Revolutionizing Administrative Tasks: Emora Assistant Bot

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Abstract

In the fast-paced world of business and education, automating mundane administrative tasks has become imperative. This project develops the Emora Assistant Bot, which aims to offer an innovative solution to streamline tasks such as scheduling appointments, providing feedback, and facilitating communication. Emora achieves this by harnessing the power of an advanced State Transition Dialogue Manager (STDM) and functional assistance from large language models, including GPT-3.5. This collaboration between AI and cutting-edge technology holds the potential to expand chatbot understanding and reshape how we manage everyday business assignments and tasks.

1 Introduction

In today's rapidly evolving business and educational landscapes, routine administrative tasks have become increasingly indispensable. According to the Bureau of Labor Statistics, these tasks play a vital role in maintaining organizational efficiency and are typically handled by human resources such as secretaries and designated administrative assistants (Bureau of Labor Statistics, 2024).

While human involvement in administrative duties has long facilitated streamlined organizational processes, the growing demand for efficiency and productivity presents challenges, particularly when tasks must be executed promptly.

To maximize efficiency in business and education environments, we propose a method to automate administrative tasks by introducing the Emora Assistant Bot, a chatbot built on the Emora State Transition Dialogue Manager (STDM) and GPT. Emora is developed to handle various administrative tasks, and can communicate between multiple people to do so.

This work aims to accomplish two objectives:

1. Successfully automate general and classroom-oriented administrative tasks between multiple users.

2. Achieve seamless user experience in task execution through natural language understanding via large language models.

2 Related Work

While utilizing automated methods to handle administrative tasks is not uncommon, implementing chatbots to execute such tasks has yet to exist. Many chatbots, including those utilizing large language models (LLMs), have been implemented to initiate conversation or answer frequently asked questions (A J et al., 2019; Lee et al., 2019; Oliveira and Matos, 2023). Some chatbots have developed to adapt to the educational setting, assisting students with determining career paths and difficult class content (Ibna Riza et al., 2023; A J et al., 2019).

Much of such chatbot work, however, does not extend to multiple people at once. Typically, the interaction is between only the user and the chatbot, as the bot only has access to a database of determined information that it may use to assist the user (Mendoza et al., 2020). Subsequently, the chatbot lacks the ability to transfer requested information by a sender to a different user, a recipient. Thus, tasks that chatbots handled are mostly information-based, and developed to respond to a general user.

3 Foundation

3.1 Framework

The foundation of the Emora Assistant Bot uses the Emora State Transition Dialogue Manager (STDM). Developed by Finch and Choi (2020), Emora STDM demonstrates a framework with adjustable dialogue states that helps rapidly prototype chatbots. Emora STDM also introduces NATEX, a method of matching expressions to user input via

string and ontology matching. ([Finch and Choi](), 2020).

While NATEX does assist with expanding the natural language understanding (NLU) for a prototype chatbot, there is a limit in which the chatbot may be able to understand for an expanded range of tasks that it is requested to do. Thus, we replace NATEX with functions that utilize OpenAI's ChatGPT (GPT), which has demonstrated potential in excelling in NLU with few-shot prompting. ([Madotto et al.](), 2020) We use GPT-3.5 for categorizing tasks requested by the user, as well as extracting information required to complete said tasks.

3.2 Database

For seamless information exchange, we employ MongoDB to store users' IDs and additional details, facilitating communication and task execution.

3.3 Assistant Bot Components

As of writing, the Emora Assistant Bot handles fourteen tasks, each associated with administrative functions.

3.3.1 Groups

Emora supports group creation, where users may be added via name or ID. The creator of the group is regarded as the leader, who can choose to delete the group. The users within the group are regarded as members, and while they cannot edit the group, they may choose to leave the group.

3.3.2 Appointments

Emora facilitates appointment scheduling between users, managing details including the date and time, location, and reason for meeting. Completing such details will allow Emora to send the request to the recipient.

Upon both parties' agreement to meet, Emora will be able to insert the meeting date and time into the user's personalized schedule. Subsequent appointment suggestions that conflict with that time are handled. In addition, any pending appointment requests can be edited or cancelled by the sender, and any pending appointment that has expired can be rescheduled.

3.3.3 Messages

Emora uses GPT-3.5 for sending summarized and, if requested, anonymized messages. However, it is important to note that the anonymity is maintained to a degree, as messages still have the identity of the original sender intact internally to prevent any abuse of the anonymity system.

Announcements and Feedback   Following the groups component, leaders can make announcements to groups, which sends an identical message to all of the members in the group.

In addition, leaders may request feedback or answers to questions from the members. Members may choose to respond anonymously. GPT is abridges all of the members' answers if Emora is requested for feedback results.

4   Evaluation

Through this project, we intend to evaluate Emora's capability to understand and perform the intended functionalities. To that end, we intend on implementing the following evaluation methods.

Human Evaluation   We seek to simulate a classroom setting with human evaluators. Through the conversations that they will have with the assistant chatbot, we intend to evaluate the success in which the assistant bot can execute the tasks that users request it to do.

GPT Evaluation   Alternatively, we seek to simulate a classroom setting through GPT. By simulating different students of various personalities and studying and online tendencies with GPT-3.5, we may use the conversations the simulated students have with Emora to evaluate its capabilities.

5   Next Steps

In this paper, we present an innovative approach to the development of an assistant chatbot designed for task automation and the enhancement of user interactions through natural language understanding and generation. Our implementation, anchored in advanced language models and sophisticated dialog management, has shown promising results in initial testing.

Looking ahead, we plan to employ a comprehensive evaluation process, as detailed in Section 4, to assess the system's performance across various user scenarios. Our goal is to explore the boundaries within which the Emora Assistant Bot can interpret user input and execute assigned tasks effectively. Through this strengthening process, we aspire for Emora to establish itself as a cornerstone among administrative chatbots in the foreseeable future.

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