AI Chatbot for Mental Health Support

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Introduction

Mental health is a growing concern in today's fast-paced world. Many individuals feel isolated, anxious, or overwhelmed but hesitate to seek help. This project aims to build an AI-powered chatbot capable of offering basic emotional support and empathetic responses through natural language processing (NLP). While not a replacement for professional counseling, it serves as a supportive listening tool for users in need.

Abstract

The AI Chatbot for Mental Health Support is a conversational agent developed using Python and the Hugging Face DialoGPT model. It is designed to engage in empathetic dialogue, respond sensitively, and filter offensive input using NLP techniques. The system includes a Flask-based API backend, a simple user interface built with Streamlit, and a session logging feature to track user conversations. This combination of tools creates a lightweight, deployable solution for mental wellness assistance.

Tools Used

- **Python** – Core programming language

- **Hugging Face Transformers (DialoGPT)** – For pre-trained conversational modeling

- **Flask** – For building the backend API

- **Streamlit** – For creating a user-friendly web interface

- **better_profanity** – For filtering harmful or inappropriate user input

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Steps Involved in Building the Project

1. Loaded the pre-trained DialoGPT model using the Hugging Face `transformers` library.

2. Implemented a profanity filter using the `better_profanity` package to block harmful messages.

3. Scripted fallback empathetic responses for inappropriate input cases.

4. Built a RESTful Flask API with `/chat` and `/logs` endpoints to manage message exchanges and store sessions.

5. Created a frontend UI using Streamlit for user interaction and display.

6. Logged user sessions in memory using Python dictionaries with timestamps.

7. Tested the chatbot locally and packaged it for deployment on platforms like Render or Replit.

Conclusion

This project demonstrates how conversational AI can be leveraged to support mental health initiatives. While not a replacement for therapy or professional help, the chatbot offers a safe space for users to express themselves and feel heard. It lays the foundation for future expansion into more intelligent, empathetic, and ethically guided support systems.