Predicting Credit Card Holder Churn in Banks

Research proposal

Introduction

Nowadays with increasingly intense competition in the market, major banks pay more attention to customer relationship management. With this economic development, more and more people start using credit cards. A real-time effective credit card holders' churn analysis is important and helpful for bankers to maintain credit cardholders. If bankers could predict who is going to get churned, they can proactively go to the customer to provide them a better service and turn customers' decisions in the opposite direction. From this analysis, expecting to conduct a descriptive data analysis and an advance analysis to predict the credit card customer attrition.

Objectives of the study

- To identify the patterns of credit card customers.
- To identify the factors affecting to credit card customer churn.
- To predict the credit card customer churn using above factors.

Data

The dataset was obtained from Kaggle, and it consists of 10,127 customers mentioning their age, salary, marital status, credit card limit, credit card type, etc. All the data are uniquely identified by the customer's ID number. There are nearly 18 features. The dataset consists of 1617 customers churned (16.05%) and 8500 existing customers (83.92%).

Dataset: Credit Card customers | Kaggle

Variable name	Variable type	Description
Attrition_flag	Categorical	customer activity status
Customer_age	Continuous	Customers' age in years
Gender	Categorical	M=Male, F=Female
Dependent_count	Continuous	Number of dependents
Education_Level	Categorical	Educational Qualification of the account holder
Marital_Status	Categorical	Whether the customer is Married, Single, Divorced or Unknown
Income_Category	Categorical	Annual Income Category of the account holder
Card_Category	Categorical	Type of Card (Blue, Silver, Gold, Platinum)
Months_on_book	Continuous	Period of relationship with the bank
Months_Inactive_12_mon	Continuous	No. of months inactive in the last 12 months
Credit_Limit	Continuous	Credit Limit on the Credit Card
Total_Trans_Ct	Continuous	Total Transaction Count (Last 12 months)

Total_Ct_Chng_Q4_Q1	Continuous	Change in Transaction Count (Q4 over Q1)
Total_Trans_Amt	Continuous	Total Transaction Amount (Last 12 months)
Total_Amt_Chng_Q4_Q1	Continuous	Change in Transaction Amount (Q4 over Q1)
Total_Relationship_Count	Continuous	Total no. of products held by the customer
Total_Revolving_Bal	Continuous	Total Revolving Balance on the Credit Card
Avg_Open_To_Buy	Continuous	Open to Buy Credit Line (Average of last 12 months)
Contacts_Count_12_mon	Continuous	No. of Contacts in the last 12 months
Avg_Utilization_Ratio	Continuous	Average Card Utilization Ratio

Significance of the study

There are many inactive customers who rarely or stop using their credit cards, or rather, they are attrition accounts. Customer churn represents the loss of customers or clients as they stop using some products or services. An important reason for customer churn analysis is that the cost of developing a new customer is much higher than that of retaining an existing customer. Typically, it costs up to five times as much to make a new sale to a new customer as it does to make an additional sale to an existing customer. Analyzing this helps bank managers to develop a sound marketing strategy to retain quality customers.

Suggested methodology

Though there are different types of variables in the dataset, will only select the most important variables which needed for the analysis. Then need to carry out data preprocessing techniques which clean dataset by removing outliers, mentioning missing values and recode variables if needed. After that a descriptive analysis including summary statistics and graphical visualization will be carried out to get a better understanding of the credit card customers dataset and to identify the factors affecting to customer churn. A logistic regression model will be used to predict the credit card holder churn. The analysis will be conduct using SPSS, R studio and python.

References

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