**Milestone 2: Core Functionalities Development**

**🔹 Objective of Milestone 2:**

To develop the **core features and intelligent behaviors** of Health AI by integrating the IBM Granite foundation model into functional healthcare assistant modules. These are the key components that make Health AI practical and valuable to users (patients, doctors, staff).

**🔹 Key Core Functionalities**

**✅ 1. Symptom Checker**

* Users input symptoms in natural language.
* Health AI queries Granite to analyze symptoms and return likely conditions (informational only, not diagnostic).
* Prompt Template Example:  
  *“The patient reports having a sore throat and headache. What are the possible common causes?”*

**✅ 2. Medical Q&A Assistant**

* Health AI answers medical questions (e.g., “What are the side effects of metformin?”).
* Uses Granite’s pre-trained medical reasoning capability.
* Validates answers against trusted knowledge bases (like MedlinePlus, WHO).

**✅ 3. Appointment Scheduling Assistant**

* Handles scheduling or rescheduling doctor visits via backend APIs.
* Integrates with hospital calendar systems.
* Uses intent recognition to detect booking-related commands.

**✅ 4. Patient Record Summarization**

* Automatically summarizes EHRs or visit notes for doctors.
* Converts long clinical notes into concise bullet points or paragraphs using Granite.
* Prompt Example:  
  *“Summarize this patient note into 3 key points.”*

**✅ 5. Drug Information & Interaction**

* Users can ask about drug usage, dosages, or interactions.
* Granite processes drug-related questions and generates evidence-based answers.

| **Feature** | **How Granite Helps** |
| --- | --- |
| Symptom Checker | Language understanding & causal reasoning |
| Q&A Assistant | Large knowledge base & generative language model |
| Record Summarization | Text summarization capabilities |
| Drug Information | Retrieval-based generation + trusted data filtering |
| Appointment Assistant | Contextual dialogue and intent detection |

**🔹 How IBM Granite Powers These Features**

**🔹 Development Tasks in Milestone 2**

1. **Build Prompt Templates**
   * Create reusable prompt formats for each functionality (QA, summary, diagnosis hints).
2. **API Layer Integration**
   * Connect frontend and backend to watsonx.ai Granite model.
   * Handle authentication, prompt sending, and response parsing.
3. **Context Management**
   * Store user sessions and context to allow multi-turn conversations.
4. **Functional UI Prototypes**
   * Simple interfaces for testing:
     + Chat input
     + Record upload
     + Booking flow
5. **Test Cases for Each Feature**
   * Accuracy, safety, and response quality
   * Include test scenarios for diverse patient inputs

**🔹 Deliverables for Milestone 2**

* Fully functional prototypes of:
  + Symptom checker
  + Medical Q&A
  + Appointment assistant
  + EHR summarizer
* Connection to IBM Granite API
* Prompt library (stored and versioned)
* Test report for each feature
* Frontend demonstration of chatbot interface

**🔹 Summary**

Milestone 2 focuses on turning the design into working intelligent healthcare features, using IBM Granite's LLM capabilities to provide human-like interactions, medical assistance, and productivity tools for healthcare stakeholders. This milestone marks the transformation of Health AI from architecture into a real, intelligent assistant.