Technology Stack (Architecture & Stack)

Date: 26 June 2025

Team ID: LTVIP2025TMID20350

Project Name: HealthAI: Intelligent Healthcare Assistant

# Maximum Marks: 2 Marks Table-1: Components & Technologies

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| --- | --- | --- | --- |
| S.No | Component | Description | Technology |
| 1 | User Interface | User interacts via a web-based app | Streamlit (Python framework) |
| 2 | Application Logic-1 | Logic for patient chat, prediction, treatment plan, and analytics | Python |
| 3 | Application Logic-2 | Generates responses using AI model | IBM Watson Machine Learning |
| 4 | Application Logic-3 | Not applicable in your current setup | N/A |
| 5 | Database | Sample data stored temporarily for each session | In-memory (session state) |
| 6 | Cloud Database | Currently not used; future enhancement suggested | Planned: IBM Cloudant or PostgreSQL |
| 7 | File Storage | Local storage for .env and optional static files | Local Filesystem |
| 8 | External API-1 | IBM Granite model API for generative responses | IBM Watson Machine Learning API |
| 9 | External API-2 | Not used in current version | N/A |
| 10 | Machine Learning Model | Medical query answering, disease prediction, treatment generation | IBM Granite 13B Instruct v2 |
| 11 | Infrastructure | Streamlit app hosted locally; can be cloud-deployed | Local Server / IBM Cloud Foundry |

# Table-2: Application Characteristics

|  |  |  |
| --- | --- | --- |
| S.No | Characteristics | Description / Technology |
| 1 | Open-Source Frameworks | Streamlit, Plotly, Python |
| 2 | Security Implementations | python-dotenv, .env, API token handling |
| 3 | Scalable Architecture | 3-Tier Architecture (UI–Logic–AI/Service) |
| 4 | Availability | Cloud Foundry (future option) |
| 5 | Performance | Streamlit Caching, IBM API optimization |