IBM-Project-HealthAI

HealthAI – Intelligent Healthcare Assistant

Team Members

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1. Abstract

HealthAI is an intelligent healthcare assistant built using IBM Watson and Hugging Face models. It provides users with medical insights, symptom-based disease prediction, treatment plan suggestions, and health analytics visualization. The system ensures responsive healthcare communication, enabling seamless dialogue about wellness concerns and providing AI-powered insights.

2. Problem Statement

Access to affordable and accurate healthcare information is limited for many individuals. Patients often rely on unreliable online sources for medical advice, which may lead to incorrect self-diagnosis. There is a need for an AI-powered healthcare assistant that can provide personalized, reliable, and data-driven guidance while emphasizing the importance of consulting medical professionals.

3. Objectives

- To provide an AI-powered healthcare assistant for patients.
- To predict possible diseases based on symptoms.
- To generate personalized treatment suggestions.
- To provide health analytics dashboards for patients.
- To create an accessible, secure, and user-friendly healthcare platform.

4. System Design & Architecture

The HealthAI system consists of multiple modules that interact to deliver healthcare insights:

- **Frontend (Streamlit/Gradio):** User-friendly interface where patients chat, enter symptoms, and upload data.
- **Backend (Python APIs):** Processes input for prediction and treatment.
- **AI Models (IBM Granite, Hugging Face):** Generate medical insights and responses.
- **Visualization (Pandas/Matplotlib):** Health metrics plotted as trends.

5. Modules Explanation

◇ Patient Chat

Responsive chat system for answering health-related queries.

◇ Disease Prediction

Analyzes symptoms and suggests possible conditions.

◇ Treatment Plans

Provides treatment guidelines, lifestyle advice, and follow-ups.

◇ Health Analytics

Visualizes vitals (BP, glucose, heart rate) using CSV upload.

6. Testing

- Unit Testing: Symptom → condition mapping.
- Manual Testing: Chat, treatment plans, analytics.
- Error Handling: Missing data, invalid inputs.

7. Future Enhancements

- Voice-enabled chat assistant.
- Integration with wearables.
- Secure cloud storage for history.
- Multilingual support.
- Doctor-validated advanced diagnosis.

8. Conclusion

HealthAI is a step towards making healthcare more accessible and AI-driven. It empowers patients with reliable insights, while emphasizing that professional consultation remains essential. With future enhancements, HealthAI can evolve into a trusted digital health companion.