

HealthAI Project Report

1. Introduction

The HealthAI project aims to bridge the gap between technology and healthcare by creating an intelligent assistant that can provide medical insights, predict diseases based on symptoms, generate treatment plans, and visualize health data trends. This project is built using Python and Streamlit for the user interface, and IBM Watson Machine Learning (WML) APIs to deliver AI-driven responses and predictions.

2. Project Features & Module Overview

HealthAI consists of four key modules: Patient Chat, Disease Prediction, Treatment Plans, and Health Analytics. Each module contributes uniquely to enhance healthcare accessibility and education.

A. Patient Chat

Users interact with an AI assistant using IBM Watsonx foundation models. It generates human-like responses to health-related questions. Example: 'What are the symptoms of diabetes?'

B. Disease Prediction

Predicts diseases based on symptoms input. For instance, 'headache, fever' may suggest a viral infection. Uses custom logic or model mapping symptoms to known diseases.

C. Treatment Plans

Generates AI-based treatment plans for diagnosed conditions. Includes medication suggestions, lifestyle changes, and dietary advice.

D. Health Analytics

Visualizes health metrics like BP, glucose, and weight using matplotlib. Shows trends and AI-driven insights from uploaded or entered data.

3. Technologies & Tools Used

Technologies include Python, Streamlit (UI), IBM Watsonx.ai and WML (AI backend), GitHub (version control), Matplotlib (visualization), IBM Cloud, and VS Code.

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4. Workflow and Architecture

Streamlit handles UI; user input is processed and passed to Watsonx model. AI responses are displayed and graphs rendered using matplotlib.

5. Common Errors & Fixes

IAM Token Error: check credentials.

Model not supported: ensure correct model.

403 Streamlit error: exceeds usage limit.

Requirements error: check requirements.txt.

6. Project Deployment Steps

Local: Install dependencies and run `streamlit run app.py`.

GitHub Deployment: Push to repo, deploy from streamlit.io/cloud, ensure requirements.txt is present.

7. Conclusion and Future Scope

HealthAI demonstrates how AI supports healthcare decisions. Future improvements: wearable integration, EHR connectivity, multilingual support, and enhanced privacy.