# User Acceptance Testing (UAT) – HealthAI

Date: 25 JUNE 2025

Team ID: LTVIP2025TMID34578

Project Name: HealthAI

Maximum Marks: 10

## Project Overview:

Project Name: HealthAI  
Project Description: HealthAI is a conversational healthcare assistant powered by Generative AI (specifically simulating the capabilities of the IBM Granite-13B-instruct-v2 model using Google Gemini API for current implementation). Its core purpose is to provide intelligent health insights, personalized guidance, and proactive health management tools. The application offers key features including medical query handling (Patient Chat), symptom-based disease prediction, generation of tailored treatment recommendations, and an interactive health analytics dashboard for visualizing user health trends. Built with Streamlit, HealthAI aims to deliver a secure, highly intuitive, and responsive user experience that empowers individuals to manage their minor health concerns and make informed health decisions.  
  
Project Version: 1.0  
Testing Period: 20 February 2025 – 22 February 2025

## Testing Scope:

Functionalities to be Tested:

- Patient Chat System: Accuracy and relevance of AI responses to diverse health questions, conversational flow, and consistent chat history display.

- Disease Prediction Module: Precision of symptom-to-condition mapping, clarity of likelihood indicators, and helpfulness of explanations/next steps, leveraging personalized patient data.

- Treatment Plan Generator: Personalization and comprehensiveness of treatment recommendations (medications, lifestyle, follow-up) based on specified conditions and patient profiles.

- Health Analytics Dashboard: Accuracy and interactivity of real-time health data visualizations (Heart Rate, Blood Pressure, Blood Glucose, Symptom Frequency), and meaningfulness of AI-generated health insights.

- User Profile Management: Effective input, update, and retrieval of patient demographic, medical history, and vital sign data via the sidebar.

- Application Stability: General responsiveness, error handling, and performance under typical user interactions within a single session.

# User Stories to be Tested:

- As a user (Dhanish), I want to engage in a natural conversation with HealthAI to quickly understand symptoms or get general health advice, receiving empathetic, factual, and actionable responses.

- As a user (Dhanish), I want to accurately input my specific symptoms and existing patient data to receive clear, prioritized predictions of potential conditions, including their likelihood and recommended immediate actions or professional consultation advice.

- As a user (Dhanish), I want to generate a detailed, personalized treatment plan for a known condition, ensuring it includes comprehensive guidance on medication, lifestyle adjustments, and follow-up care tailored to my profile.

- As a user (Dhanish), I want to easily view and understand my health trends over time through interactive charts on the Health Analytics dashboard, enabling me to grasp my current health status and progress.

- As a user (Dhanish), I want the dashboard to provide AI-generated insights that interpret my health metrics and trends, offering smart, preventative recommendations to improve my overall well-being.

## Testing Environment:

URL/Location: Localhost (Streamlit Interface accessible via streamlit run app.py)  
Credentials: Not Required (Open Access during local testing)  
Browser/OS: Google Chrome (latest stable version) on Windows 10 Pro

## Test Cases:

### TC-001 | Patient Chat - Symptom Inquiry

Steps:  
  
Navigate to the "💬 Patient Chat" tab.  
In the chat input, type: "I have a sudden sharp pain in my lower back, what could it be?"  
  
Expected: HealthAI responds empathetically, lists several common potential causes (e.g., muscle strain, poor posture), advises on self-care (rest, heat/cold packs), and strongly recommends consulting a doctor if pain is severe, persistent, or accompanied by other symptoms (e.g., numbness, weakness).  
  
Actual: Response provides typical advice for back pain, suggests self-management, and clearly flags conditions warranting professional medical attention.  
  
Result: PASS

### TC-002 | Disease Prediction - Specific Symptoms & Profile Context

Steps:  
  
Update Patient Profile sidebar: Age: 45, Gender: Female, Medical History: "Type 2 Diabetes".  
Navigate to "🩺 Disease Prediction" tab.  
Enter symptoms and generate prediction.  
  
Expected: Output prioritizes 'Type 2 Diabetes Exacerbation' or 'Hyperglycemia' with a 'High' likelihood and appropriate next steps.  
  
Actual: Accurate identification and next step recommendation.  
  
Result: PASS

### TC-003 | Treatment Plan Generation - Chronic Condition Management

Steps:  
  
Update patient profile.  
Enter “Hypertension (High Blood Pressure)” in Treatment Plan tab.  
Generate plan.  
  
Expected: Includes medication, lifestyle, dietary guidance, and follow-up.  
  
Actual: Comprehensive and tailored plan displayed.  
  
Result: PASS

### TC-004 | Health Analytics Dashboard - Trend Visualization & Metrics

Steps:  
  
Navigate to Health Analytics.  
Review metrics and generate insights.  
  
Expected: Clear visual trends, summary metrics, AI-driven insights.  
  
Actual: Charts and insights render correctly.  
  
Result: PASS

### TC-005 | Patient Profile Data Integrity (within session)

Steps:  
  
Modify sidebar fields.  
Navigate across tabs.  
  
Expected: Data remains consistent within the session.  
  
Actual: Profile fields persist correctly.  
  
Result: PASS

## Bug Tracking:

BG-001 | Dashboard Loading Performance with Large Datasets

Steps: Simulate large dataset rendering.  
Severity: Medium  
Status: In Progress  
Feedback: Plotly may lag with large datasets. Suggested optimizations: data aggregation, server-side rendering, or lazy loading.

## Sign-off:

Tester Name: [Your Tester Name Here, e.g., Rohan Sharma]

Date: 22 February 2025

Signature: (Electronic/Typed Name)

## Notes:

All primary functionalities (Patient Chat, Disease Prediction, Treatment Plans, Health Analytics, Profile Management) have been tested and verified.  
  
The AI model responses are simulated with the Gemini API and represent intended features. IBM Granite integration is planned.  
  
No critical bugs found. One medium-severity issue related to dashboard performance is noted.  
  
Current session-based data is temporary. Future versions will integrate persistent backend storage.  
  
Project is ready for the next development phase.