

# Project Design Phase

## Solution Architecture



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**Team ID:** LTVIP2025TMID34281



**Project Name:** HealthAI: Intelligent Healthcare Assistant Using IBM Granite



**Maximum Marks:** 2 Mar



### **Solution Architecture – HealthAI**

**Solution architecture** in HealthAI serves as the bridge between real-world healthcare challenges and advanced AI-driven technology. It outlines how HealthAI is built to deliver accurate, personalized, and responsive medical support.

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### **Goals of HealthAI's Solution Architecture:**

1. **Identify the most effective AI-driven technology** to solve the problem of inaccessible or unreliable healthcare information.
  2. **Design the complete structure** — from user input (like symptoms or questions) to backend AI processing using IBM Granite and secure API handling.
  3. **Define key features and development phases**, including modules like:
    - Patient Chat
    - Disease Prediction
    - Treatment Plan Generation
    - Health Analytics
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### **Key Characteristics of the HealthAI Architecture:**

- **Modular and Scalable Design:** Each core functionality is independently built using Python and Streamlit.
- **AI Integration:** IBM Granite (13B Instruct v2) is used to process all medical queries and generate accurate, natural-language responses.

- **User Interface:** Streamlit provides an intuitive frontend with form-based inputs, chatbot interfaces, and dynamic visualizations using Plotly.
- **Data Flow:** User inputs are sent to the AI model via a central shared function (shared\_model.py), processed securely, and returned in structured output.
- **Security:** Environment variables (.env) are used for API key management to protect sensitive credentials.

### Schurction Architecture Template

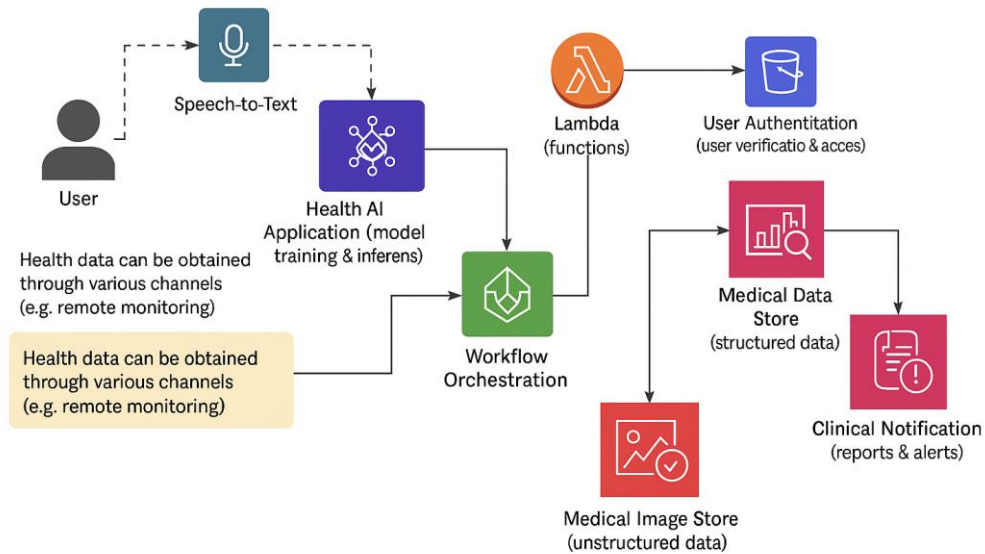


Figure 1: Architecture and data flow of the health AI system