AI-Powered Health Assistant

A Project Report

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ACKNOWLEDGEMENT

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This project has been a significant learning experience, and I am grateful for every opportunity that contributed to its successful completion.

Anshul Patel

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ABSTRACT

Accessibility to healthcare is still a priority concern, with the majority of people being unable to access immediate advice for simple medical issues. The following is an AI Healthcare Chatbot that offers initial healthcare consulting using Streamlit, TensorFlow, and NLTK. The chatbot uses rule-based responses for straightforward medical questions and AI-generated text using DistilGPT-2.

The chatbot supports users by answering issues concerning symptoms, drugs, and appointment scheduling. The approach consists of NLP-based text processing, pretrained AI models, and a simple Streamlit interface for smooth interactions. Users can enter healthcare-related queries, and the chatbot produces related answers based on predefined rules or AI-generated material.

Key findings indicate that the chatbot provides fast, relevant, and context-sensitive healthcare advice, lessening reliance on direct medical consultations for minor problems. Future development involves real-time integration of medical databases, multilingual capabilities, and appointment scheduling functionalities. In general, this project illustrates the potential of AI in making healthcare more accessible and efficient.

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CHAPTER 1

Introduction

1.1 Problem Statement:

Most people encounter challenges in accessing immediate healthcare advice. Insufficient availability of doctors and heavy medical questions usually postpone medical consultations. This project is designed to create an AI-driven Healthcare Chatbot that provides fast answers to routine medical questions, enabling users to make better-informed decisions regarding their health.

1.2 Motivation:

The growing need for real-time healthcare information and the advent of AI-driven solutions motivated the creation of this chatbot. Through the use of machine learning and NLP, the chatbot offers effective initial healthcare support, cutting down on unnecessary hospitalizations and educating users with general medical information.

1.3 Objective:

- To develop **a** user-friendly chatbot for providing basic medical guidance.

- To integrate rule-based and AI-generated responses for accurate assistance.

- To implement Streamlit for an interactive UI.

- To ensure scalability for future enhancements like appointment booking.

1.2 Scope of the Project:

The chatbot is intended to give general medical information and is not a substitute for professional advice. Voice interaction, support for multiple languages, and integration with telemedicine platforms could be future improvements.

CHAPTER 2
Literature Survey

2.1 Review of Existing Models:

1 **Rule-Based Chatbots** – Provide predefined responses based on keyword detection.

2 **AI-Powered Chatbots** – Use deep learning models (like GPT-2) for dynamic responses.

3 **Hybrid Chatbots** – Combine rule-based logic with AI-generated responses for a more comprehensive user experience.

2.2 Limitations in Existing Systems:

- Many chatbots lack medical accuracy and require manual intervention.

- AI-generated responses may not always be reliable for healthcare queries.

- Most lack integration with real-time medical databases.
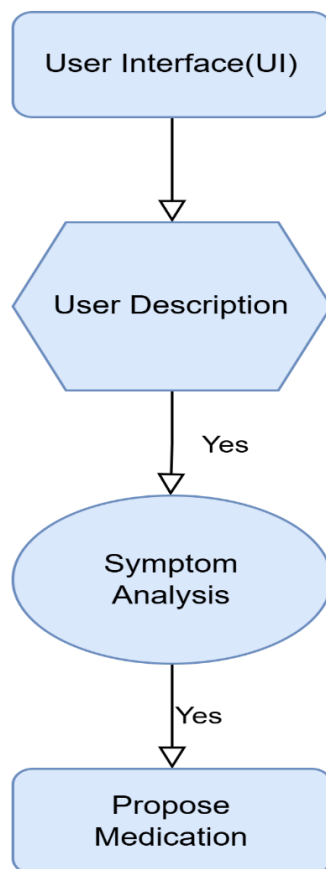
CHAPTER 3

Proposed Methodology

3.1   System Design:

The chatbot is built using:

- Streamlit – For a user-friendly web interface.
- NLTK – For natural language processing and text tokenization.
- TensorFlow (DistilGPT-2) – For AI-based response generation.
- Rule-Based Logic – For handling common queries like symptoms, medications, and appointments.

3.2   Flowchart Representation:

3.3   Requirement Specification:

3.3.1   Hardware Requirements:

- Processor: Intel i5 or higher
- RAM: 8GB minimum
- Storage: 10GB free disk space

3.3.2   Software Requirements:

- Python 3.8+
- Libraries: Streamlit, NLTK, TensorFlow, Transformers
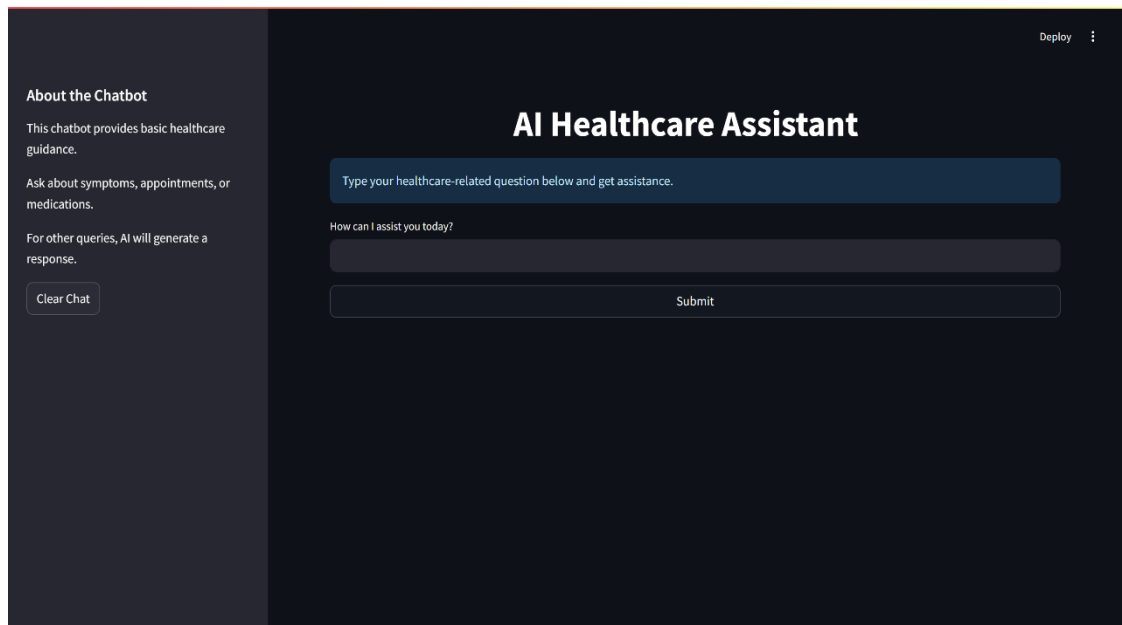 -

CHAPTER 4

Implementation and Result

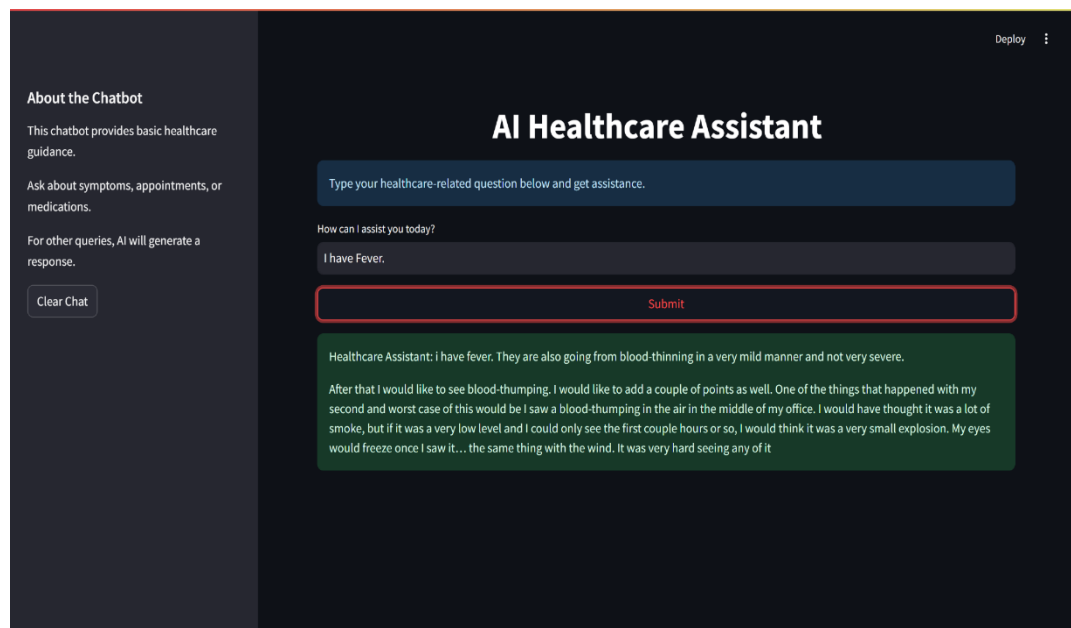### 4.1 UI & Functionality:

The chatbot interface includes:

- A text input field for user queries.
- Instant AI-generated responses.
- A sidebar with chatbot guidelines.
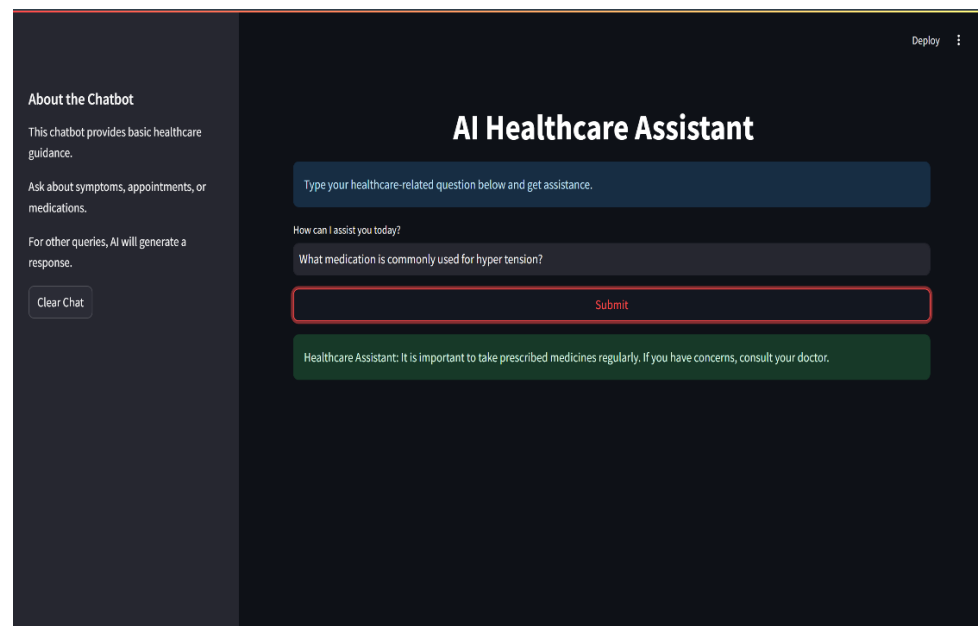
4.2 Snap Shots of Result:

- Snap Shot of **"Final AI Healthcare Chatbot Interface"**

- Snap Shot of **"Chatbot Response to Fever Query"**

- Snap Shot of **"Chatbot Response to Hypertension Medication Query"**

4.3 GitHub Link for Code:

https://github.com/AnshulxPatel/AI-Healthcare-Chatbot_-P4-

CHAPTER 5

Discussion and Conclusion

5.1   Future Work:

- Multilingual Support – Expanding to different languages.

- Appointment Scheduling – Connecting users with medical professionals.

- Voice Recognition – Enabling voice-based interactions.

5.2   Conclusion:

The AI Healthcare Chatbot effectively offers initial medical advice through the use of AI and NLP. Although it is a helpful healthcare accessibility tool, it can be improved further. The addition of real-time medical information and sophisticated AI models can turn it into an effective healthcare assistant in the future.

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