HEALTH AI : INTELLIGENT HEALTHCARE ASSISTANT USING IBM GRANITE'S
Project documentation format

1. Introduction

🏷️ Project Title: HealthAI : Intelligent Healthcare Assistant Using IBM Granite

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2. Project Overview

🎯 Purpose:
To provide AI-driven health support for users by analyzing symptoms and suggesting possible conditions using IBM's Granite LLM.

✨ **Features:**

Natural language chatbot

Symptom-based condition analysis

Time-stamped medical advice record

Friendly and interactive CLI interface (Streamlit optional)

3. Architecture

🖼️ **Frontend:** Streamlit or CLI (for prototype)

🔧 **Backend:** Python with transformers + torch

🧠 **AI Model:** IBM Granite (granite-3.3-2b-instruct)

🗃️ **Database (optional):** MongoDB or PostgreSQL for storing interactions

🌐 **APIs:** Potential for RESTful endpoints (FastAPI)

4. Setup Instructions

📦 Prerequisites:

Python 3.8+

transformers, torch

IBM Granite model access via Hugging Face

Streamlit (optional)

🛠️ Installation:

pip install transformers torch streamlit

🔑 Environment Setup:

Hugging Face token if needed

Optional: Set up .env with API keys

5. Folder Structure

/health_assistant_project
│
├── main.py # Main app script
├── model_utils.py # IBM Granite wrapper
├── requirements.txt
└── README.md

6. Running the Application

▯ CLI Version:

python main.py

💻 Streamlit Version:

streamlit run app.py

7. API Documentation (Optional if using FastAPI)

Endpoint: /analyze-symptoms

Method: POST

Request: {"symptoms": "fever, cough"}

Response: {"conditions": ["flu", "COVID-19", ...]}

8. Authentication

None required for CLI prototype

Future enhancement: Add OAuth2 or token-based access for medical privacy

9. User Interface

CLI prompts and responses (currently)

Optional upgrade to Streamlit-based UI with:

Symptom entry box

AI result cards

Health timeline panel

10. Testing

Unit Tests: mock inputs for tokenizer and model

CLI testing with unittest or pytest

11. Screenshots or Demo

CLI output sample:

Symptoms: fever, sore throat
AI Suggested Conditions: Flu, Strep throat, COVID-19

12. Known Issues

Model may return general rather than specific diagnoses

Requires internet for model loading

Ethical concerns: Not a substitute for a doctor

13. Future Enhancements

Streamlit UI

Voice input/output using Whisper + TTS

Patient history tracking via database

Multilingual support

Integration with wearable data (e.g., Fitbit, Apple Health)