



CODECELL-CMPN, VESIT

SIRIUS HACKATHON 2025

Category Code: C4

Problem Statement Title: Insurance and Risk Management

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Institute Name: Vivekanand Education Society's Institute of Technology



Idea / Approach details



Problem Statement: Traditional insurance pricing models rely on historical data and generalized risk factors, leading to inaccurate premium calculations and potential financial inefficiencies for both insurers and policyholders.

Solution: It is in the interest of both the insurer and the policyholder that the policyholder should be as healthy as possible to avoid claims. So we propose a dynamic insurance premium system where the premium is calculated based on a Risk score. The Risk score is evaluated based on the age, lifestyle choices and health of an individual. Higher the risk score, higher will be the insurance premiums.

Target Audience: Health conscious individuals who wish to be benefitted from their healthy lifestyle in the form of lower insurance premiums.



Implemented Features

The following features have been implemented:

Risk Score
Calculation using
UPTIQ AI Agent

Give personalised
recommendations to
improve health and
reduce risk score.

Fraud Detection
using RAG

Premium
Calculation based
on Risk Score



Innovation and Technologies Used

Risk Score: Risk score is calculated using the following formula:

$$\text{Risk Score} = (W1 \times \text{Age Factor}) + (W2 \times \text{BMI Factor}) + (W3 \times \text{Lifestyle Factor}) + (W4 \times \text{Medical History Factor}) + (W5 \times \text{Family History Factor}) + (W6 \times \text{Occupation Factor}) + (W7 \times \text{Fitness Factor})$$

Where
 $W1, W2, W3, W4, W5, W6, W7$ are weight coefficients ensuring the score remains within 0-100 range.

2. Premium Calculator: Premium Calculation is done on the formula:

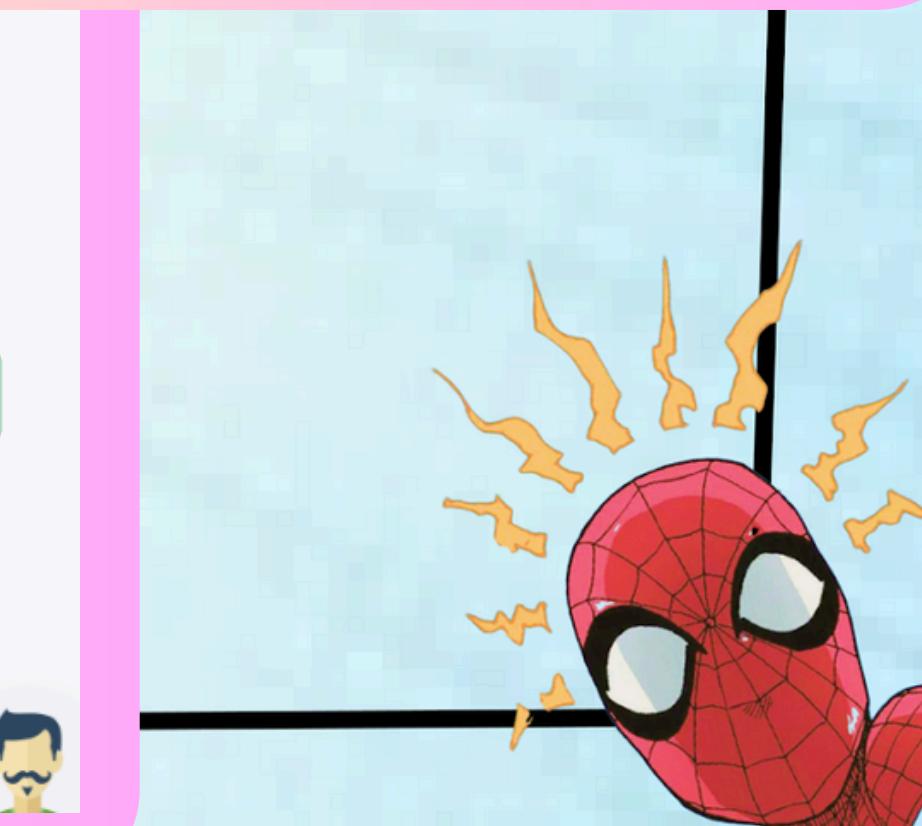
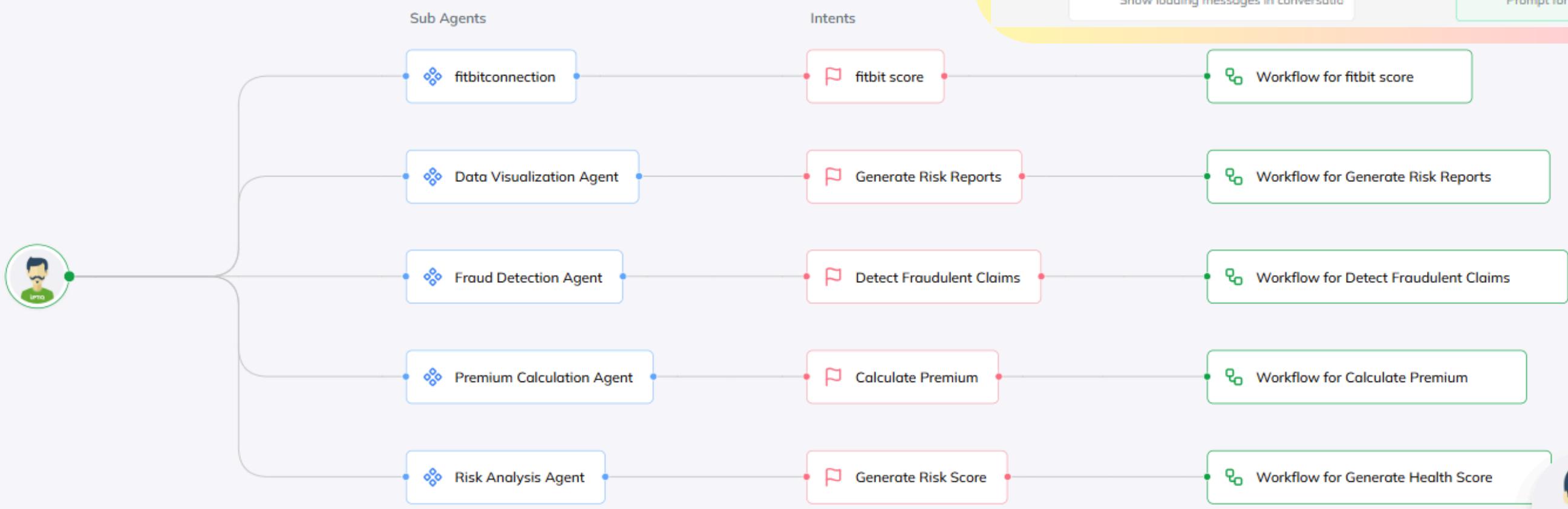
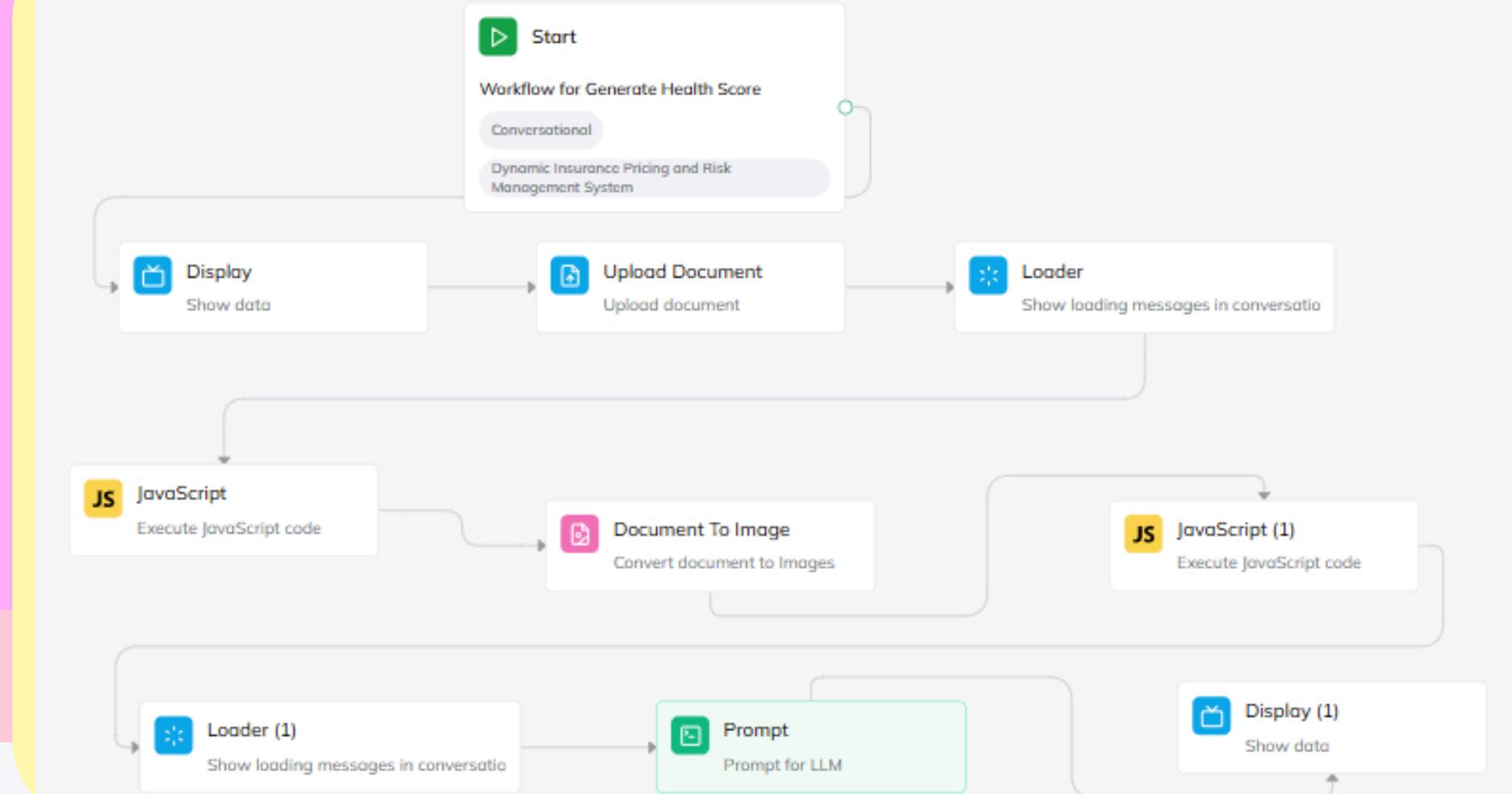
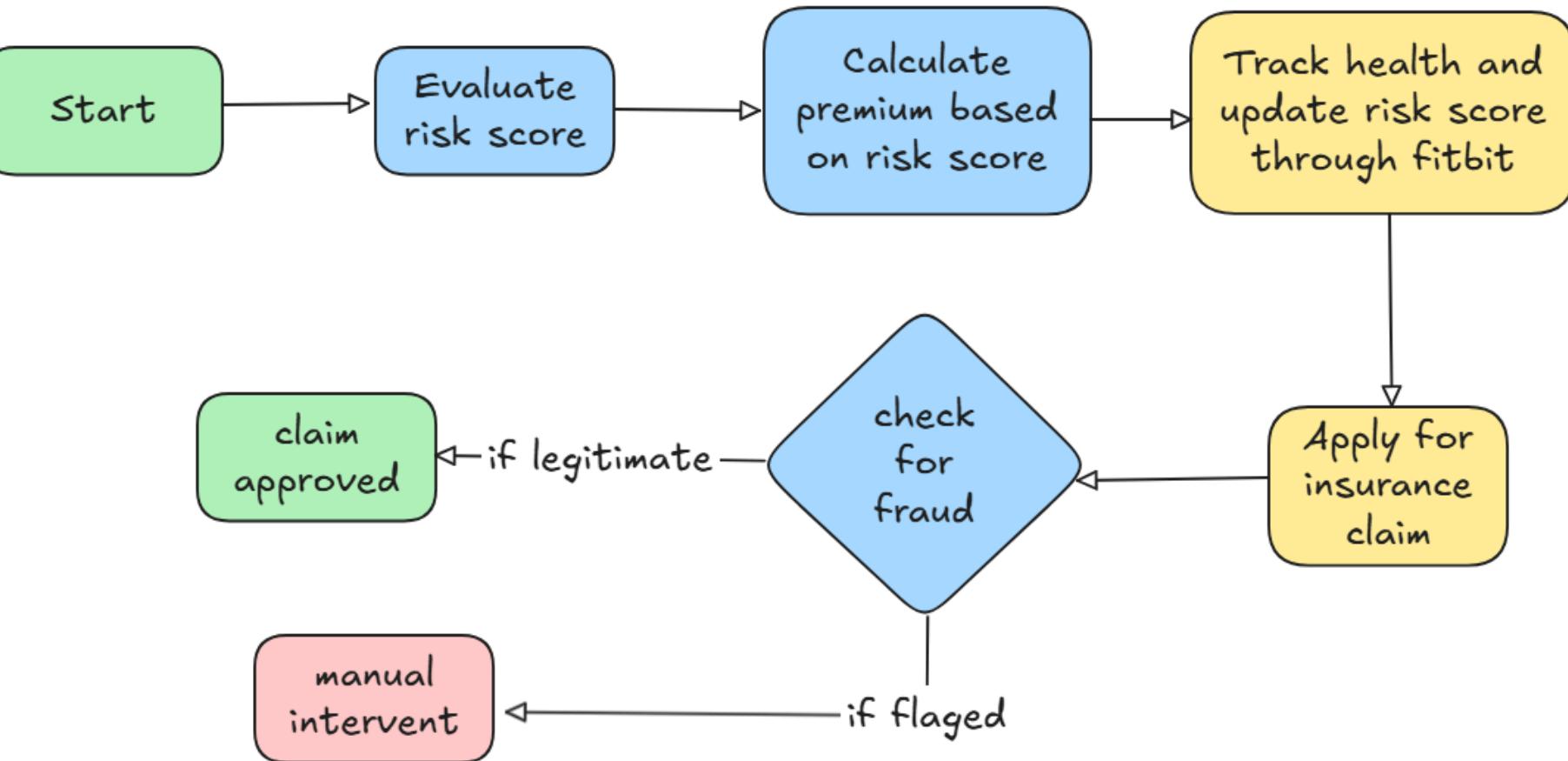
$$\text{Premium} = \text{Base Premium} + (\text{Risk Score} \times \text{Risk Factor})$$

Higher risk scores increase premium costs.

3. Fraud Detection: RAG is utilised to provide knowledge for the AI model about



Flow Diagram / Architecture



Demo video link

[https://www.youtube.com/watch?
v=iEGVvYh_nqg](https://www.youtube.com/watch?v=iEGVvYh_nqg)



Future Objectives



- **AI-Powered predictive health alerts:** Based on the medical records history of an individual, a capable AI agent can predict possible diagnosis of diseases thus calculating risk score more accurately.

- **Integration with hospitals for real-time emergency alerts:** If a policyholder is admitted in case of an emergency then the hospital can immediately access patients medical history via blockchain smart contracts.

- **Blockchain for secure medical record storage:** Store data like hash of medical reports which will help with security and authentication.

Expanding wearable Integrations: Integrating Apple watch and Samsung Health along with Fitbit to target more users.

