



Project SafeScan: Fraud Detection and Prevention

A Tech-Driven Approach

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Introduction to Project



Overview

- From 2014 to 2017, Canadians lost over \$405 million to fraudsters, highlighting the need for robust fraud detection solutions.
- Fraud detection is critical for individuals and organizations to protect their financial interests and maintain trust in financial systems.
- Our project, Project SafeScan, aims to develop technology that identifies and filters suspicious transactions based on user profiles.
- We aim to validate consistent transactions automatically and flag suspicious activities for further investigation.



Gather relevant data
and collect documents



Allegation v/s collected
information



Analyze the environment of
the alleged person



Look for motive and
opportunity for the fraud



Correlate information motive,
opportunity, environment, etc.



Present details and
status of fraud

Inspiration Behind the Project



Why SafeScan?

- Project SafeScan was inspired by the alarming financial losses due to fraud faced by Canadians between 2014 and 2017.
- Over \$405 million was lost to fraudsters, which underscored the urgent need for enhanced fraud detection mechanisms.
- The project aims to leverage technology to provide a solution that can effectively identify fraudulent activities.
- Our goal is to help individuals and organizations safeguard their financial assets from fraudulent transactions.

Antifraud Programs and Controls.(CRIME)



The Problem of Fraud



The Issue

- Fraud is a significant problem that affects individuals and organizations, causing substantial financial losses.
- Traditional methods of fraud detection are often inadequate in identifying sophisticated fraudulent activities.
- There is a pressing need for advanced technologies that can detect and prevent fraud in real-time.
- Project SafeScan addresses this need by using machine learning and user profile analysis to detect suspicious transactions.

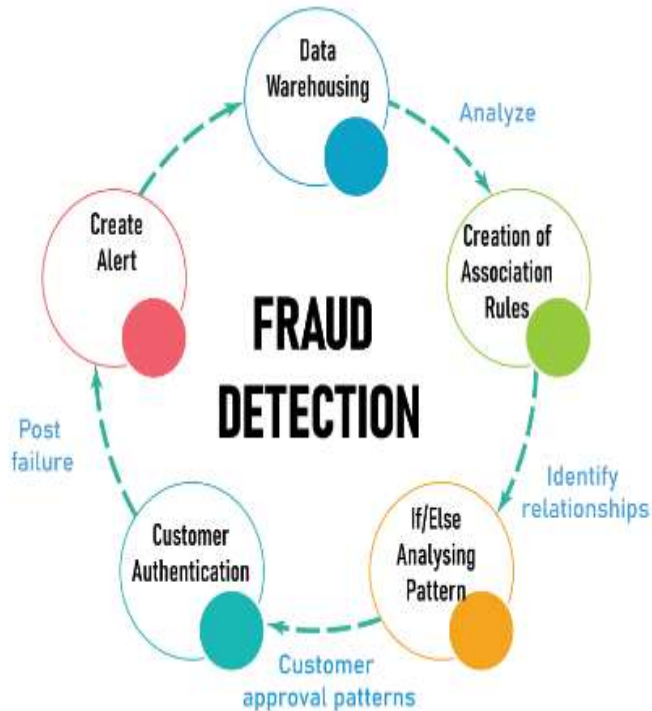
Our Solution



Tech-driven

- Project SafeScan aims to develop technology that detects and filters suspicious transactions based on user profiles.
- The system validates consistent transactions automatically, reducing the need for manual intervention.
- Suspicious transactions are flagged for further investigation, ensuring timely detection of potential fraud.
- Our solution leverages advanced machine learning algorithms to provide accurate and reliable fraud detection.

Suspicious Activity Detection



High-Value

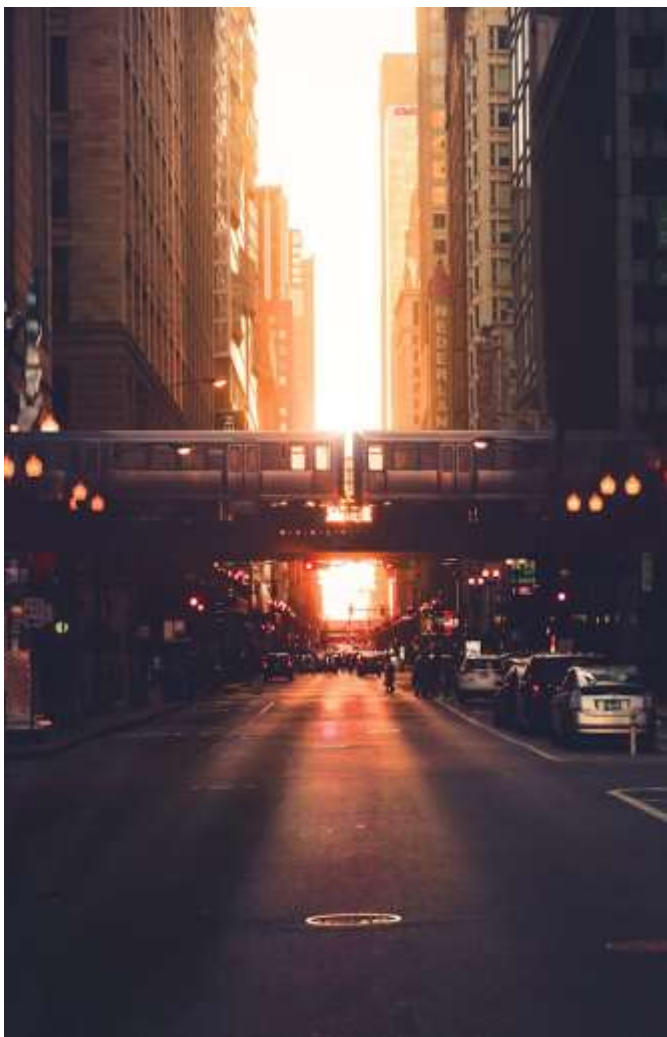
- High-value payments made at cheaper location IDs are considered suspicious and are flagged for further review.
- This criterion helps in identifying transactions that deviate from the expected spending patterns of users.
- By flagging such transactions, the system can prevent potential financial losses due to fraud.
- This approach ensures that high-value transactions are thoroughly vetted before validation.

Location-Based Detection



Unusual Places

- Transactions taking place in unusual locations outside the norm for the user are flagged as suspicious.
- This method helps in identifying activities that do not align with the user's typical transaction behavior.
- Such location-based detection is crucial for identifying potential fraudulent activities in real-time.
- It adds an additional layer of security to the fraud detection system by monitoring geographic transaction patterns.



Machine Learning Implementation

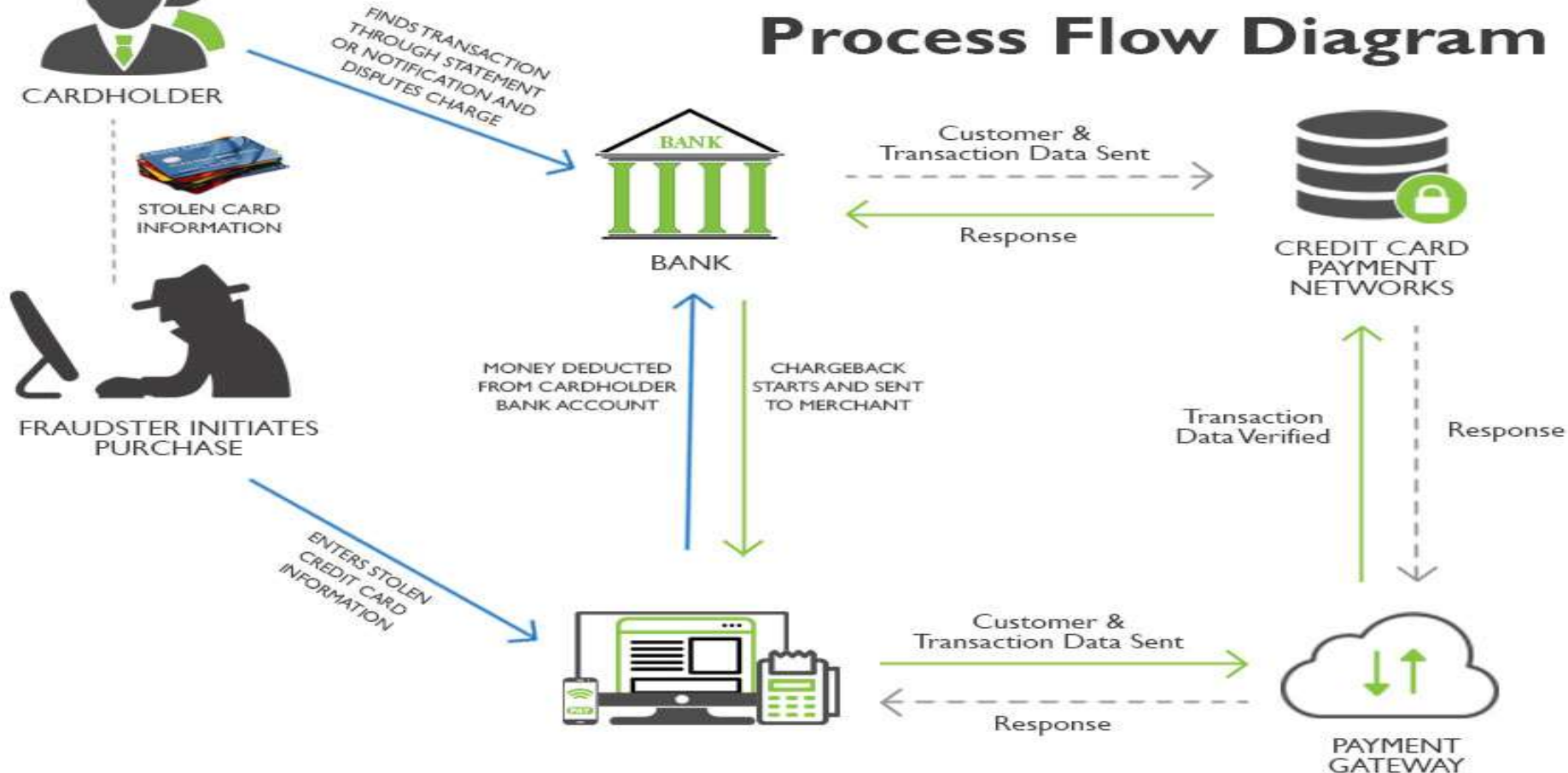


Scikit-Learn

- We use scikit-learn, a machine learning library in Python, to implement our fraud detection algorithms.
- The machine learning code is designed to train models that can accurately identify suspicious transactions.
- Our model uses Support Vector Regression (SVR) to classify and filter transactions based on user profiles.
- The trained model is capable of continuously learning and adapting to new fraudulent patterns over time.

Fraud Detection

Process Flow Diagram



Training the Model



SVR Training

- The training process involves fitting the model with transaction data categorized by user profiles.
- We use Support Vector Regression (SVR) to train the model for accurate fraud detection.
- The model learns from historical transaction data to identify patterns and anomalies.
- This training ensures that the model is well-equipped to detect new and evolving fraudulent activities.

KEY FEATURES OF FRAUD DETECTION & PREVENTION TOOLS



Real-Time Fraud Detection



Continuous

- Our solution ensures real-time fraud detection by continuously monitoring transactions as they occur.
- The system automatically validates consistent transactions and flags suspicious ones for further review.
- Real-time detection is crucial for minimizing financial losses caused by fraudulent activities.
- Continuous monitoring allows the system to adapt to new fraud patterns and improve detection accuracy.



User Profile Analysis



Behavioral

- The system analyzes user profiles to understand typical transaction behaviors and spending patterns.
- This analysis helps in identifying deviations that may indicate fraudulent activities.
- User profile analysis is a key component in ensuring accurate and reliable fraud detection.
- By understanding user behavior, the system can effectively differentiate between legitimate and suspicious transactions.



Fraud
Graph



Machine
Learning



Alarm
Management



Real
Time



Scalability



No-Code



API
Integration



Bonus:
Mobile
Reporting

Advantages of Project SafeScan



Benefits

- Project SafeScan offers several advantages including increased accuracy in fraud detection and reduced manual intervention.
- The system provides real-time detection, ensuring timely identification of fraudulent activities.
- By leveraging machine learning, the solution continuously improves its accuracy and reliability.
- The project aims to enhance financial security for individuals and organizations by preventing fraud.

Conclusion



Summary

- Project SafeScan is a tech-driven solution aimed at addressing the significant problem of fraud.
- Our approach leverages machine learning and user profile analysis for accurate fraud detection.
- The system provides real-time monitoring and validation of transactions to prevent financial losses.
- Project SafeScan aims to safeguard financial assets and enhance security for all users.