Project Title

Health AI: Intelligent Healthcare Assistant

1. Introduction

• Project Title: Health AI: Intelligent Healthcare Assistant• Team Leader: 23SCS23 (Jayaharini M)
• Team Members:
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2. Project Overview

Purpose:

The purpose of Health AI is to provide smart, accessible, and secure healthcare support using IBM Granite AI models. It empowers patients with instant medical guidance, disease prediction, and treatment plan suggestions, bridging the gap between healthcare services and patients who lack immediate access to doctors. The assistant is designed to be fast, reliable, and easy to use through cloud deployment.

Features:

• Patient Chat – Interactive assistant for health-related questions.
• Disease Prediction – AI-powered analysis based on patient symptoms.
• Treatment Plans – Suggestions for care and next steps.
• Accessibility – Cloud-based deployment via Google Colab and Gradio.
• Scalability – Can be extended with more features like medical report uploads.

3. Architecture

Frontend (Gradio): Provides a simple and user-friendly interface for patients to chat, predict diseases, and view treatment suggestions. Backend (Python + IBM Granite Model): Runs the AI models and logic to process queries. Deployment (Google Colab): Uses T4 GPU for performance and ensures accessibility from any device.

4. Setup Instructions

• Python 3.9 or later installed.
• Install required libraries: transformers, torch, gradio.
• Access Hugging Face and select IBM Granite model (e.g., granite-3.2-2b-instruct).
• Run application in Google Colab with T4 GPU.
• Launch Gradio interface to interact with the assistant.

5. Folder Structure

health_ai/ – Root folder containing code. app.py – Main application file. models/ – Contains model integration code. utils/ – Helper functions. requirements.txt – List of dependencies. notebooks/ – Google Colab notebooks for deployment.

6. Running the Application

• Open Google Colab and load the Health AI notebook.
• Set runtime to T4 GPU.
• Install dependencies using pip.
• Run all cells in the notebook.
• Access Gradio link to interact with the healthcare assistant.

7. API Documentation

POST /chat – Accepts user health queries and responds with AI-generated guidance. POST /predict – Predicts possible diseases from symptoms. POST /treatment – Suggests treatment options. GET /status – Returns server and model status.

8. Authentication

Currently runs in an open environment for demonstration. Future secure deployments may include: • Token-based authentication (JWT or API keys) • OAuth2 integration with IBM Cloud • Role-based access for patients and doctors

9. User Interface

The UI is built using Gradio with an intuitive design. Users can: • Chat with the AI assistant • Input symptoms for predictions • View suggested treatment plans • Access a simple dashboard

10. Testing

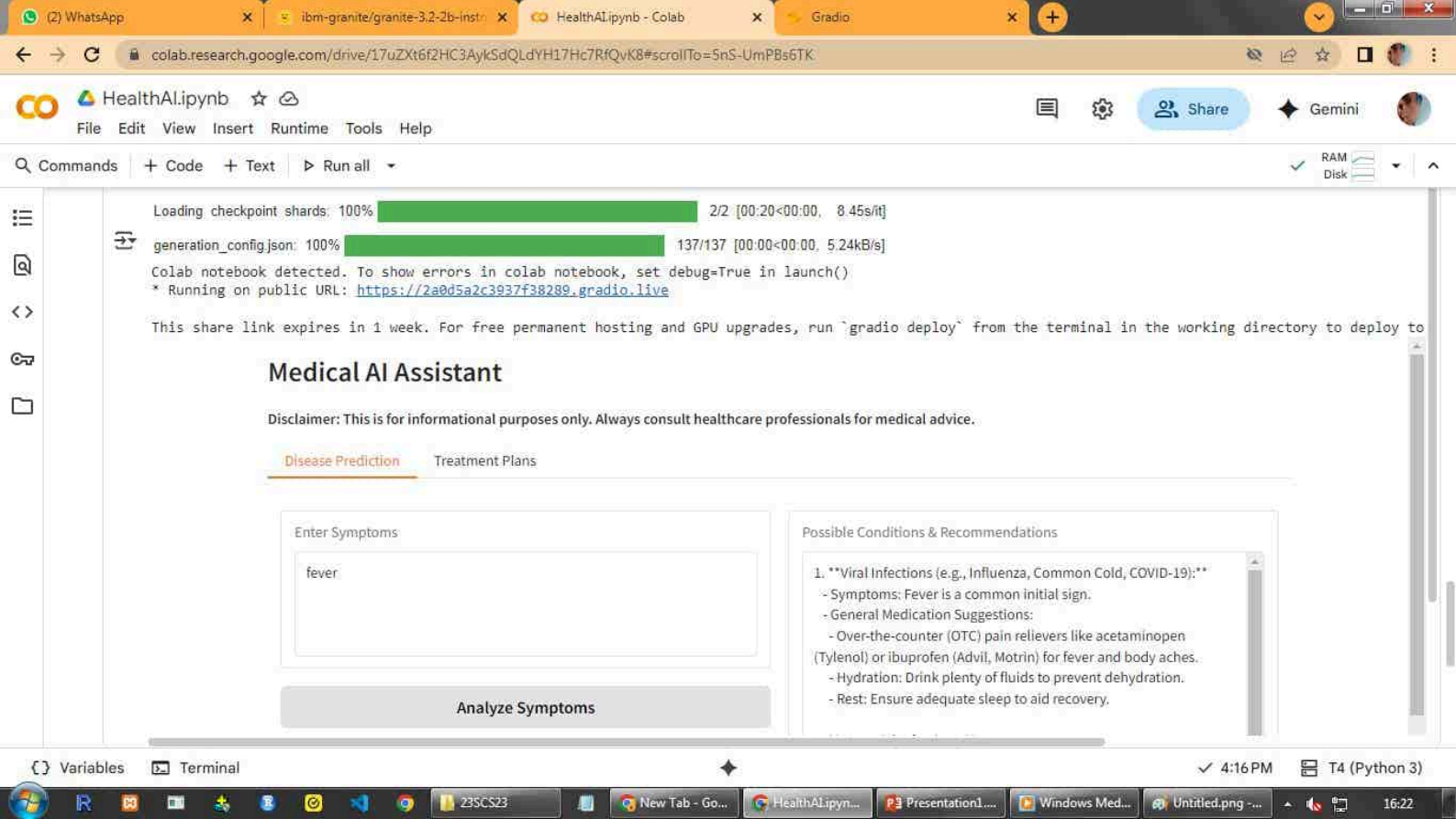
Testing included: • Unit Testing – Core functions like prediction and response generation • Manual Testing – Checking chatbot accuracy and usability • API Testing – Ensuring endpoints function correctly • Edge Cases – Handling incomplete or unclear symptom descriptions

11. Known Issues

• Limited to general health advice, not a replacement for doctors. • Model accuracy depends on quality of training data. • Requires stable internet for Colab deployment.

12. Future Enhancements

• Integration with medical databases for more accurate predictions.
• Multi-language support for wider accessibility.
• Mobile app version for easier access.
• Integration with wearable health devices.
• Secure authentication and patient history tracking.


(2) WhatsApp
ibm-granite/granite-3.2-2b-instr
HealthAI.ipynb - Colab
Gradio
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Colab notebook detected. To show errors in colab notebook, set debug=True in launch()
* Running on public URL: https://2a0d5a2c3937f38289.gradio.live
This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working directory to deploy to
Medical AI Assistant
Disclaimer: This is for informational purposes only. Always consult healthcare professionals for medical advice.
Disease Prediction
Treatment Plans
Enter Symptoms
fever
Analyze Symptoms
Possible Conditions & Recommendations
1. **Viral Infections (e.g., Influenza, Common Cold, COVID-19):**
- Symptoms: Fever is a common initial sign.
- General Medication Suggestions:
- Over-the-counter (OTC) pain relievers like acetaminopen (Tylenol) or ibuprofen (Advil, Motrin) for fever and body aches.
- Hydration: Drink plenty of fluids to prevent dehydration.
- Rest: Ensure adequate sleep to aid recovery.
Variables
Terminal
4:16 PM
T4 (Python 3)
23SCS23
New Tab - Go...
HealthAI.ipyn...
Presentation1....
Windows Med...
Untitled.png -...
16:22

generation_config.json: 100% 137/137 [00:00<00:00, 5.24kB/s]

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* Running on public URL: https://2a0d5a2c3937f38289.gradio.live

This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working directory to deploy to
```

Medical Condition

fever

Age

20

Gender

Female

Medical History

taking tablets for past one week

Personalized Treatment Plan

1. **Assess the cause of fever:**
   - In a 20-year-old female, common causes could be viral infections (e.g., common cold, influenza), mild bacterial infections, or reactions to medications. Given her recent intake of tablets for one week, monitor for any medication-related symptoms.

2. **Home Remedies:**

   a. **Stay hydrated:** Drink plenty of water, clear broths, or electrolyte-replenishing beverages to prevent dehydration, especially if she's experiencing vomiting or diarrhea.

   b. **Rest:** Encourage her to get ample sleep, as her body needs energy to fight off the infection.

   c. **Warm bath/compress:** Soaking in a warm bath or applying a warm, damp cloth on her forehead and pulse points can help

ibm-granite/granite-3.2-2b-instruct

like 48 | Follow IBM Granite 2.34k

Text Generation | Transformers | Safetensors | granite | language | granite-3.2 | conversational | arxiv:0000.00000 | License: apache-2.0

Model card | Files and versions xet | Community 5 | Train | Deploy

ⓘ A newer version of this model is available: ibm-granite/granite-3.3-2b-instruct

Granite-3.2-2B-Instruct

Model Summary: Granite-3.2-2B-Instruct is an 2-billion-parameter, long-context AI model fine-tuned for thinking capabilities. Built on top of Granite-3.1-2B-Instruct, it has been trained using a mix of permissively licensed open-source datasets and internally generated synthetic data designed for reasoning tasks. The model allows controllability of its thinking capability, ensuring it is applied only when required.

- **Developers:** Granite Team, IBM
- **Website**: Granite Docs
- **Release Date**: February 26th, 2025

Downloads last month
12,137

Safetensors ⓘ

Model size | 2.53B params | Tensor type | BF16 | Chat template | Files info

Inference Providers NEW

Text Generation

This model isn't deployed by any Inference Provider. | 1 Ask for provider support

Model tree for ibm-granite/granite-3.2-2b-instruct ⓘ