Project Title

Health AI – Intelligent Wellness Assistant

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1. Introduction

Project Title:

Health AI – Intelligent Wellness Assistant

Team members

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2. Project Overview

Purpose:

The purpose of Health AI is to provide personalized healthcare support by leveraging artificial intelligence. It assists patients, doctors, and wellness seekers by offering health monitoring, symptom analysis, medication reminders, lifestyle recommendations, and AI-driven virtual consultations.

Features:

Symptom Checker

Key Point: AI-based preliminary diagnosis

Functionality: Analyzes user-reported symptoms and suggests possible conditions with guidance to seek professional care.

Health Monitoring Dashboard

Key Point: Real-time health insights

Functionality: Tracks vitals such as heart rate, BP, glucose, and sleep using wearable integration.

Medication & Appointment Reminders

Key Point: Better health management

Functionality: Sends timely reminders for medicines, vaccinations, and doctor visits.

Diet & Lifestyle Recommendation

Key Point: Preventive healthcare

Functionality: Suggests personalized meal plans, exercise routines, and mental wellness tips.

AI Chatbot Doctor

Key Point: Instant health guidance

Functionality: Conversational AI that answers health queries, explains reports, and connects with doctors if needed.

Report Summarization

Key Point: Simplified reports

Functionality: Converts lab results into easy-to-understand summaries.

Emergency Alert System

Key Point: Safety assurance

Functionality: Detects critical health anomalies and notifies family/doctors immediately.

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3. Architecture

Frontend (Streamlit / React):

Interactive UI with dashboards for patients, doctors, and caregivers. Includes chatbot, reports, and health graphs.

Backend (FastAPI):

Manages health data, AI predictions, and secure communication with APIs.

AI Models (IBM Watsonx Granite / HuggingFace):

Used for symptom analysis, chatbot responses, and medical report summarization.

Database (PostgreSQL / MongoDB):

Stores user health records, activity logs, and doctor notes securely.

Wearable & IoT Integration:

Collects real-time vitals from fitness bands, smartwatches, or connected devices.

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4. Setup Instructions

Prerequisites:

Python 3.9+

pip & virtualenv

API keys for IBM Watsonx Granite and IoT services

Installation Process:

1. Clone repository

2. Install dependencies: pip install -r requirements.txt

3. Configure .env with API keys

4. Start backend: uvicorn app.main:app --reload

5. Run frontend: streamlit run ui/dashboard.py

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5. Folder Structure

app/ – FastAPI backend

app/api/ – Endpoints for health data, chatbot, reports

ui/ – Frontend dashboards and chatbot interface

symptom_checker.py – AI-based symptom analysis

health_monitor.py – Vitals tracking and IoT integration

diet_recommender.py – Nutrition & lifestyle guidance

alert_system.py – Emergency alerts

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6. Running the Application

1. Launch backend server

2. Start frontend dashboard

3. Connect wearable/health data input

4. Interact with chatbot for guidance

5. View insights, reminders, and health reports

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7. API Documentation

POST /symptom-check – Submit symptoms for AI analysis

POST /upload-report – Upload health report for summarization

GET /monitor-vitals – Retrieve tracked vitals data

POST /chat/ask – Ask AI chatbot health questions

POST /set-reminder – Schedule medicine/appointment reminder

POST /alert – Trigger emergency notification

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8. Authentication

Token-based authentication (JWT)

HIPAA/GDPR com

pliant data encryption

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9. User Interface

Real-time health dashboard

Chatbot window for instant support

Graphs & analytics of vitals

PDF/Excel export of reports and logs