Ideation Phase
Empathize & Discover

Date	31 January 2025
Team ID	SWTID-2026-5418
Project Name	Insurance Fraud Detection Using Maching Learning
Maximum Marks	4 Marks

Empathy Map Canvas:

Project Name: Insurance Fraud Detection Using Machine Learning

User Persona: Insurance Claims Officer / Fraud Analyst

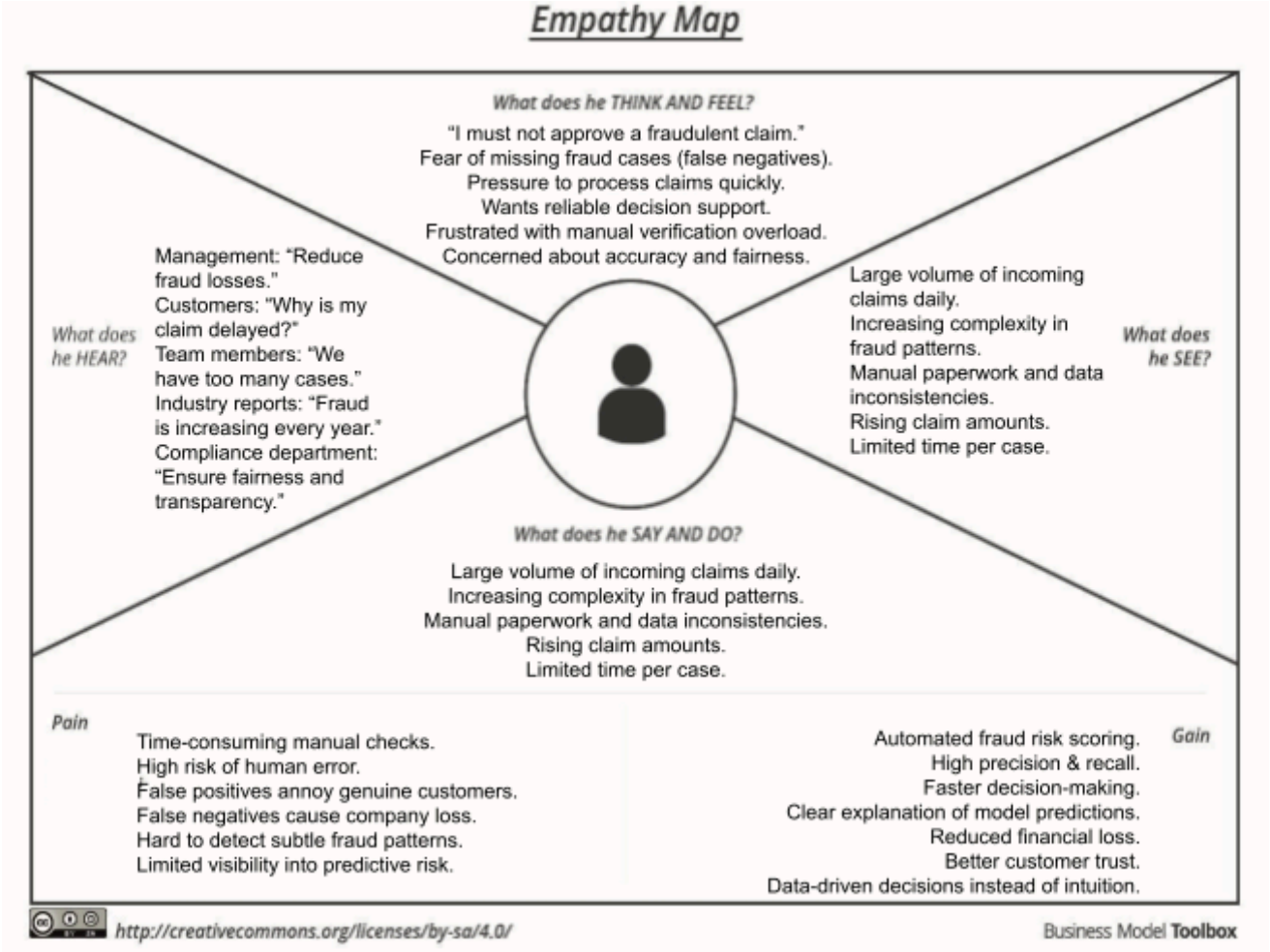
Goal: Quickly and accurately identify suspicious claims

Empathy Map Canvas:

Name: Claims Investigation Officer

Role: Reviews insurance claims and flags potential fraud

Primary Goal: Reduce financial losses while approving genuine claims faster



Empathy Map: Insurance Claims Officer / Fraud Analyst

This empathy map captures the mindset and environment of the Insurance Claims Officer / Fraud Analyst, the core user supported by the implemented system.

1. Who They Are & What They Experience

Category	Details	Interpretation
THINK & FEEL (Internal)	- Fear of approving fraudulent claims. - Pressure to process claims quickly. - Anxiety about missing fraud cases (false negatives). - Frustration with manual verification overload. - Concern about accuracy and fairness.	Works under high pressure where mistakes are costly. Needs a trustworthy system.
HEAR (External Influences)	- Management: “Reduce fraud losses.” - Customers: “Why is my claim delayed?” - Team: “We have too many cases.” - Industry: “Fraud is increasing every year.” - Compliance: “Ensure fairness and transparency.”	Squeezed from all sides: corporate targets, customer demands, and regulatory requirements.
SEE (Environment)	- Large volume of incoming claims. - Increasing fraud complexity. - Manual paperwork and inconsistent data. - Rising claim amounts. - Limited time per case.	The working environment is overwhelming and inefficient. Manual processes are unsustainable.
SAY & DO (Observable Behavior)	- Says: “We need better tools.” - Manually cross-checks claim data. - Reviews claim history. - Escalates suspicious cases. - Performs repetitive verification tasks.	Attempts to compensate for system limitations through exhaustive manual effort.

2. Core Problems & Desired Outcomes

Category	Details	Core Insight
Pain Points	- Time-consuming manual checks. - High risk of human error. - False positives (annoy customers). - False negatives (cause financial loss). - Hard to detect subtle fraud patterns. - No clear predictive risk insight.	**Core Problem:** Manual detection is inefficient and unreliable, leading to high risk and poor user experience.

Gains (Wants)	- Automated fraud risk scoring. - High precision and recall. - Faster decision-making. - Clear explanation of predictions. - Reduced financial loss. - Better customer trust. - Data-driven decisions.	**Solution Focus:** The user needs an automated, accurate, and transparent system to restore efficiency and minimize loss.

3. The ML System Value Proposition

The implemented ML system directly addresses the user's needs for Gains:

- **Technology:** Random Forest model.
- **Optimization:** Top 8 optimized features.
- **Output:** Confidence score and Web dashboard.
- **Result:** Provides predictive fraud detection capability.