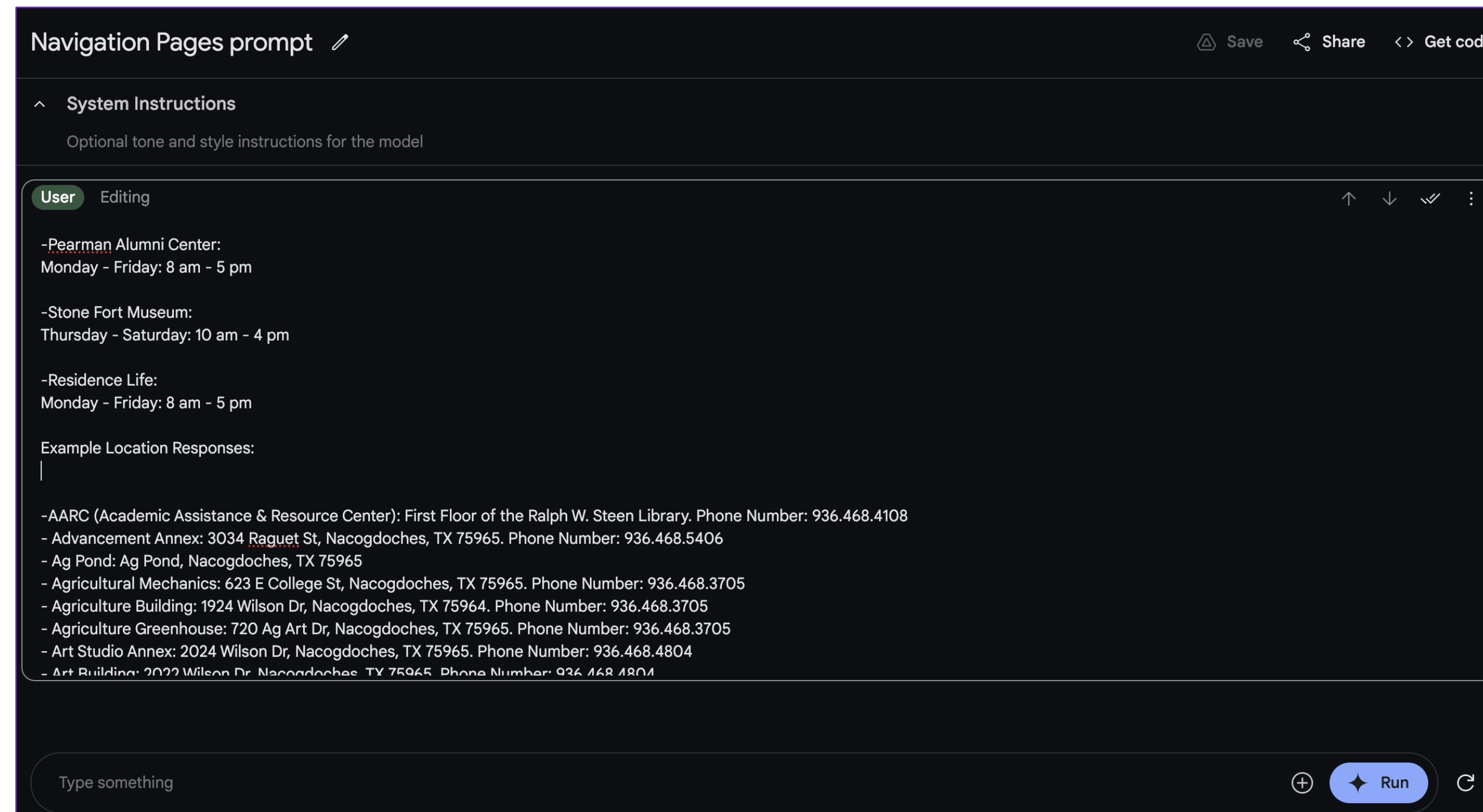o Added behavioral guidelines for clear, concise, and friendly interactions.

Figure 2. Model Training in Google AI Studio

Figure 3. Map of SFASU

Future Endeavors

The further improvements of JackBot include:

o **Knowledge Base Integration:** Adding data from SFASU's Knowledge Base for comprehensive information and up-to-date information for users without them needing to search for it manually.

o **Collaboration with IT Department:** Training JackBot to address common issues autonomously, based on frequently asked questions.

o **Enhanced Problem-Solving:** Improving JackBot's ability to troubleshoot and resolve issues, freeing up Help Desk staff for more complex problems.

Results

Results (Cont.)

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Acknowledgements

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