Solution Architecture – HealthAI

1. **User Interface** is built using **Streamlit**, offering a clean, tab-based layout.
2. User enters **symptoms, health queries, or profile details** via interactive forms.
3. Inputs are captured and managed using **Streamlit session state**.
4. Depending on the tab, data is routed to **Chat**, **Prediction**, **Treatment**, or **Analytics** modules.
5. The backend logic is written in **Python** with modular functions for each feature.
6. Symptoms and health data are packaged into prompts for the **IBM Granite-13B-Instruct-v2** model.
7. The app securely accesses the AI model using **Hugging Face or WatsonX API** and **.env** keys.
8. The **AI model processes prompts** and returns human-readable, medically contextual responses.
9. Responses are parsed and displayed back in the UI for users to read and act on.
10. For analytics, simulated or uploaded data is processed using **Pandas** and **NumPy**.
11. Health trends (heart rate, BP, glucose) are visualized with **Plotly charts**.
12. AI-generated insights are displayed alongside the graphs for actionable health suggestions.
13. All user data is stored temporarily in-memory for a session (no persistent database).
14. The app can be hosted via **Streamlit Cloud**, **Render**, or **Hugging Face Spaces**.
15. Future upgrades may include **voice integration**, **user accounts**, and **real-time wearable data** support.