

# HEALTHAI: INTELLIGENT HEALTHCARE ASSISTANT USING IBM GRANITE

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## Project Overview

HealthAI is an AI-powered healthcare assistant platform that integrates IBM Watson Machine Learning and IBM's Granite-13b-instruct-v2 generative AI model. It delivers smart, data-driven medical support through features like Patient Chat, Disease Prediction, Personalized Treatment Plans, and Health Analytics.

### Objective:

To empower users with intelligent, accessible, and personalized healthcare information using advanced AI technology and a user-friendly Streamlit interface.

## Technology Stack

AI Model: IBM Granite-13b-instruct-v2

Framework: Streamlit (Frontend/UI)

Backend: Python

Cloud & AI Services: IBM Watson Machine Learning

Libraries:

- Transformers
- Torch
- Gradio
- Pandas
- Numpy
- Matplotlib / Seaborn

Security & Privacy:

- Secure API Key Management
- Responsible Data Handling

## Core Features Overview

1. Patient Chat – AI-powered assistant to respond to general health-related queries.

2. Disease Prediction – Predict potential illnesses based on symptoms.
3. Treatment Plans – Generate personalized medical recommendations.
4. Health Analytics – Visualize health metrics and trends.

## **Feature 1 - Patient Chat**

Functionality:

Users can input any health-related question and receive:

- Accurate and empathetic AI-generated answers.
- Guidance on when to consult a healthcare professional.
- Medical facts based on up-to-date healthcare databases.

Example Use Case:

"Is a sore throat without fever a cause for concern?"

## **Feature 2 - Disease Prediction**

Functionality:

- Users report symptoms.
- AI analyzes symptoms against known medical data.
- Returns potential conditions with a confidence score.
- Recommends next steps (e.g., seek medical testing).

Scenario:

A user inputs: "Fatigue, headache, mild fever."

AI Suggests: Viral infection, Flu, Dehydration.

## **Feature 3 - Treatment Plans**

Functionality:

- Users enter diagnosed conditions.
- AI provides treatment strategies based on user profile.
- Includes medication, therapy, diet, and test suggestions.

Example:

Input: "Type 2 Diabetes"

Output: Diet plan, medication options (e.g., Metformin), follow-up lab tests, exercise

regimen.

## Feature 4 - Health Analytics

Functionality:

- Track and visualize health metrics: heart rate, glucose levels, blood pressure, etc.
- Detect abnormal trends.
- AI-based suggestions for lifestyle or medical follow-up.

Example:

Visualization: Blood glucose trend over 30 days.

Insight: "Your glucose levels are consistently above normal in the mornings."

## Future Enhancements & Conclusion

Upcoming Features:

- Voice-enabled interaction.
- Integration with wearable devices.
- Doctor appointment booking.
- Multi-language support.

## Conclusion:

HealthAI leverages the power of generative AI and machine learning to deliver smart, accessible, and personalized healthcare assistance. Through its comprehensive features and responsible AI implementation, it supports users in making informed health decisions.