Technology Stack (Architecture & Stack)

Date: 26 June 2025

Team ID: LTVIP2025TMID32047

Project Name: HealthAI: Intelligent Healthcare Assistant

Maximum Marks: 2 Marks

# Table-1: Components & Technologies

| S.No | Component | Description | Technology |
| --- | --- | --- | --- |
| 1 | User Interface | User interacts via a web-based SPA | HTML, CSS, JavaScript |
| 2 | Application Logic-1 | Logic for chat, prediction, treatment, tips | Python (FastAPI) |
| 3 | Application Logic-2 | Generates AI responses | IBM Watson Machine Learning (Granite 13B) |
| 4 | Application Logic-3 | Not applicable | N/A |
| 5 | Database | Sample session data only | In-memory (local/session) |
| 6 | Cloud Database | Planned for future enhancements | Planned: IBM Cloudant |
| 7 | File Storage | Stores .env and static files | Local Filesystem |
| 8 | External API-1 | Granite model API | IBM Watson Machine Learning API |
| 9 | External API-2 | Not used in current version | N/A |
| 10 | Machine Learning Model | Prediction, response, treatment generation | IBM Granite 13B Instruct v2 |
| 11 | Infrastructure | Hosted locally; future cloud-ready | FastAPI + Uvicorn / IBM Cloud Foundry |

# Table-2: Application Characteristics

| S.No | Characteristics | Description / Technology |
| --- | --- | --- |
| 1 | Open-Source Frameworks | FastAPI, Python, Chart.js |
| 2 | Security Implementations | python-dotenv, .env handling, secure API calls |
| 3 | Scalable Architecture | 3-Tier: UI – FastAPI – IBM AI Layer |
| 4 | Availability | Deployed locally; can be moved to IBM Cloud |
| 5 | Performance | Asynchronous FastAPI routing, optimized IBM API usage |