

CODECELL-CMPN, VESIT

SYRHS HACKATHON 2025

Category Code: C4

Problem Statement Title: Insurance & Risk Management

Team Name: Hack Overflow

Institute Name: Vivekanand Education Society's Institute of Technology



Idea / Approach details (& implemented features)

BimaX: AI-Powered Insurance Risk Assessment System

BimaX is a multi-agent AI-powered insurance risk assessment and fraud detection system that streamlines risk evaluation, compliance checks, and claim processing. It integrates four AI agents

- 1.KYC**
- 2. Risk Scoring**
- 3.Regulatory Compliance**
- 4.Issue Resolution**

Each handling a specific aspect of the insurance workflow.

The system leverages **AI, NLP**, and workflow automation to optimize decision-making,

- 1.Reduce fraud**
- 2.Improve operational efficiency.**

It uses **UPTIQ LLM models**, rule-based engines, and multi-intent handling to process claims, **assess risk**, and ensure **regulatory compliance**.



Innovation & Technologies Used

Revolutionizing Insurance with Autonomous AI Agents

Unique Selling Proposition

1. Autonomous AI Sub-Agents

- Dedicated AI agents for **risk scoring, fraud detection, document verification, and claim approval.**
- Each **agent operates independently** but communicates via a centralized decision-making system.

2. Context-Aware Risk Scoring Engine

- Dynamic recalibration of risk scores based on historical trends and predictive modeling.

3. Self-Evolving Fraud Detection Model

- Fraud probability scoring that continuously adapts to new fraudulent patterns.

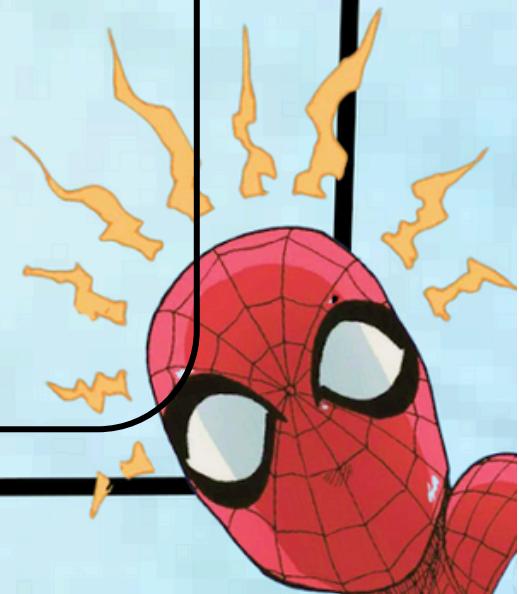
Breakthrough Technologies

1. AI-Driven Risk Assessment

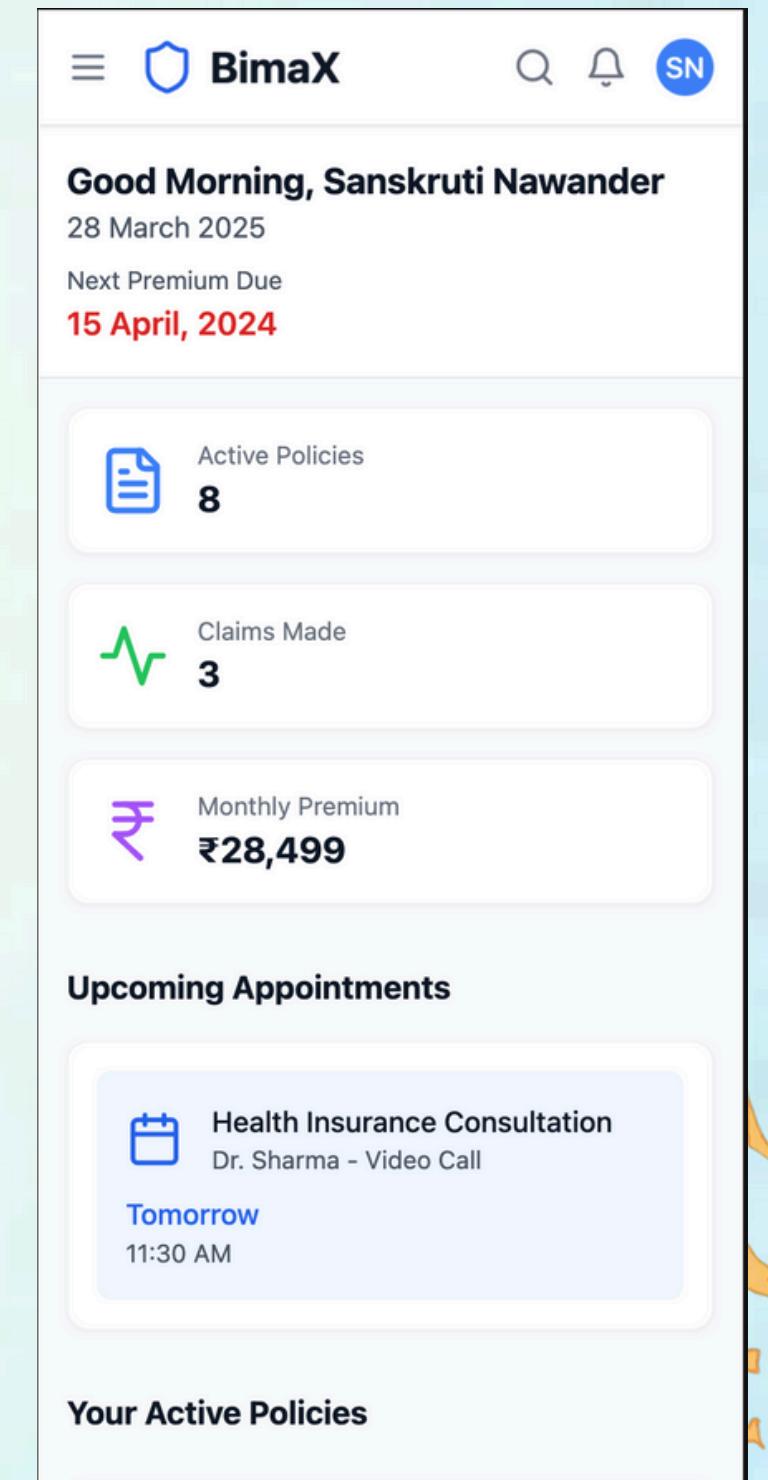
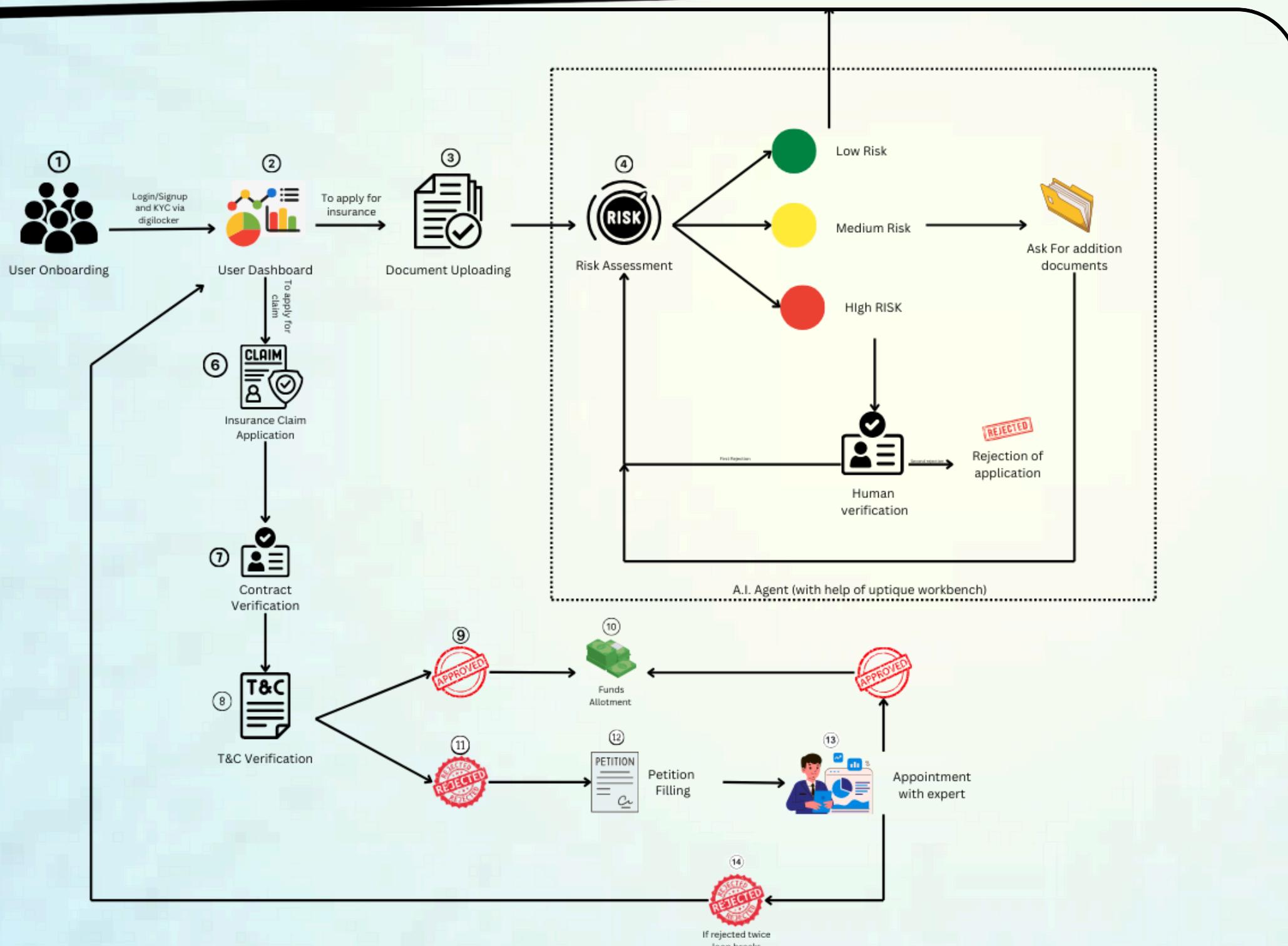
- Dynamic risk scoring using fine-tuned LLM
- Real-time anomaly detection
- Predictive claim probability analysis

2. Integrated Risk Intelligence

- UPTIQ AI Workbench integration
- Comprehensive financial risk scoring
- Seamless data correlation across multiple source



Flow diagram / Architecture



IMPLEMENTED FEATURES

Risk Assessment Agent
risk-assessment-agent-9505

Scope
Evaluates applicants' financial history and credibility. Generates dynamic risk profiles based on real-time and historical data. Assists in underwriting by...

IC Model
GPT 4o mini

Intents :

- Assess Risk Score
- evaluate_creditworthiness
- recommend_underwriting_decision
- Profile High-Risk Applicants

+ Add New Intent

Workflow

1

Risk Assessment Agent

- Evaluates an applicant's financial history, creditworthiness, and past claims to determine their risk profile.
- Utilizes AI models to generate real-time risk scores for informed underwriting decisions.
- Analyzes financial patterns and claim data to identify high-risk applicants.
- Helps insurers adjust premiums, modify policy terms, or decline applications based on risk assessment.
- Provides automated recommendations for policy approvals to streamline underwriting.
- Ensures a data-driven approach to risk management, reducing manual intervention and improving accuracy.

2

Claims Processing Agent
claims-processing-agent-0317

Scope
Automates end-to-end claim submission, verification, and settlement. Ensures transparent, efficient, and secure claim approvals. Reduces manual intervention ...

IC Model
GPT 4o mini

Intents :

- Validate Claim Submission
- Approve or Reject Claims
- Process Payment Settlements
- Provide Claim Status Updates

+ Add New Intent

Customer Support Agent

- Provides real-time assistance to policyholders and insurance agents.
- Handles inquiries related to policies, claims, and risk assessment.
- Offers guidance on claim submission, policy terms, coverage details, and eligibility requirements.
- Provides claim status updates and assists in document submission.
- Resolves common queries related to insurance procedures.
- Automates customer interactions to ensure faster response times.
- Improves user experience and reduces the workload on human support teams.
- Enhances overall customer satisfaction by delivering accurate and timely support.

Demo video link

Smart Contract & Compliance Agent
smart-contract-compliance-agent-9843

Scope
Automates policy issuance and claim approvals.
Ensures compliance with insurance regulations.
Maintains secure and tamper-proof claim and policy...

IC Model
GPT 4 Turbo

Intents :

- Execute Smart Contracts
- Monitor Regulatory Compliance
- Log Policy & Claim Records
- Handle Dispute Resolution

+ Add New Intent

3

Smart Contract and Compliance Agent

Automated Policy Management – Automates policy issuance and claim approvals, reducing manual intervention.

Contract Enforcement – Ensures policy terms are met efficiently through smart contracts.

Regulatory Compliance – Monitors transactions to ensure adherence to industry standards and legal requirements.

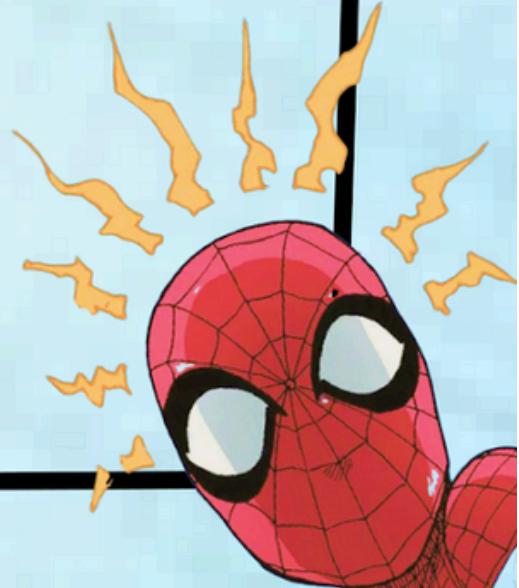
Secure & Tamper-Proof Records – Maintains immutable records for policies and claims, preventing unauthorized modifications.

Audit & Dispute Resolution – Facilitates audit trails and streamlines dispute resolution for enhanced transparency.

Error Reduction & Efficiency – Minimizes human errors and improves operational efficiency in insurance processes.

RISK MANAGEMENT AND
INSURANCE MATRIX

VIDEO IMPLEMENTATION LINK



Future Scope & Expansion

Future Scope

- **Cross-Industry Applications** – Extend AI-driven fraud detection to financial services, healthcare, and real estate for broader risk management.
- **Advanced NLP for Document Analysis** – Improve Natural Language Processing (NLP) to analyze policy documents, claims, and contracts, ensuring faster approvals and fraud detection.
- **Customer-Centric Enhancements** – Implement AI-driven chatbots and automated decision-making to enhance policyholder experience and reduce processing time.
- **Fraud Prevention Collaboration** – Partner with regulatory bodies and insurers to create a shared fraud database, enhancing industry-wide fraud detection.

Business Model (Subscription-Based SaaS)

Revenue Streams:

- Subscription Plans: Monthly/annual plans for insurers.
- Freemium Model: Basic risk assessment free, advanced analytics as paid features.
- API Licensing: Pay-per-use model for risk scoring and fraud detection APIs.

Cost Structure:

- AI/ML model development
- Maintenance & compliance
- Customer support

Target Customers:

- Insurance companies
- Insurtech startups
- Brokers & underwriting firms

