# **Project Documentation**

#### 1. Introduction

Project Title: Health Al:Intelligent Healthcare Assistant Using IBM

Granite

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# 2. Project Overview

Purpose:

The purpose of the Medical AI Assistant is to provide users with quick, AI-powered guidance related to health symptoms and medical conditions.

It improves healthcare awareness and accessibility while emphasizing the importance of professional consultation.

Features:

- Disease Prediction: Analyze symptoms and provide possible conditions with recommendations.
- Treatment Plan Generation: Personalized suggestions based on condition, age, gender, and medical history.
- User-Friendly Interface: Built with Gradio for easy interaction.
- AI-Powered Analysis: Uses IBM Granite LLM for natural language processing.

#### 3. Architecture

Frontend (Gradio): Interactive web interface with tabs for disease prediction and treatment planning.

Backend (Python & Hugging Face): Handles model loading, prompts, and responses.

LLM Integration (IBM Granite): Uses ibm-granite/granite-3.2-2b-instruct for medical text generation.

# 4. Setup Instructions

Prerequisites:

- Python 3.9 or later
- pip and virtual environment tools
- Internet access for model downloads

Installation:

- 1. Clone the repository
- 2. Install dependencies from requirements.txt
- 3. Run: python healthai.py
- 4. Open the Gradio link in your browser

### 5. Folder Structure

#### project/

- healthai.py # Main application script
- requirements.txt # Dependencies
- README.md # Documentation
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# **5.** Running the Application

- 1. Run python healthai.py
- 2. Open the Gradio link in browser
- 3. Navigate tabs:
- Disease Prediction: Enter symptoms → Analyze
- Treatment Plan: Enter details → Generate

# 7. API Documentation

Currently not applicable. Future versions may include REST APIs.

# 8. Authentication

Current version runs without authentication.

Future deployment may include:

- API key authentication
- Role-based access

### 9. User Interface

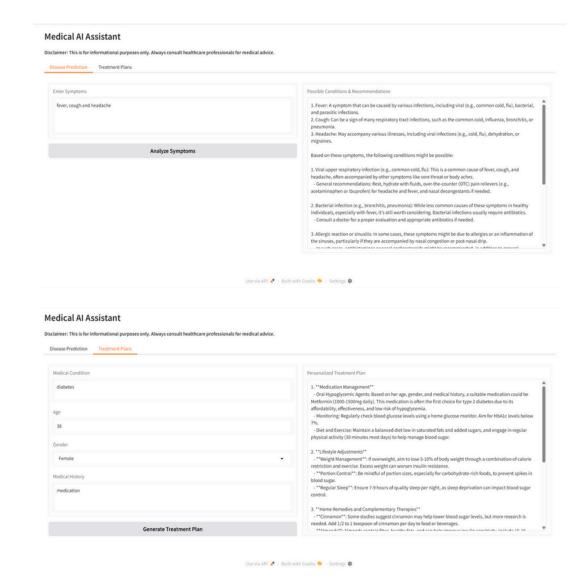
- Clean two-tab layout (Disease Prediction & Treatment Plans)
- Textbox input and detailed text output
- Disclaimer for medical safety

# 10. Testing

- Unit Testing: Prompt and response functions
- Manual Testing: Symptom entry and treatment plan generation
- Edge Cases: Empty or unusual inputs

#### 11. Screenshots

Below are the screenshots of the Gradio interface of the Medical Al Assistant.



### 12. Known Issues

- Responses may vary with inputs
- No guaranteed medical accuracy
- Long symptom entries may be truncated

## 13. Future Enhancements

- Add API support for mobile apps
- Enable voice input/output
- Improve predictions with medical datasets
- Add data visualization features