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## Abstract

Have you ever wanted to chat with characters from a literature, game, or movie? Would you want to try talking to a character completely written on your own? Sentra is a web application that allows you to chat with AI chatbots that roleplay with given character description. You will be able to find characters created by other users. You can also create and chat with your own characters. Expect to find a realistic experience chatting with characters on Sentra.

## Goal

We want our chatbots to roleplay realistically such that users feel like chatting with living characters. We want users to find Sentra fun and helpful for its chatbots acting as actual living beings. For example, users may say that chatbots from Sentra can roleplay more immersively, or characters from Sentra can better play as a human professional like a psychological counselor instead of playing as an AI counselor.

## Current Practice

Current roleplay AI products have a full set of basic chatting functionalities and additional features like giving to and receiving calls from characters. They have limits in how realistic or human-like they feel. For example, the characters will reset to some default state in each new conversation and won't remember what happened in previous conversations. The chatbots also can't tell anything about their conversation with other users. So they are static unless its author manually changes its configurations. Users can also only chat with one character at a time.

## Novelty

We want to make chatbots feel more realistic with a few features. The first feature is to add a generalized long term memory for each character such that the character can recall something from previous chats even when starting a new conversation. We also want to allow the retrieval of chat history, even citing of chat history, by the chatbot upon its own decision. The second feature is to allow the user to configure their self description such as gender, appearances, temperament, etc, such that chatbots can take advantage of these user's self description and interact with the user better. The third feature is to allow characters to send messages to users unprompted, which makes the chatting process more immersive. The fourth feature is that chatbots may read and retrieve chat history of the current user's friends such that, for example, the user may ask the chatbot to recall what they have chatted with a friend. This option is toggleable among friends.

## Technical approach

- Long term memory: We save a generalized memory text page for a user with each of its chatbot. The chatbot will read this generalized memory text page before starting new conversations. Allow toggling of this feature.
- User's self description: Feed the user's self description as part of the system prompt to the chatbot before starting new conversations.
- Sending messages unprompted: Finds recent inactive conversations and randomly lets the chatbot generate unprompted messages.
- Shared memory across friend list: Allow the chatbot to use a special token to retrieve and read its chat history with the user's friends.

## Risks

The single most important risk is that it may have novel features but we can't guarantee that it will be significantly more engaging than current practices. Or in other words we try our best to make chatbots more real but we can still be limited in ways.