Project Design Phase
Solution Architecture

Date	27 June 2025
Team ID	LTVIP2025TMID59561
Project Name	HealthAI: Intelligent Healthcare Assistant Using IBM Granite
Maximum Marks	4 Marks

Solution Architecture:

Component	Technology	Purpose
Frontend UI	**Streamlit**	**Provides user interface for chat, predictions, treatment plans, and analytics**
AI Integration	**IBM Watson Granite 13B, Google Gemini**	**Enables natural language understanding, condition prediction, and treatment generation**
Data Visualization	**Plotly, Altair, Matplotlib**	**Renders heart rate, blood pressure, glucose trends, and symptom distribution**
Backend	**Python**	**Processes user inputs, communicates with AI, and serves predictions**
Database	**SQLite / PostgreSQL**	**Stores user inputs, predictions, and historical data**
Authentication	**Firebase Auth**	**Secures access and supports user sessions (if needed)**
Environment Config	**.env via dotenv**	**Manages API credentials securely**
Logging & Monitoring	**Streamlit logs**	**Tracks usage and debug information for performance tracking**
Deployment Options	**Streamlit Cloud**	**For public hosting or scalable cloud deployment**

Architecture Diagram:

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│   Granite 13B     G  Gemini     │
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