Churn Analysis: Retaining Clients at Velocity Retail Solutions

Executive Summary

This report details an analysis performed on customer churn data for Velocity Retail Solutions, a provider of data analytic services to retailers. The objective was to identify key drivers of customer churn and develop actionable recommendations to improve customer retention. The analysis revealed that low platform usage, data integration issues, and shorter contract tenures are strong predictors of churn. By implementing the recommendations outlined in this report, Velocity Retail Solutions can significantly reduce churn, improve customer satisfaction, and ultimately increase revenue.

Introduction

Velocity Retail Solutions provides a cutting-edge platform that helps retailers optimize their operations, increase sales, and improve customer engagement. A recent increase in customer churn (8% in the last quarter, potentially costing \$500,000 annually) has prompted a deep dive into the factors driving customer attrition. This analysis seeks to understand the drivers of churn and identify actionable strategies for improving customer retention. This project utilizes a churn prediction model combined with Explainable AI (XAI) techniques to provide a holistic view of the churn problem.

Data Description

The analysis is based on a synthetic dataset of 1000 retailer clients of Velocity Retail Solutions. Key data elements include: - Retailer demographics: industry, number of stores, average monthly revenue - Contractual information: contract value, contract tenure - Platform usage: platform usage hours - Support interactions: number of support tickets opened - Data integration issues: number of reported issues - Churn status (target variable) A preliminary data summary revealed the following: - Approximately 5% of customers in the dataset have churned. - There were limited missing values, with "num_stores" having 3% missing. - Preliminary analysis shows a high correlation between decreased number of hours actively engaged with the platform and client support contact.

Methodology

The analysis followed these key steps: - Data Cleaning and Preprocessing: Handled missing values, outlier mitigation, categorical variable encoding (One-Hot Encoding), and numerical variable scaling (StandardScaler). - Feature Selection: Applied a combination of correlation analysis and feature importance from a Random Forest model to identify the most influential variables predicting churn. - Model Selection: Evaluated several classification models and selected a Logistic Regression model due to its balance of accuracy, interpretability, and efficiency. - Model Training and Evaluation: Trained the Logistic Regression model on a training dataset (80% of the data) and evaluated its performance on a held-out test dataset (20% of the data). Evaluation metrics included accuracy, precision, recall, and F1-score. - Explainable AI (XAI): Utilized SHAP (SHapley Additive exPlanations) values to provide individual explanations for each prediction and identify the most important factors driving churn for specific customers.

Results and Findings

The Logistic Regression model achieved an accuracy of 88% and a F1-score of 0.75 on the test dataset. Feature selection revealed that the following variables are the strongest predictors of churn: - Platform Usage Hours: Lower platform usage is strongly correlated with increased churn risk. - Data Integration Issues: Retailers experiencing more data integration issues are significantly more likely to churn. - Contract Tenure Months: Shorter contract tenures are associated with a higher churn rate. SHAP analysis provided detailed insights into the drivers of churn for individual customers, identifying specific factors that contributed to their likelihood of churning. For example: - For customers with data integration issues, SHAP analysis reveals a strong negative impact, but churn likelihood goes down with support. - While those in the restaurant business are more likely to do business than other industries, more time is needed to dedicate to those to maintain the partnership.

Recommendations

Based on the results of the analysis, the following actions are recommended to reduce customer churn at Velocity Retail Solutions: - Proactive Engagement Program: Implement a proactive engagement program targeting retailers with low platform usage hours. This program should include personalized training, dedicated support, and regular check-in calls. - Streamlined Data Integration: Improve the data integration process to minimize issues for new and existing customers. This includes developing more intuitive documentation, providing dedicated onboarding support, and implementing automated data quality checks. - Targeted Retention Campaigns: Develop targeted retention campaigns for customers with contracts nearing expiration. This could include offering special promotions, discounts, or customized service packages to incentivize renewal. - Enhanced Customer Support: Invest in training and resources to enhance customer support capabilities. This should focus on resolving data integration issues promptly and providing proactive assistance to help retailers get the most out of the platform.