



Client Overview

A US based Fintech company focused on innovative pay-day loan solutions. Customer base of 0.5 million, with 7 million transactions being processed. Expectation is for high growth in the near future. The upload of work receipts was one of the key requirements.

Data

- Storage in SQL server
- Plan to migrate data to AWS Redshift
- Approximately 50 tables containing data pertaining to Customer, Transaction, Payroll, Bank, Time sheet etc.

Security

- Data access provided via VPN (OpenVPN)
- Two-level protection:
 - - Client updates VPN password by Zoho wallet
 - - Google Authenticator

Pain Points & Requirements

- Profiling of the Customers
- Effect of Interface change on interest amounts
- Probability of Recovery



Business Need

- Client's revenue model includes customers offering an optional tip with each transaction
- Client app has premium/ smart features that help customers avoid overdrafts and maintain optimum bank balance
- Business in need of better understanding of their customers. They required:
 - Profiling of the Customers
 - Effectiveness of Campaigns
 - Churn Analysis
 - Probability of Recovery

Indium's Solution

- Multi-Level Customer Profiling
 - 1st Level – RFM analysis
 - 2nd Level – k-means Clustering
 - 3rd Level – Clusters on different dimensions
- Data Sets utilized- Transaction, Employer, Lead Source, Bank Data and Zendesk Tkts
- App users were segmented into Categories and the % of users from each category was derived.
- Employed Logistic Regression for Churn Prediction. Achieved an accuracy of 71.89%.
- For better accuracy, speed and performance used XGBoost algorithm. Achieved an accuracy of 73.24%.
- Loan Recovery - Logistic Regression for finding the probability
- Technology : Elasticsearch, R, Python

Business Outcome

- Client was able to segment the customers better with clear attributes and the spectrum of values defining these attributes
- Helped them perform effective marketing for acquiring new customers
- Recommended reward programs for users who have cashed out more and tipped high to induce a sense of exclusivity for targeted marketing.
- Deployed targeted messaging for customers with high recency but low frequency and low cash-out values.
- Increased Campaign Effectiveness with the jump in user acquisition rate by 10%.
- Client was able to arrest customer churn
- Reduced the churn by 20%
- Identified the top 20-30% high probability defaulters



Customer Profiling/ Segmentation

Customers' profiling using calculated fields

- ✓ Used data such as their last transaction, the number of transactions and the amount transacted to create profiles.
- ✓ Created 5 segments based on the RFM surrogates
- ✓ Insight into different lead sources by these segments

Customer segmentation by clustering method

- ✓ Used data such as their last transaction, the number of transactions, amount transacted and interest amount
- ✓ Created 6 clusters using k-means clustering method

- Calculated fields – logical
- Surrogates for Recency, Frequency, Monetary



Fraud Detection Snapshot

Business Need

- Client's revenue model includes customers offering an optional tip with each transaction
- Client app has premium/ smart features that help customers avoid overdrafts and maintain optimum bank balance
- Business in need of better understanding of their customers and determine and detect potential:
 - **Abuse**
 - **Fraud**

Indium's Solution

- Customers Segmentation followed by Outlier Detection
 - Fraudulent transactions or customers – deflection in conditions from the average conditions
 - Benford's Law, kNN
 - Mahalanobis Distance can be used to detect these defections

$$D^2 = (\mathbf{x} - \mathbf{m})^T \mathbf{c}^{-1} (\mathbf{x} - \mathbf{m})$$

- Find the outliers and use rules to investigate them
- Data Sets utilized- Transaction, Employer, Lead Source, Bank Data and Zendesk Tkts
- Technology : Elasticsearch, R, Python

Business Outcome

- Client was able to segment the customers better with clear attributes and the spectrum of values defining these attributes
- Identified the potential list of customers who could be part of Fraud as well as abuse
- Client was able to create policies to filter out such customers in future
- Potential Fraud List reduced over time by 50%