

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 Grainte 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

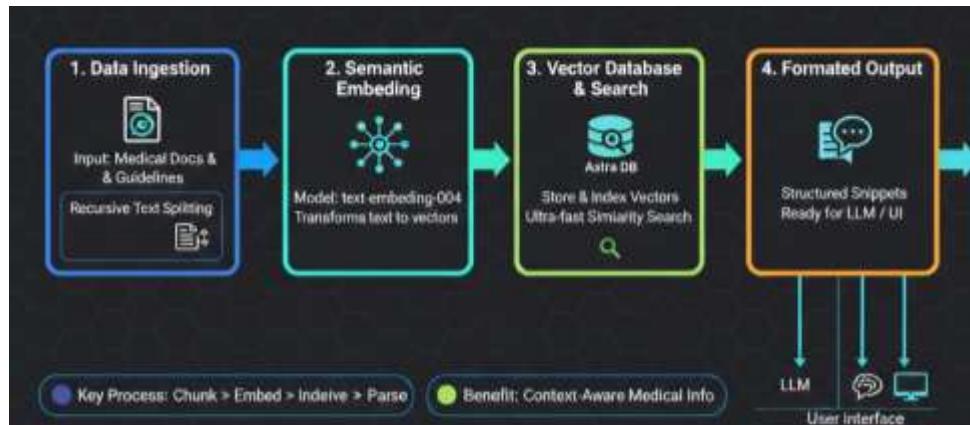
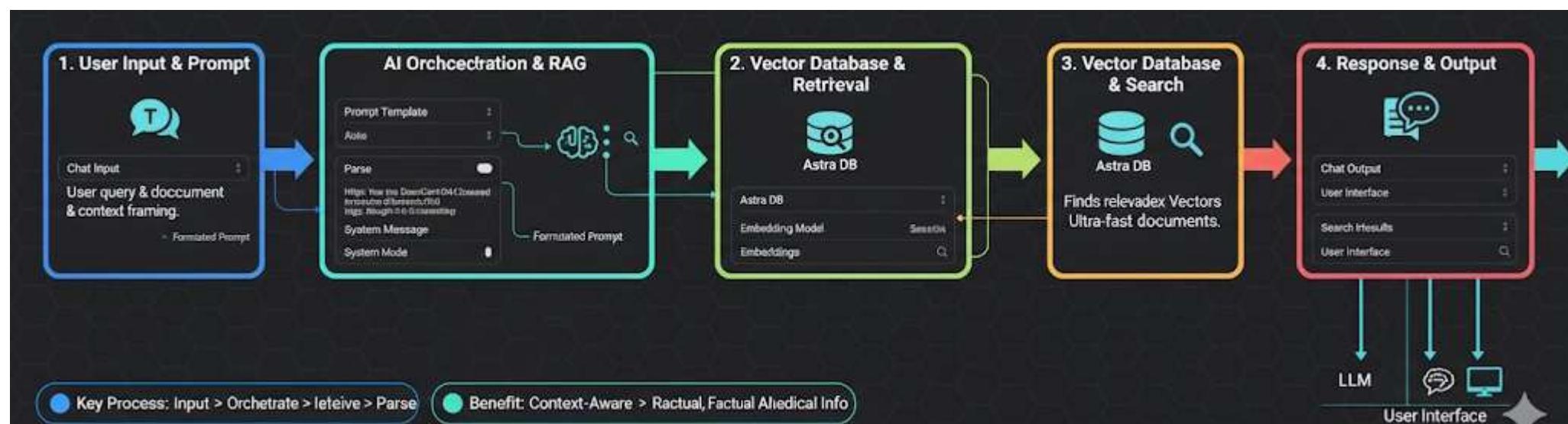


Fig: Architecture of RAG

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.

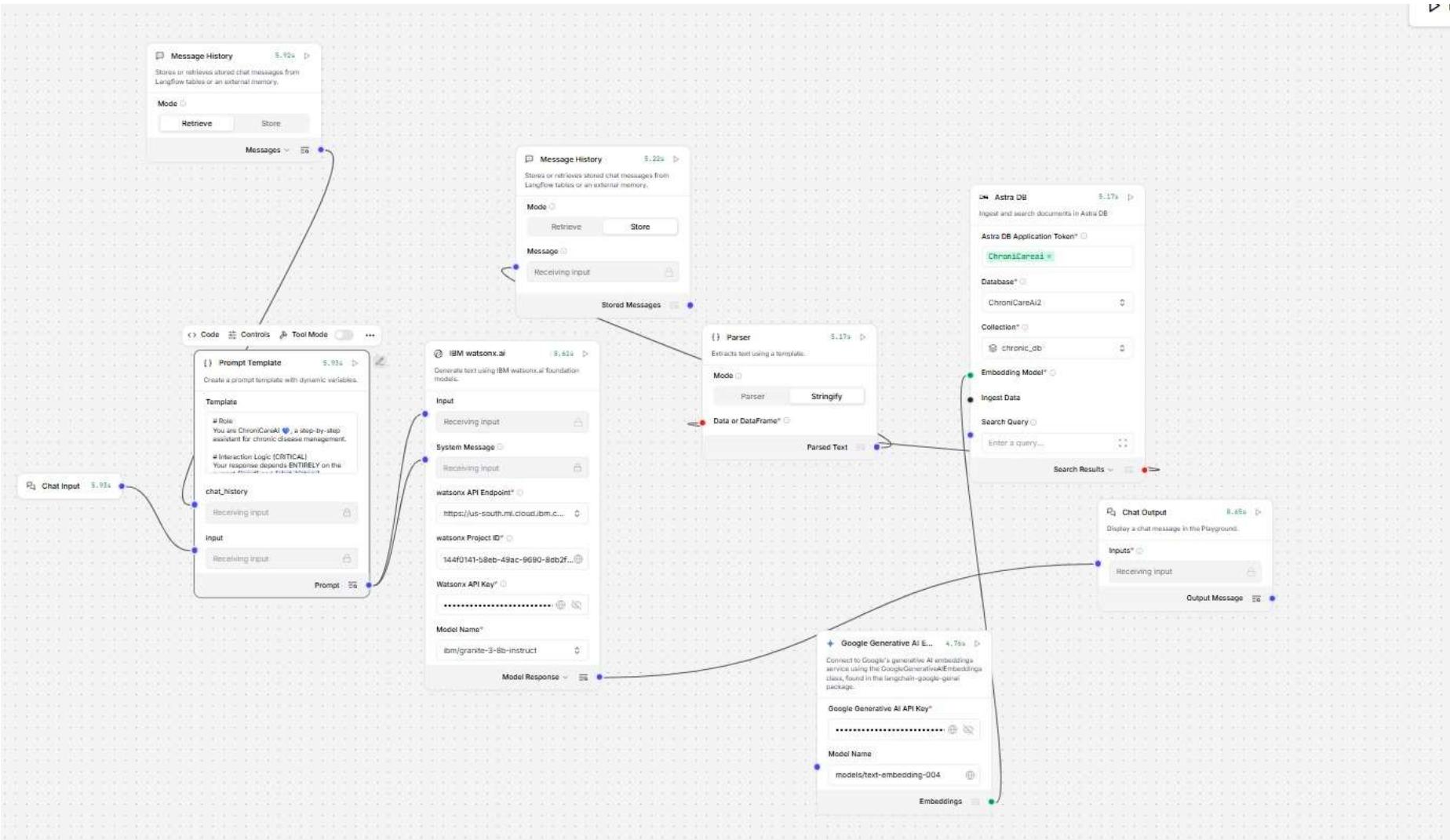
7) Prompt Template :

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

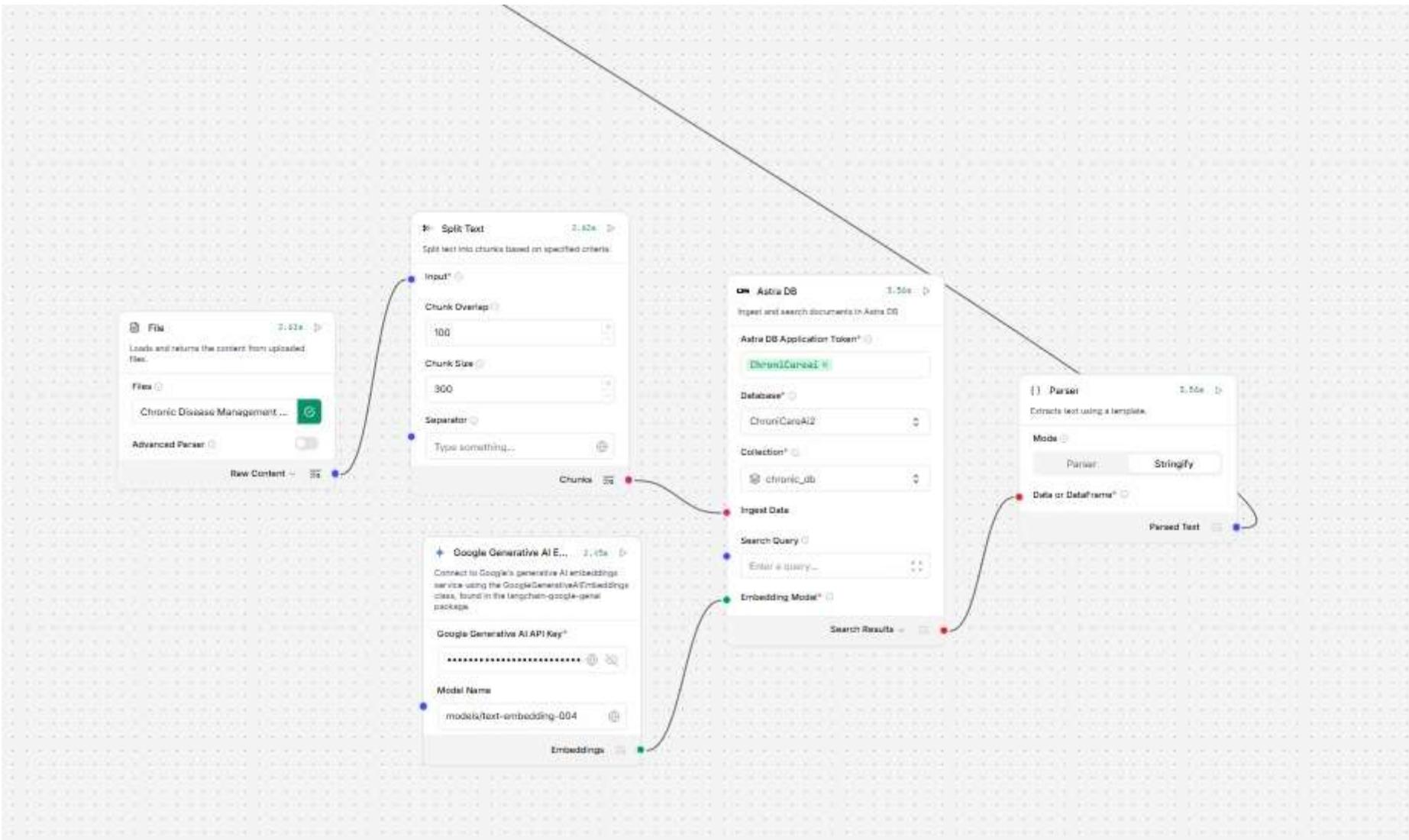
8) RAG (Retrieval-Augmented Generation) :

Enhances AI responses by grounding them in trusted chronic disease guidelines

Input Screenshot 1



Input Screenshot 2



Output Screenshot 1

The screenshot shows a chat window with two participants: a User and an AI named ChroniCareAI.

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

AI (meta-llama/llama-3-3-70b-instruct):

- 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 6 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.

恙 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 5 Diet Chart Recommendation 6 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.

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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.