Project Executable Document

# Project Title:

HealthAI: Intelligent Healthcare Assistant

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# Overview:

HealthAI is a full-stack intelligent healthcare assistant powered by IBM Granite large language models. It offers real-time interaction for doctors and patients via a responsive web interface. Key functionalities include medical report analysis using vision models, conversational AI for symptom checking, and personalized healthcare support using Retrieval-Augmented Generation (RAG).

# Features:

• Medical Chatbot using IBM Granite Chat (LLM)  
• Symptom Checker with condition suggestions  
• Vision-based medical report/image analysis  
• Retrieval-Augmented Generation (RAG) using medical context  
• Dual dashboards for Doctor and Patient access

# Tech Stack:

Frontend: HTML, CSS, JavaScript (Responsive UI)  
Backend: Python (Flask)  
AI APIs: IBM Granite (Chat, Code, Vision, RAG)  
Data: JSON-based simulation or API data

# System Architecture:

• User → Frontend UI → Flask Backend → IBM Granite APIs  
• Models called via API: LLM for chat, Vision for file/image input, RAG for knowledge context  
• Output rendered on UI (Doctor or Patient view)

# Modules:

1. Doctor Dashboard – Upload reports, ask patient-specific queries, view AI analysis.  
2. Patient Dashboard – Chatbot interface, symptom input, receive medical insights.  
3. Vision Interface – Analyze uploaded medical documents using Granite Vision.  
4. RAG System – Retrieve relevant medical facts/documents before generating answers.

# Execution Steps:

1. Download project files and install dependencies.  
2. Run the Flask app: python app.py  
3. Open browser → http://localhost:5000  
4. Use interface as Doctor or Patient to test full functionality.

# Future Scope:

• Integration with wearable devices for vitals tracking.  
• EMR (Electronic Medical Record) system compatibility.  
• Real-time video/audio chat integration.  
• Advanced diagnosis suggestions using federated medical databases.

# Conclusion:

HealthAI proves how advanced AI models like IBM Granite can revolutionize healthcare delivery. With AI-based diagnostics and vision support, it simplifies doctor-patient interactions and opens the door for smarter, real-time medical systems.