

Project Design Phase
Solution Architecture

Date	15 june 2025
Team ID	LTVIP2025TMID31494
Project Name	HealthAI: intelligent healthcare assistant
Maximum Marks	4 Marks

Solution Architecture:

This architecture outlines how the various components of the healthcare assistant interact to deliver fast, safe, and intelligent AI responses based on user symptoms.

- Collects Natural Language Input:

Accepts symptom descriptions in plain language via a web or app interface.

- Processes and Formats Input Prompt:

Backend formats the symptom input into a structured prompt for IBM Granite.

- AI Model Integration (IBM Granite):

Uses IBM Granite 3.3-2B Instruct model to infer likely medical conditions based on symptoms.

- Real-Time Response Generation:

Returns AI-generated results in under a few seconds for live user interaction.

- Displays Results with Safety Disclaimers:

Outputs are shown with timestamp and warning that it's not a diagnosis.

- Cloud & API Friendly Architecture:

Easily deployable via Hugging Face, IBM Cloud, or custom API infrastructure.

- Secure & Compliant:

Can be made HIPAA/GDPR compliant by avoiding data storage and using secure APIs.

- Scalable & Modular:

Architecture allows adding voice input, multilingual support, or integrations with EMR or telehealth platforms.

Example - Solution Architecture Diagram:

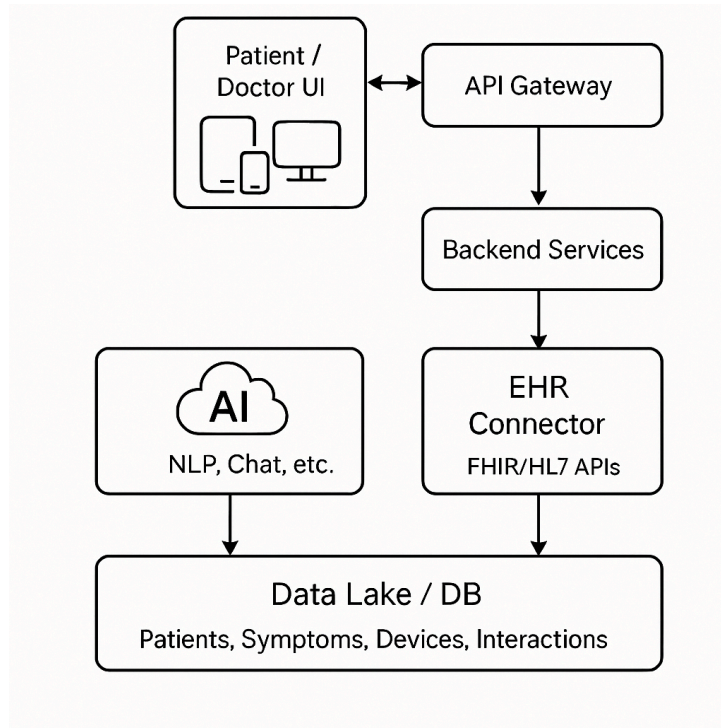


Figure 1: Architecture and data flow of the voice patient diary sample application

Reference: <https://www.microsoft.com/en-us/industry/health/microsoft-cloud-healthcare>

<https://cloud.google.com/customers/mayo-clinic>