Project Design Phase
Solution Architecture

Date	17 June 2025
Team ID	LTVIP2025TMID31732
Project Name	HealthAI
Maximum Marks	4 Marks

Solution Architecture – HealthAI

📌 Description

The **HealthAI** application is designed with a modular and API-integrated architecture that connects the front-end user interface (built using Streamlit) with a cloud-based LLM (IBM Granite via Hugging Face) and local data processing modules. This architecture allows seamless interaction, real-time AI inference, and efficient health data visualization.

🎯 Key Components:

- **User Interface (UI):**
  Built in Streamlit, offering an interactive and intuitive layout for users to choose modules, input queries, and upload data.

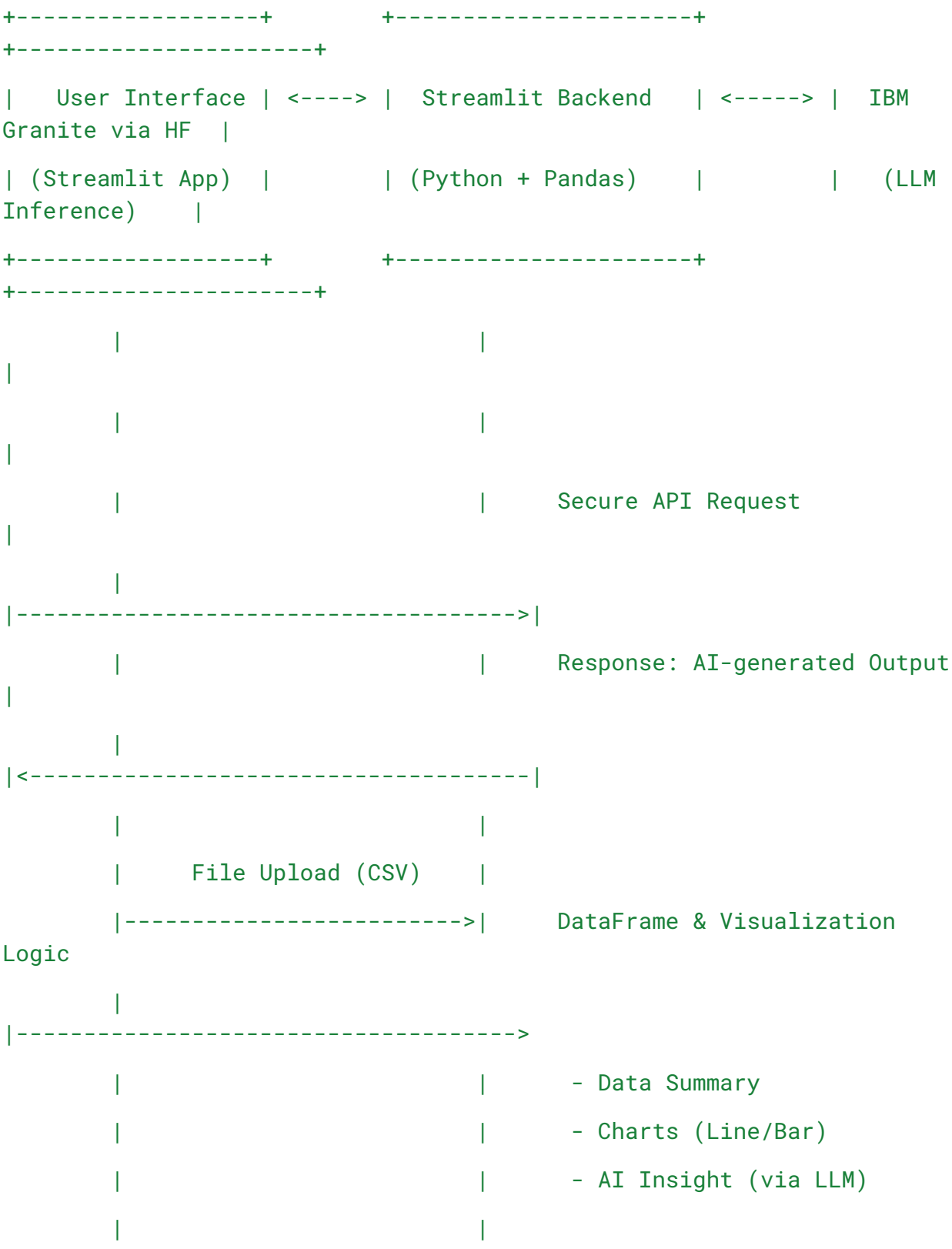
- **LLM API Integration:**
  Uses Hugging Face's inference endpoint to connect with the IBM Granite LLM for health Q&A, disease prediction, and treatment plan generation.

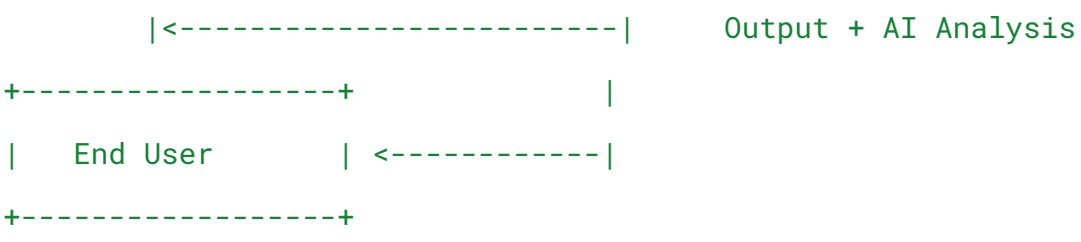
- **Data Processor Module:**
  Uses Pandas to clean and analyze user-uploaded health data (CSV), generate charts, and extract trends.

- **Security & Environment Configuration:**
  API keys managed securely using `dotenv`. No sensitive data is stored or transmitted beyond necessary inference.

- **Deployment Layer:**
  Deployed on a web server or local machine. Scalable to the cloud via platforms like Streamlit Cloud, Hugging Face Spaces, or AWS.

🖼️ Solution Architecture Diagram





🔧 Technologies Used:

Layer	Technology
Frontend	Streamlit
Backend	Python, Pandas
AI Integration	IBM Granite LLM (via Hugging Face API)
Visualization	Streamlit Charts
Configuration	Python-dotenv
Hosting (optional)	Streamlit Cloud / AWS