




# Agentic AI Hackathon: Building Intelligent Agents with IBM Granite and LangFlow

*TEAM RESCUE AI*

# Name of the team: **RESCUE AI**

## Details of Team members

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# Problem statement

## **AI-Based Chronic Disease Monitoring Assistant**

### ***The Challenge***

Patients with chronic conditions such as diabetes, hypertension, and asthma generate daily health data through self-monitoring devices and logs. Healthcare professionals cannot continuously analyze this growing volume of patient-generated data due to time and resource constraints. As a result, early warning signs of health deterioration may be missed, leading to delayed interventions and increased risk of complications. There is a need for an intelligent assistive system that can continuously analyze health logs and support proactive chronic disease management.

### ***Health Data Analysis Agent***

An agent that ingests daily patient health data such as blood glucose levels, blood pressure readings, peak flow values, and medication adherence logs, and organizes them into meaningful health trends.

### ***Risk Trend Detection Agent***

An agent that analyzes short-term and long-term health trends to identify abnormal patterns or potential deterioration using clinical thresholds and historical data.

### ***Alert & Lifestyle Recommendation Assistant***

An agent that generates early warning alerts and provides lifestyle and care recommendations aligned with clinical best practices (assistive only, non-diagnostic).

Outcome

Provides early risk awareness and personalized lifestyle guidance, enabling timely intervention and improved chronic disease management.

# Proposed solution- ChroniCare AI :

ChroniCare AI is an AI-based chronic disease monitoring assistant built using LangFlow with IBM Granite, designed to support proactive and assistive (non-diagnostic) care.

## »Health Monitoring Agent

Continuously analyzes daily patient data such as blood glucose, blood pressure, peak flow, symptoms, and medication adherence.

## » Risk Trend Detection Agent

Identifies abnormal short-term and long-term health trends using clinical thresholds and historical data to detect early risk.

## » Alert & Lifestyle Recommendation Agent

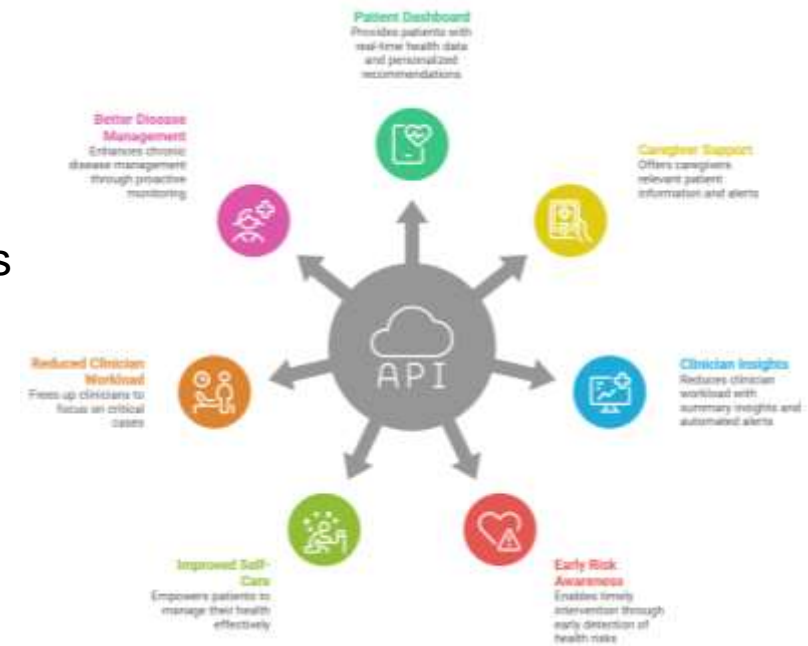
Generates early warnings and provides personalized lifestyle guidance including diet checks, physical activity, medication reminders, sleep, and stress management.

## » RAG Intelligence Layer

Uses Retrieval-Augmented Generation (RAG) on trusted chronic disease guidelines and healthcare references to ensure safe and reliable recommendations.

## Outcome:

Early risk awareness, improved self-care, reduced clinician burden, and better chronic disease management.



## Need of project :

### » **Chronic diseases are monitored daily, but acted on late**

Patients generate large volumes of health data, yet most of it is reviewed only during hospital visits, missing early warning signs.

### » **Clinicians face data overload, not data scarcity**

Healthcare professionals lack time to continuously analyze patient-generated logs, leading to delayed interventions.

### » **Reactive care increases risk and cost**

Without early trend detection, minor deviations escalate into serious complications and emergency situations.

### » **Patients need guidance, not just numbers**

Raw health readings do not help patients understand what to do next in daily life (diet, activity, medication habits).

### » **Existing systems lack explainable AI support**

Current tools rarely combine clinical guidelines + AI + lifestyle recommendations in a safe, assistive manner.

ChroniCare AI bridges this gap by transforming continuous health data into early risk awareness and actionable lifestyle guidance — before conditions worsen.

# End user of project:

## »Chronic Disease Patients:

Gain continuous health monitoring, early risk alerts, and personalized lifestyle guidance for conditions like diabetes, hypertension, and asthma.

## »Caregivers & Family Members:

Receive better visibility into patient health trends, enabling timely support and improved daily care.

## »Healthcare Professionals:

Access summarized health trends and early risk indicators, reducing manual data review and clinician workload.

## »Hospitals & Clinics:

Enable proactive chronic care management, reduce emergency admissions, and improve long-term patient outcomes.

## »Digital Health Platforms & Insurers:

Support preventive care initiatives, improve patient engagement, and lower chronic disease management costs.

ChroniCare AI connects patients , caregivers , and clinicians through proactive, data-driven chronic care.



# Technology Used

- Langflow platform :  
Visual orchestration framework used to design, connect, and manage multi-agent AI workflows.
- Langflow component name – Agent , Chat input , prompt template , IBM Watsonx ai , Parser , Astra DB , Chat output
- IBM Granite model - ibm-granite-3-2-8b
- IBM Cloud :
  - Provides scalable, secure infrastructure for deploying and running the application.
- RAG :  
Evidence-grounded AI using trusted healthcare documents.  
File , Split Text , Astra DB , Parser
- IBM Watsonx.ai :  
Supports enterprise-grade LLM execution with governance and compliance controls.

# Novelty and Uniqueness

- Unified Multi-Agent Chronic Care AI**

Combines health monitoring, risk trend detection, and lifestyle guidance into a single intelligent assistant instead of fragmented tools.

- Continuous Trend-Based Intelligence (Not Snapshot Analysis)**

Detects early health deterioration by analyzing **long-term and short-term trends**, not just isolated readings.

- RAG-Powered Clinical Alignment**

Uses **Retrieval-Augmented Generation (RAG)** with trusted chronic disease guidelines to ensure recommendations are **safe, explainable, and assistive**.

- Actionable Lifestyle Intelligence**

Transforms raw health data into **practical guidance**—diet checks, activity suggestions, medication adherence, sleep, and stress insights.

- Granite-Guarded, Non-Diagnostic AI**

Built on **IBM Granite via LangFlow**, ensuring bias-aware, regulation-friendly, and non-diagnostic outputs suitable for real-world healthcare use.



# Technical flow diagram - Architecture blueprint of ChroniCare AI

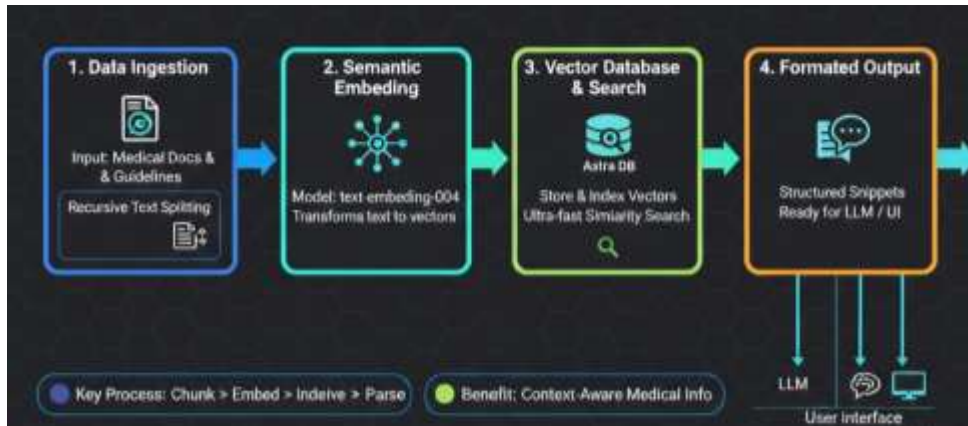
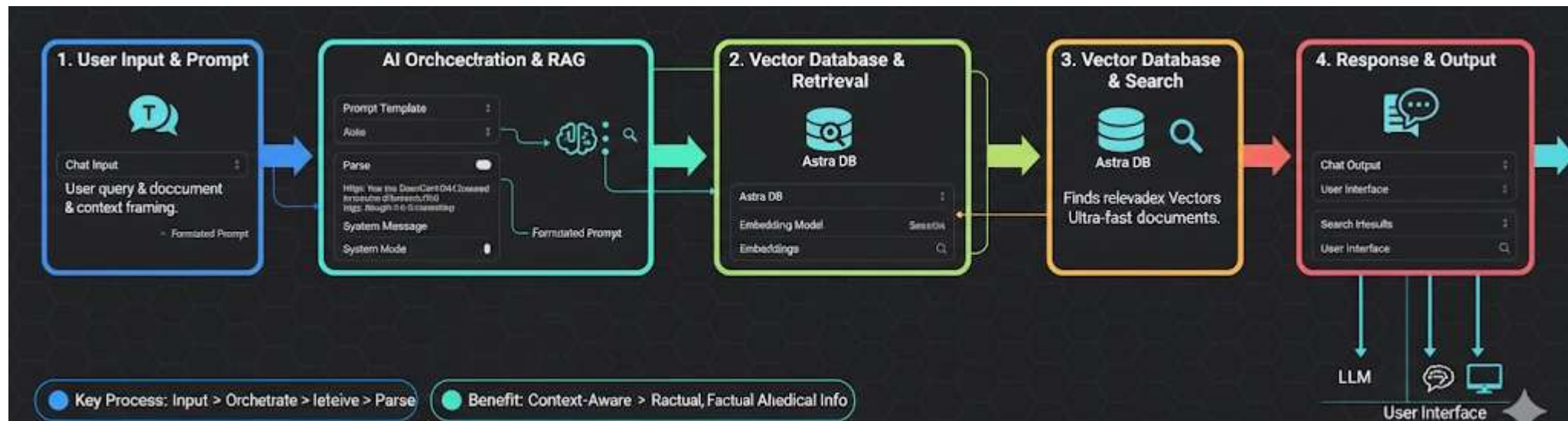


Fig: Architecture of RAG

Fig: Architecture of LangFlow



# Langflow component Used

## **1)Chat Input :**

Interface for users to submit health data, queries, and daily logs.

## **2) IBM watsonx AI Agent :**

Enterprise AI platform used to access and run IBM Granite foundation models.

## **3)File component :**

Uploads clinical guidelines and healthcare documents into the RAG pipeline.

## **4)Chat output :**

Displays AI-generated alerts, insights, and lifestyle recommendations to the user

## **5)Astra DB:**

Vector database used to store embeddings and enable fast semantic retrieval for RAG.

## **6) Parser :**

Extracts and structures relevant information from user inputs and retrieved documents.

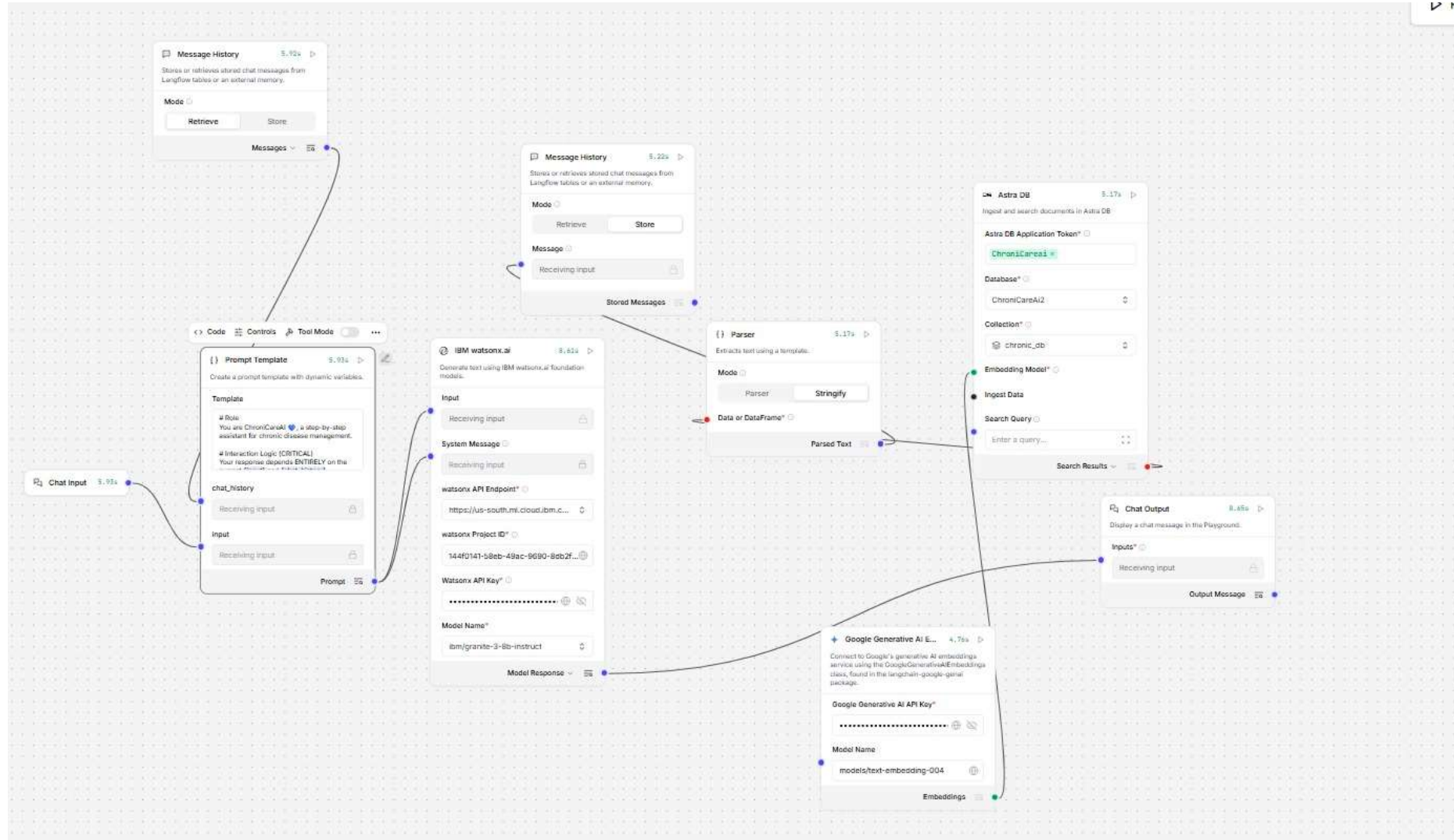
## **7) Prompt Template :**

Predefined structured prompts to ensure consistent, safe, and context-aware AI responses.

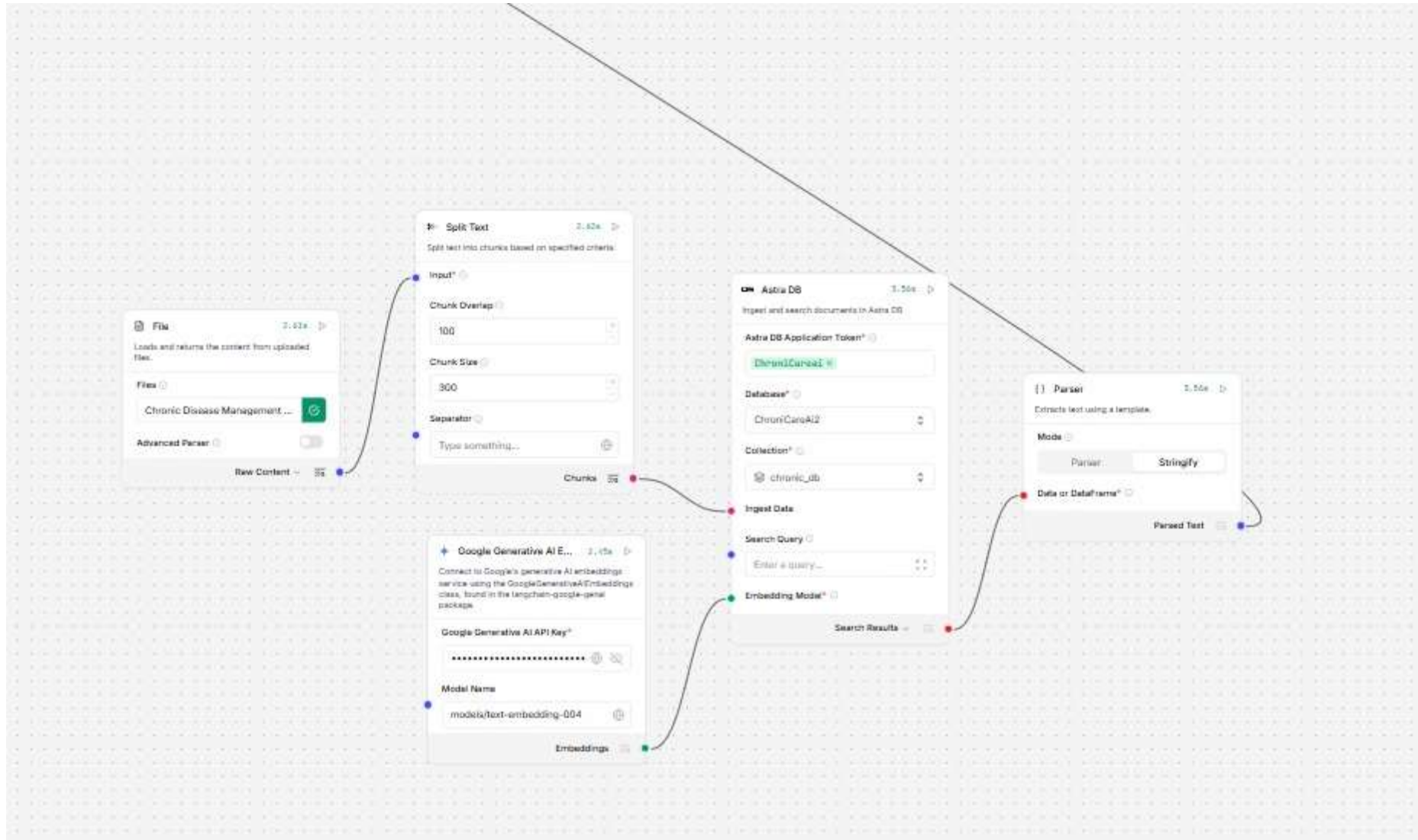
## **8) RAG (Retrieval-Augmented Generation) :**

Enhances AI responses by grounding them in trusted chronic disease guidelines


# Input Screenshot 1




# Input Screenshot 2



# Output Screenshot 1

**User**


hi

**AI** meta-llama/llama-3-3-70b-instruct


Hi 🙋 I'm ChroniCareAI ❤️ I help monitor chronic health conditions step by step.

What would you like to do? [1 Health Data Analysis](#) [2 Risk Trend Detection](#) [3 Alerts & Lifestyle Recommendations](#) [4 History](#) [5 Summary of Report](#) [6 Diet Chart Recommendation](#) [7 Chat with me](#) [8 Menu](#)

Please type a number (1-8) 😊


**User**

Blood glucose 120, Blood pressure 120/100, Peak flow 300, Medication no

**AI** meta-llama/llama-3-3-70b-instruct

🙋 User, you have provided the following health data:

1. **Blood Glucose:** 120
2. **Blood Pressure:** 120/100
3. **Peak Flow:** 300
4. **Medication Status:** No

 Let's analyze this data:

1. **Blood Glucose:** Your glucose level is 120, which is **less than 140**, so it's considered **Normal**.
2. **Blood Pressure:** Your blood pressure is 120/100, which is higher than the normal range of less than



# Output Screenshot 2

1. **Blood Glucose:** Your glucose level is 120, which is **less than 140**, so it's considered **Normal**.
2. **Blood Pressure:** Your blood pressure is 120/100, which is **higher than the normal range of less than 130/80**. The systolic value is slightly high, and the diastolic value is high.
3. **Peak Flow:** Your peak flow is 300, which is **less than the normal range of 400 or more**.

💡 Based on this analysis, we can identify some areas for improvement, especially with your blood pressure and peak flow readings.

Please select an option to proceed: [1 Health Data Analysis](#) [2 Risk Trend Detection](#) [3 Alerts & Lifestyle Recommendations](#) [4 History](#) [5 Summary of Report](#) [6 Diet Chart Recommendation](#) [7 Chat with me](#) [8 Menu](#)

Please type a number (1-8) 😊



User

2



AI meta-llama/llama-3-3-70b-instruct

👉 User, here is your trend analysis for Option 2:

1. **Blood Glucose Trend:** Your current glucose level is 120, which is **less than 140**, so it's considered **Normal**. Since this is the first reading, we cannot detect a trend yet.
2. **Blood Pressure Trend:** Your current blood pressure is 120/100, which is **higher than the normal range of less than 130/80**. The systolic value is slightly high, and the diastolic value is high. As this is the first reading, no trend can be identified.
3. **Peak Flow Trend:** Your peak flow is 300, which is **less than the normal range of 400 or more**. With only one reading, we cannot determine a trend.

💡 Based on this analysis, we can identify some areas for improvement, especially with your blood pressure and peak flow readings.

# Output Screenshot 3

Based on this analysis, we can identify some areas for improvement, especially with your blood pressure and peak flow readings.

Please select an option to proceed: [1](#) Health Data Analysis [2](#) Risk Trend Detection [3](#) Alerts & Lifestyle Recommendations [4](#) History [5](#) Summary of Report [6](#) Diet Chart Recommendation [7](#) Chat with me [8](#) Menu

Please type a number (1-8) 😊



User

3



AI meta-llama/llama-3-3-70b-instruct



👉 User, you have selected **Option 3: Alerts & Lifestyle Recommendations**.

Based on your latest health data:

1. **Blood Glucose:** 120
2. **Blood Pressure:** 120/100
3. **Peak Flow:** 300

📊 Here are some alerts and recommendations for you:

## 1. Alerts:

- Your blood pressure is higher than the normal range.
- Your peak flow is less than the normal range.

## 2. Lifestyle & Diet Plan:

- 🍳 **Breakfast:** Since your blood pressure is higher than normal, I recommend **Oatmeal with walnuts** to help lower it.
- 🍽️ **Lunch:** Grilled Salmon and broccoli for a balanced meal.

# Output Screenshot 4

💡 Please follow these recommendations to improve your health conditions.

You can proceed with the following options: [1](#) Health Data Analysis [2](#) Risk Trend Detection [3](#) History  
[5](#) Summary of Report [4](#) Diet Chart Recommendation [7](#) Chat with me

Please type a number (1-7) 😊



User

5



AI meta-llama/llama-3-3-70b-instruct

👉 User, you have selected **Option 5: Summary of Report.**

📄 **Option 5: Status Summary**

1. **Latest Readings:**

- **Blood Glucose:** 120
- **Blood Pressure:** 120/100
- **Peak Flow:** 300

2. **Risk Level:** Based on your current readings, your risk level is moderate due to high blood pressure and low peak flow.

3. **Note:** This is an automated report based on the data you provided.

💡 Please consult a healthcare professional for a detailed analysis and advice tailored to your specific condition.

You can proceed with the following options: [1](#) Health Data Analysis [2](#) Risk Trend Detection [3](#) Alerts & Lifestyle Recommendations [4](#) History [6](#) Diet Chart Recommendation [7](#) Chat with me

Please type a number (1-7) 😊



# Output Screenshot 5



User

4



AI meta-llama/llama-3-3-70b-instruct

👉 User, you have selected **Option 4: History**.

📊 **Option 4: Your Session History** Here are all previous readings found in this session:

## 1. Initial Health Data:

- Blood Glucose: 120
- Blood Pressure: 120/100
- Peak Flow: 300
- Medication Status: No

## 2. Risk Trend Detection:

- **Blood Glucose Trend:** Your current glucose level is 120, which is **less than 140**, so it's considered **Normal**. Since this is the first reading, we cannot detect a trend yet.
- **Blood Pressure Trend:** Your current blood pressure is 120/100, which is **higher than the normal range of less than 130/80**. The systolic value is slightly high, and the diastolic value is high. As this is the first reading, no trend can be identified.
- **Peak Flow Trend:** Your peak flow is 300, which is **less than the normal range of 400 or more**. With only one reading, we cannot determine a trend.

## 3. Alerts & Lifestyle Recommendations:

- **Alerts:**
  - Your blood pressure is higher than the normal range.
  - Your peak flow is less than the normal range.
- **Lifestyle & Diet Plan:**
  - 🍳 **Breakfast:** Since your blood pressure is higher than normal, I recommend Oatmeal with

# Output Screenshot 6

- 🍽️ Lunch: Grilled Salmon and broccoli for a balanced meal.
- 🍽️ Dinner: Steamed white fish and ginger greens for a healthy evening meal.

#### 4. Summary of Report:

- Latest Readings:
  - Blood Glucose: 120
  - Blood Pressure: 120/100
  - Peak Flow: 300
- Risk Level: Based on your current readings, your risk level is moderate due to high blood pressure and low peak flow.
- Note: This is an automated report based on the data you provided.

💡 Please consult a healthcare professional for a detailed analysis and advice tailored to your specific condition.

You can proceed with the following options: [1](#) Health Data Analysis [2](#) Risk Trend Detection [3](#) Alerts & Lifestyle Recommendations [5](#) Summary of Report [6](#) Diet Chart Recommendation [7](#) Chat with me

Please type a number (1-7) 😊

# Future Scope

## »Integration with Wearables & IoT Devices:

Real-time data ingestion from smart glucometers, BP monitors, spirometers, and fitness trackers for continuous monitoring.

## »Predictive Risk Scoring & Early Intervention:

AI-driven risk scores to forecast potential complications and recommend preventive lifestyle actions earlier.

## »Personalized Care Pathways:

Adaptive recommendations based on patient history , behavior patterns, and response to lifestyle changes.

## »Clinical & Caregiver Dashboards:

Visual health summaries and alerts to support faster clinical review and coordinated care.

## »Multi-Disease & Population Health Expansion:

Extend support to additional chronic conditions and enable population-level insights for hospitals and insurers.

## »Multilingual & Voice-Based Assistance:

Improve accessibility through regional language support and voice interactions for elderly users.

# Git Hub Link

This is the Git Hub link of the Project ChroniCare AI:

<https://github.com/soumyakg1605-debuger/ChroniCareAi2>

# References :

## **1.IBM Granite:**

IBM Foundation Models for responsible, enterprise-grade Generative AI.

## **2.LangFlow:**

Visual framework for building and orchestrating multi-agent LLM workflows with RAG.

## **3.World Health Organization(WHO):**

Chronic disease management guidelines and global health best practices.

## **4.American Diabetes Association(ADA):**

Clinical thresholds and lifestyle guidance for diabetes management.

## **5.National Heart, Lung, and Blood Institute(NHLB):**

Blood pressure and cardiovascular health standards.

## **6.Peer-Reviewed Research & Trusted Healthcare Publications:**

Evidence-based insights on chronic disease monitoring, lifestyle interventions, and preventive care.

# Thank You!

Thank you for your time and interest.