Project Design Phase-II   **Technology Stack (Architecture & Stack)**

🗓 **Date**: 31 February 2025

🆔 **Team ID**:LTVIP2025TMID32957

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

⬜ **Maximum Marks**: 4 Marks **Technical Architecture – HealthAI**

HealthAI's technical architecture is designed to provide intelligent, personalized, and accessible healthcare assistance using IBM's AI capabilities. The architecture bridges the gap between healthcare user needs and AI-driven digital solutions by clearly defining modules, workflows, and technology integrations.

It follows principles of modular design, AI integration, secure backend logic, and interactive frontend experiences.

References – Adapted for HealthAI

1. **C4 Model – Software Architecture Visualization** Used as the base modeling approach to define different levels of HealthAI's architecture (context, container, component).

🔗 https://c4model.com/

2. **IBM Order Processing System (Pandemic Reference)**
Inspired HealthAI's backend design by using modular components and AI-powered services similar to orderprocessing use cases.

🔗 https://developer.ibm.com/patterns/online-orderprocessing-system-during-pandemic/

3. **IBM Cloud Architecture Center**
Provided best practices and patterns for integrating AI models and deploying cloud-based healthcare applications.

🔗 https://www.ibm.com/cloud/architecture

4. **AWS Architecture Best Practices**
Used as a comparative reference to validate HealthAI's scalability, resilience, and service-based integration approach.
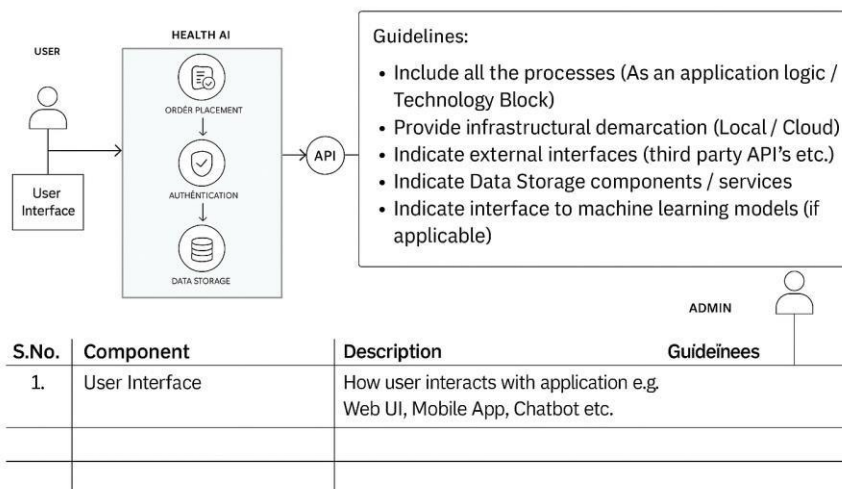
🔗 https://aws.amazon.com/architecture

5. **How to Draw Useful Technical Architecture Diagrams**
Guided the creation of simplified, functional diagrams for HealthAI's backend and AI data flow.

🔗 https://medium.com/the-internal-startup/how-todraw-useful-technical-architecture-diagrams-2d20c9fda90d

Health AI

Guidelines:

- Include all the processes (As an application logic / Technology Block)
- Provide infrastructural demarcation (Local / Cloud)
- Indicate external interfaces (third party API's etc.)
- Indicate Data Storage components / services
- Indicate interface to machine learning models (if applicable)

S.No.	Component	Description	Guideïnees
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	

Health AI Technology Stack

• Application Logic-1: Patient intake and triage processing	Python / Java IBM Watson STT
• Application Logic-2: Voice transcription for patient interactions	IBM Watson STT IBM Watson Assistant
• Database	MySQL / MongoDB
• Cloud Database	IBM DB2 / IBM Cloudant
• File Storage: Medical imaging and document	IBM Block Storage / Local Filesystem
• External API-1 Real-time environmental health tracking	IBM Weather API Aadhaar API
• External API-2	Aadhaar API
• Machine Learning Model Medical image classification	Custom Object Recognition Model
• Infrastructure Scalable deployment for clinical anvironmants	Cloud Foundry / Kubernetes / Local Server