

**Project Design Phase**

**Solution Architecture**

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| Date | 27 June 2025 |
| Team ID | LTVIP2025TMID59552 |
| Project Name | HealthAI-Intelligent Healthcare Assistant Using  IBM Granite |
| Maximum Marks | 4 Marks |

✅ **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.

🎯 **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:

o Patient Chat o Disease Prediction

# o Treatment Plan Generation oHealth Analytics



🧮 **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.
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