Health AI Assistant - Project Documentation

# 1. Project Overview

The Health AI Assistant is an intelligent healthcare support system built using Gradio, Hugging Face IBM Granite LLM, and data visualization libraries. It provides functionalities such as disease prediction, treatment planning, health analytics, patient chat support, tablet information, and nearby hospital search. This tool is intended for informational and educational purposes only and is not a substitute for professional medical advice.

# 2. Features

* Disease Prediction: Analyze symptoms and suggest possible conditions with lifestyle recommendations.
* Treatment Plan: Generate personalized treatment suggestions based on condition, age, gender, and history.
* Patient Chat: Interactive chatbot to answer patient queries with safe, clear advice.
* Health Analytics: Visualization of health parameters (heart rate, blood pressure, glucose) with AI-driven insights.
* Tablet Info: Information on 15 commonly used medicines with their purposes.
* Nearby Hospitals: Search hospitals in cities across Tamil Nadu and nearby states with contact info and locations.
* Patient Profile Management: Save patient details such as age, gender, medical history, medications, and allergies.

# 3. Tech Stack

* Programming Language: Python
* Framework: Gradio (UI)
* Machine Learning Model: IBM Granite LLM (granite-3.2-2b-instruct)
* Libraries: Transformers, Torch, Pandas, Plotly
* Deployment: Gradio share link

# 4. Installation & Setup

Follow these steps to set up and run the Health AI Assistant locally:

1. 1. Clone or download the project files.
2. 2. Install required dependencies:  
    pip install transformers torch gradio pandas numpy plotly
3. 3. Run the Python script:  
    python untitled0.py
4. 4. Gradio will launch the web interface with a local and shareable link.

# 5. Usage Guide

Once the application is running, the user can:

* Enter symptoms for disease prediction.
* Input condition, age, gender, and medical history for treatment plans.
* Chat with the AI assistant for general advice.
* Generate health analytics with charts and insights.
* View purposes of common medicines in the Tablet Info tab.
* Search nearby hospitals by entering a city name.
* Save patient profile details for quick reference.

# 6. System Architecture

The system is structured as follows:  
- User Interface: Gradio Blocks (Tabs for each feature).  
- Backend Model: IBM Granite LLM for disease prediction, treatment planning, and chat.  
- Data Visualization: Plotly for health analytics.  
- Data Storage: Temporary in-memory storage for patient profiles and sample datasets.

# 7. Limitations & Future Improvements

* Limitations:
* This tool is not a replacement for certified medical professionals.
* Relies on IBM Granite LLM, which may generate approximate results.
* Currently uses static sample data for analytics instead of real-time patient monitoring.
* Future Improvements:
* Integration with wearable/IoT health devices for live health monitoring.
* User authentication and secure patient data storage.
* Expanded medicine database with dosage details.
* Multi-language support for rural accessibility.
* Deployment on cloud for high availability.

# 8. Disclaimer

⚠️ This application is for educational and informational purposes only. It should not be used as a substitute for professional medical diagnosis or treatment. Always consult licensed healthcare providers for medical concerns.