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Commerce Bank

Detecting Credit-Card Fraud using Machine Learning Techniques

@ Acme Commerce Bank

Use Case Pitch

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Introduction

This presentation explores the use of machine learning to detect credit card fraud at Acme Commerce Bank, focusing on its ability to identify fraudulent activities in transactions.

Credit Card Fraud Detection

Using the Machine Learning Classification Algorithms to detect Credit Card Fraudulent Activities

Proposal Outcome

Financial Benefits

Customer Benefits

Operational Benefits

Problem Statement

The current rule-based credit card fraud detection system has a limitation in accurately detecting complicated fraud patterns, resulting in higher false positives and false negatives.

Limitations addressed by the proposed use case include:

- Inefficient fraud detection
- Increased workload for analysts
- Financial losses due to fraud
- False declines
- Fraud investigation expenses
- Excessive verification requirements

And More..

Recent scenarios arising from the current detection method include:

Fraudsters stole credit card details, made large purchases, bank detected late.

Customer's legitimate transaction declined during overseas travel.

High-net-worth customer suffers financial loss due to undetected fraudulent transactions.

Customer trust and revenue decline due to reported fraudulent charges.

Proposed Solution

Our proposed solution is to implement a supervised ML model for credit card fraud detection to address the limitations of the current rule-based system. The steps for implementing the solution are as follows:

1. Collect required data from various established sources.
2. Pre-process the collected data to remove noise and inconsistencies to ensure compatibility with the ML algorithms.
3. Develop an ML model and train the model in recognizing patterns of fraudulent transactions.
4. Train the model using a large dataset of the bank's historical transactions, including fraudulent and non-fraudulent cases, along with relevant features to improve accuracy in detecting all types of fraud.
5. Evaluate the model's performance on a separate dataset using standard evaluation metrics to assess its effectiveness in detecting credit card fraud.
6. Deploy the trained model into production to analyze real-time credit card transactions and flag suspicious transactions for investigation.

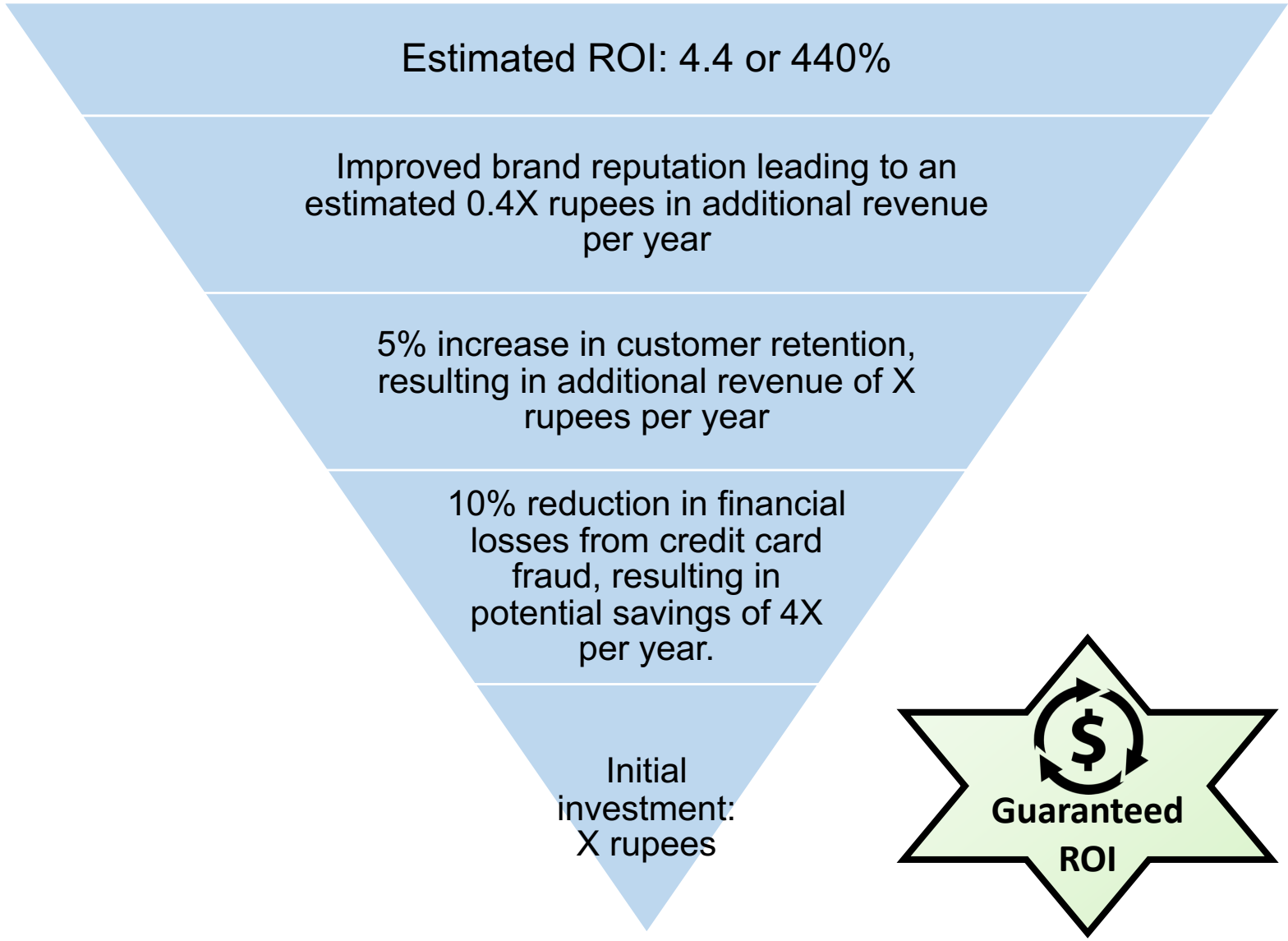
Benefits and ROI

Benefits of the proposed system

- Real-time fraud detection
- Increased efficiency and accuracy
- Identification of suspicious behavior
- Improved customer trust
- Competitive edge in the market
- Reduced financial losses
- Cost savings
- Reduced workload for analysts
- Streamlined customer experience
- Proactive risk mitigation

ROI estimation on the proposed system (Formula using X investment)

ROI = (Gain from Investment - Cost of Investment) / Cost of Investment



Call to Action

We encourage Acme Commerce Bank to take the following actions to capitalize on this opportunity:

Explore the transformative potential of implementing the advanced credit card fraud detection system by engaging stakeholders to gather insights and address concerns.

Communicate system capabilities, benefits, and enhanced security measures to stakeholders. Emphasize commitment to customer protection and seamless banking experience.

Create a detailed implementation plan, collaborating with relevant teams to ensure a successful deployment, considering resources, timelines, and integration requirements.

Allocate resources (budget, personnel, technology) for implementing and maintaining the machine learning model. Train staff for effective system utilization.

Define KPIs to monitor solution effectiveness. Continuously evaluate and refine the model based on feedback and emerging fraud trends.

Embrace advanced fraud detection to lead the industry, build customer trust, mitigate risks, and drive growth. Unlock the potential of machine learning now to revolutionize fraud detection at Acme Commerce Bank.

Image References

256px-Logo_acme.svg.png (256×66). (n.d.). Retrieved May 17, 2023, from https://upload.wikimedia.org/wikipedia/commons/thumb/8/80/Logo_acme.svg/256px-Logo_acme.svg.png

Solanki, K. (2021, April 22). Credit Card Fraud Detection. Analytics Vidhya. https://medium.com/analyticsvidhya/credit-card-fraud-detection-fd634f70327d

financial benefits free images—Google Search. (n.d.). Retrieved May 16, 2023, from https://www.google.com/search?q=financial+benefits+free+images

https://www.facebook.com/sunny.me13. (2023, March 16). Explore Customer Service Levels, Importances & Benefits. REVE Chat. https://www.revechat.com/blog/customer-service-level/

B2F - Business to Finance—Operational Benefits. (n.d.). Retrieved May 16, 2023, from https://www.b2f.it/en/operational-benefits

Download Exclamation mark vector icon for free. (n.d.). Vecteezy. Retrieved May 16, 2023, from https://www.vecteezy.com/vector-art/554213-exclamation-mark-vector-icon

https://www.facebook.com/flaticon. (n.d.). Return Of Investment free icons designed by Freepik. Flaticon. Retrieved May 16, 2023, from https://www.flaticon.com/free-icon/return-of-investment_48559