

Developing Machine Learning-based First Party Fraud Model

Background & Challenges

A leading U.S. credit card issuer was experiencing an increase in credit losses. A detailed analysis revealed that First-Party Fraud (FPF) was the primary reason for the rising losses. This issue occurred because the client did not have a dedicated solution to manage FPF effectively.

Objectives

The objective was two fold:

- Devise a methodology to separate FPF from credit risk defaulters.
- Develop a scorecard to identify potential FPF accounts and flag them for review.

Solution

First Party Fraud Definition

- Defined attributes to identify FPF behavior based on case reviews and industry expertise.
- Clustering methodology was employed with defined attributes to distinguish FPF from credit risk defaulters.
- Definition: Two clusters were identified with a high concentration of FPF (Balance Ramp-Up and Bad Payment).

Feature Engineering

- Predictive and intuitive features were defined using domain expertise and case reviews.
- 360° view of the customer, including daily bureau data, transactions, payments, returns, and other on-us information.
- Conducted univariate and bivariate analyses to understand variable characteristics and interactions.

Model Development

- The FPF model will be run daily instead of at the cycle level to capture the right account at the right time (before ramping up the balance).
- A machine learning modeling technique (Gradient Boosting) was utilized for model development.
- The ML technique was used to capture non-linear behavior and multiple local behaviors in the model.

Key Results

35% First-party fraud is captured by the new model.



~\$5.0MM Annual savings from acting on identified FPF accounts.



Let's Connect



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