HealthAI: Intelligent Healthcare Assistant Using IBM Granite

1. INTRODUCTION

1.1 Project Overview

HealthAI is a smart healthcare assistant powered by IBM Granite foundation models. It assists users in identifying symptoms, suggesting diagnoses, and recommending healthcare tips via natural language interaction.

1.2 Purpose

To leverage IBM's Granite LLM for building a reliable, accessible, and AI-powered health assistant that aids users in health-related queries efficiently and securely.

2. IDEATION PHASE

2.1 Problem Statement

Many individuals struggle to access quick and reliable health guidance, especially in remote or underserved areas.

2.2 Empathy Map Canvas

- Think & Feel: Wants accurate medical advice
- See: Too much online misinformation
- Say & Do: Seeks help through apps
- Hear: Concerns about trust in AI
- Pain: Long wait times at clinics
- Gain: Fast and trusted guidance

2.3 Brainstorming

- Use AI/ML for health Q&A
- Integration with IBM Granite
- Chat interface for ease of access

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Open app -> Ask question -> Receive medical response -> Get suggestions

3.2 Solution Requirement

- AI model (IBM Granite)

- Backend (Python, Flask/FastAPI)

- Frontend (HTML/CSS/JS)

- Database (optional)

3.3 Data Flow Diagram

User -> Web App -> Granite LLM API -> Processed Response -> User

3.4 Technology Stack

- Frontend: HTML, CSS, JavaScript

- Backend: Python (Flask/FastAPI)

- AI: IBM Granite Model

- Hosting: GitHub Pages/Render

4. PROJECT DESIGN

4.1 Problem-Solution Fit

Fits the gap between users' need for fast health info and availability of reliable AI tools.

4.2 Proposed Solution

Interactive chatbot powered by IBM Granite that processes symptoms and suggests outcomes.

4.3 Solution Architecture

Frontend <-> Backend API <-> IBM Granite Model <-> Response Renderer

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

- Day 1: Research + Planning

- Day 2: Backend & AI integration

- Day 3: Frontend + UI

- Day 4: Testing + Debugging

- Day 5: Documentation & Report

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- AI response latency under 2 seconds

- Accuracy cross-verified with public datasets

7. RESULTS

7.1 Output Screenshots

(Attach interface screenshots and terminal outputs here)

8. ADVANTAGES & DISADVANTAGES

Advantages:

- Fast AI health advice

- Easy to use interface

- Uses reliable IBM foundation models

Disadvantages:

- No real-time doctor verification

- May need internet always

- Dependent on model accuracy

9. CONCLUSION

HealthAI demonstrates how AI can transform digital health services by providing rapid, intelligent responses based on trusted foundation models.

10. FUTURE SCOPE

- Add multilingual support

- Connect with telemedicine services

- Integrate voice input and wearable data

11. APPENDIX

- Source Code: Included

- Dataset Link: IBM Granite Model Documentation

- GitHub & Demo Link: GitHub.com/MKShiva/HealthAI