AI Chatbot for Mental Health Support

Introduction

In today's fast-paced digital world, mental health has become a significant concern. Many individuals hesitate to seek help due to social stigma, accessibility, or cost barriers. AI-powered chatbots can offer a supportive environment where users can express their feelings freely. This project aims to develop a simple AI-based chatbot capable of engaging in empathetic conversations, providing emotional comfort, and guiding users toward positivity.

Abstract

The AI Chatbot for Mental Health Support utilizes Natural Language Processing (NLP) to simulate meaningful and empathetic conversations with users. Using the pre-trained DialoGPT-small model from Hugging Face, the chatbot can respond contextually to human input, maintaining a conversational tone. It includes text preprocessing filters to identify negative emotions and ensure responses remain sensitive and supportive. The chatbot interface is built using Streamlit for real-time interactions.

Tools Used

- Python
- Hugging Face Transformers
- PyTorch
- Streamlit
- NLTK (for text preprocessing)

Steps Involved

1. **Model Selection:** Used the pre-trained DialoGPT-small model for conversational response generation.
2. **Preprocessing:** Added text filters for detecting negative emotions and ensuring empathetic replies.
3. **Response Generation:** Used tokenization and attention mechanisms to generate context-aware responses.
4. **User Interface:** Built an interactive chat interface using Streamlit.
5. **Testing:** Conducted sample interactions to validate the chatbot’s ability to provide supportive conversations.

Conclusion

The AI Mental Health Chatbot demonstrates how natural language models can provide accessible emotional support. While it cannot replace professional therapy, it offers a safe space for users to express feelings and find comfort. Future enhancements could include emotion recognition, sentiment tracking, and escalation mechanisms to connect users with mental health professionals in critical situations.