

BANK CUSTOMER CHURNING REPORT



PROJECT DESCRIPTION

Dataset source : <https://www.kaggle.com/sakshigoyal7/credit-card-customers>

The problem

Background:

A manager at a local bank is disturbed with more and more customers leaving their credit card services. They need a way of predicting which customers are most likely to stop using their credit card products (Customer Churn) in order to proactively check in on the customer to provide them better services in order to convince them to change their minds. You are given a dataset of 10,000 customers with 18 features per customer. Roughly 16% of the current customer base have churned so far, so it will be difficult to predict the ones who will.

As you analyze the data, before you create the model, the sales team also needs you to determine the most influential factors that can lead to a customer's decision of leaving the business. The head of the sales department is expecting a report that helps them visualize where the differences lie between churning and non-churning customers.

OBJECTIVE:

- Identify which customers are most likely to be churned so the bank manager knows who to provide a better service to increase the chance of retaining the customer

- A clean and easy to understand visual report that helps the sales team better visualize what makes a client churn or not churn

DESIGN

Cleaning:

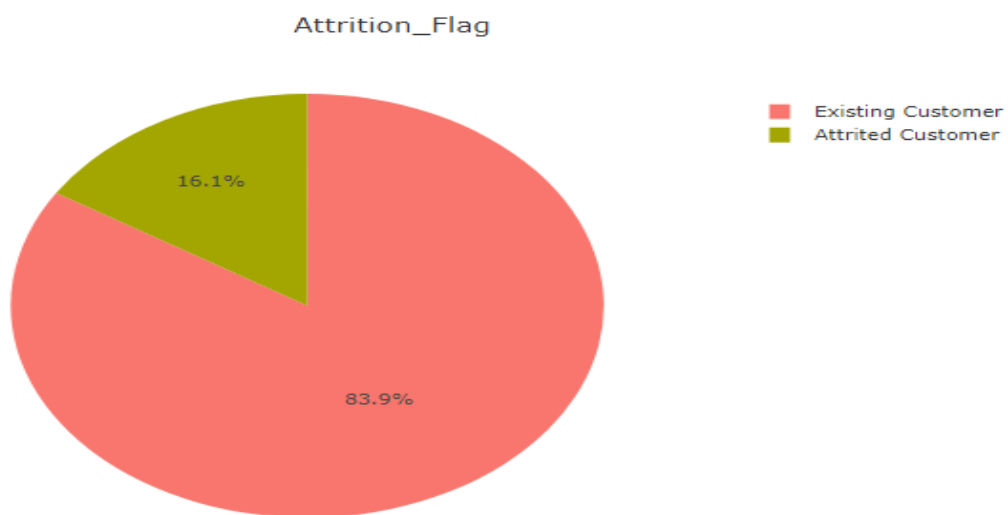
- The dataset contained some 2 unwanted columns which were deleted before preceding further in the analysis phase.

1. Naive_Bayes_Classifier_Attrition_Flag_Card_Category_Contacts_Count_12_mon_Dependent_count_Education_Level_Months_Inactive_12_mon_1

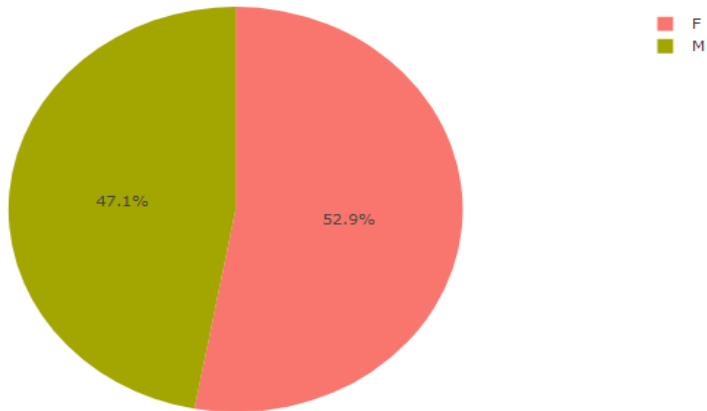
2. Naive_Bayes_Classifier_Attrition_Flag_Card_Category_Contacts_Count_12_mon_Dependent_count_Education_Level_Months_Inactive_12_mon_2

- Column **Avg_Utilization_Ratio** contained an entry error ie 10.12% was recorded as 0.1012

ANALYSIS:

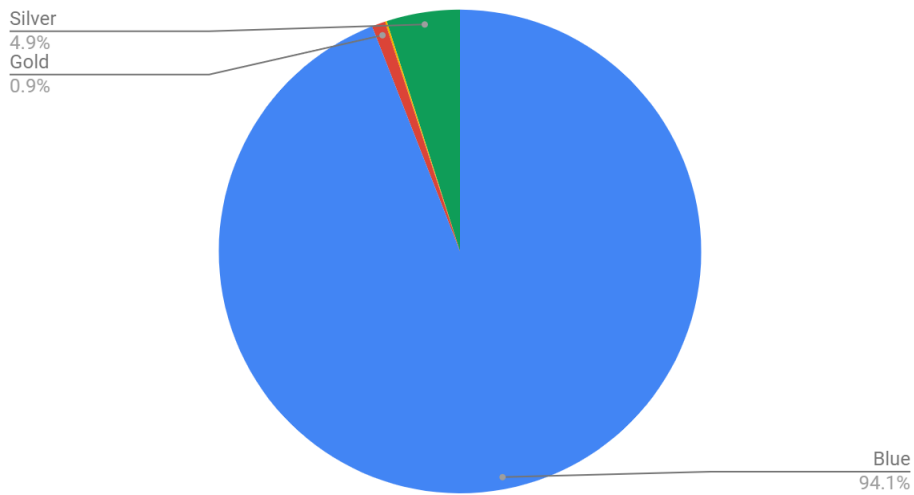


Gender



Card_Category	SUM of Total_Relationship_Count
Blue	36316
Gold	349
Platinum	46
Silver	1899

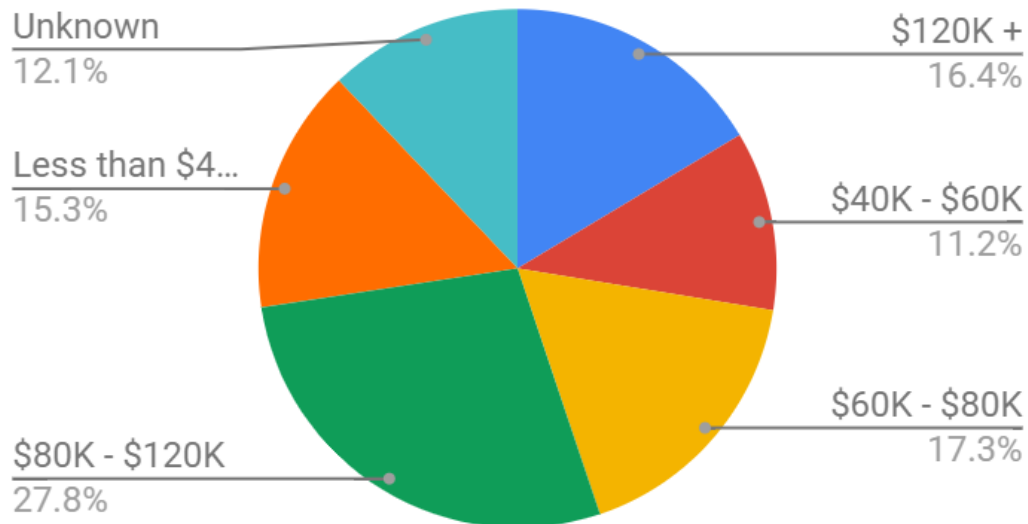
card type vs sum of total relationship count



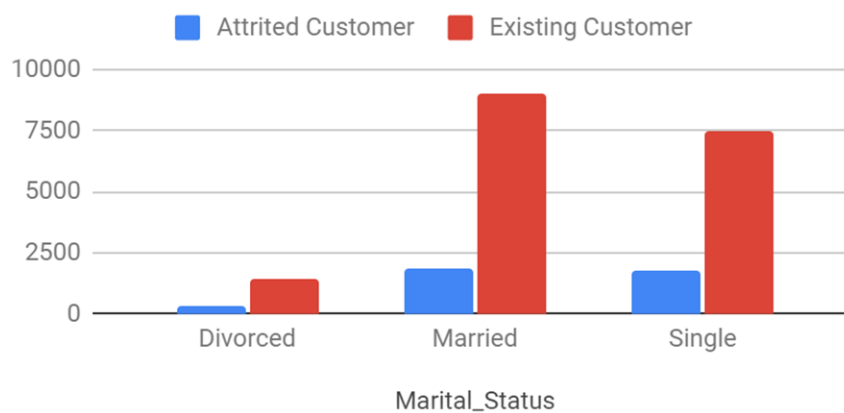
Income_Category	SUM of Credit_Limit
\$120K +	14334493.5
\$40K - \$60K	9777445.1

\$60K - \$80K	15083799.7
\$80K - \$120K	24268182.6
Less than \$40K	13369434.5
Unknown	10582439.7

Income wise Credit Limit Distribution

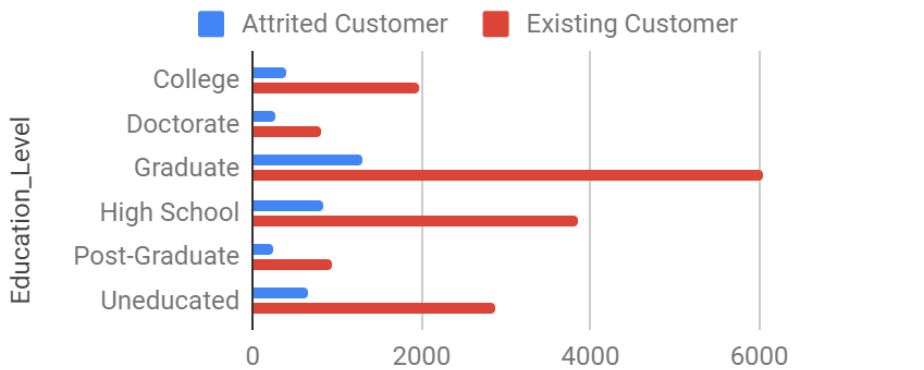


Attrited Customer and Existing Customer



SUM of Months_Inactive_12_mon	Attrition_Flag	
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<i>Education_Level</i>	Attrited Customer	Existing Customer
College	405	1979
Doctorate	257	804
Graduate	1312	6039
High School	832	3858
Post-Graduate	248	946
Uneducated	653	2865

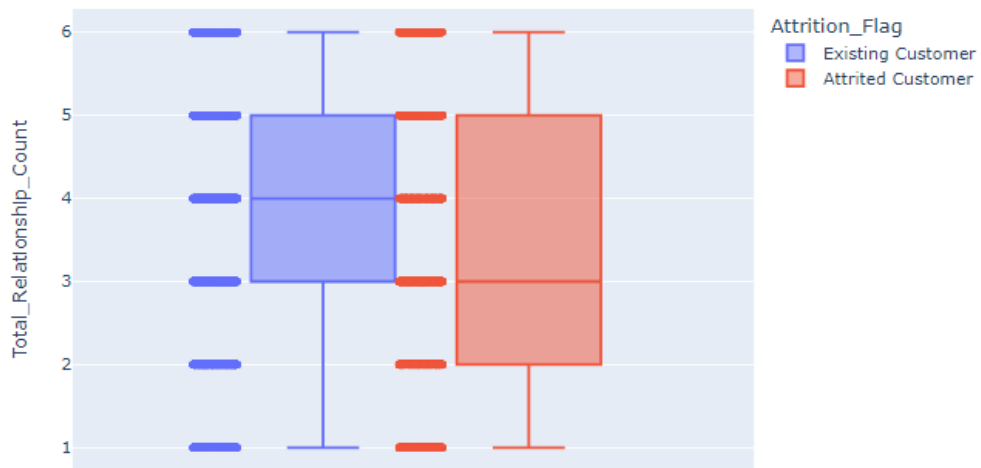


The customer gender is almost even, 30% college graduates with half being either Highschool graduates, unknown, or uneducated. The remaining 40% are either current college students, or grad students.

Almost half are married, 38% single, and the remaining 12 are divorced or unknown. 35% of customers make less than \$40k per year which is near the poverty threshold. The rest are more evenly spaced out. 93% of customers choose the cheapest card option (likely the lowest interest rate) with a tiny portion choosing the more expensive cards

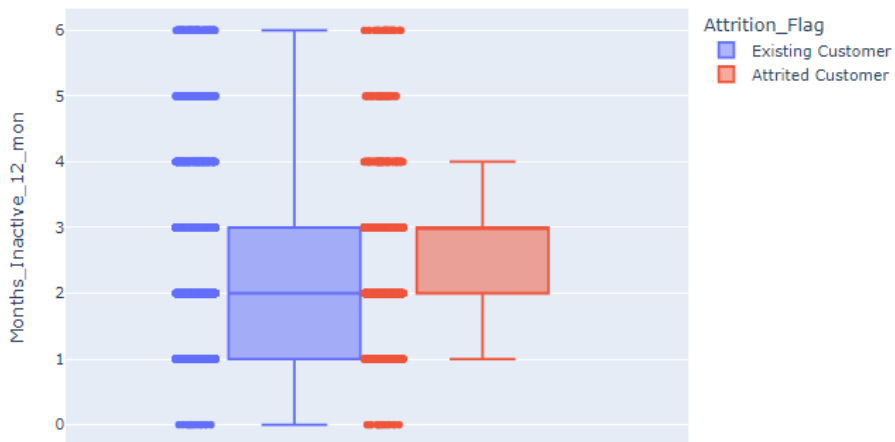
FINDINGS:

Number of products held by customer



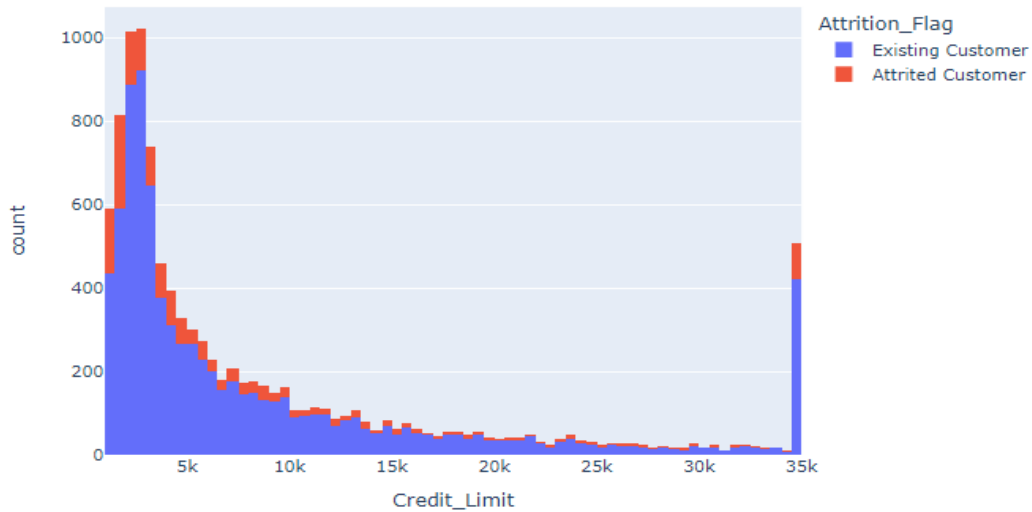
Churned customers are likely to hold less credit cards than existing customers which is shown by a lower median. Is there a deal you provide that favors customers with multiple credit cards? (Like customers with spouses, families, or Business that need additional cards)

Number of months with no transactions in the last year



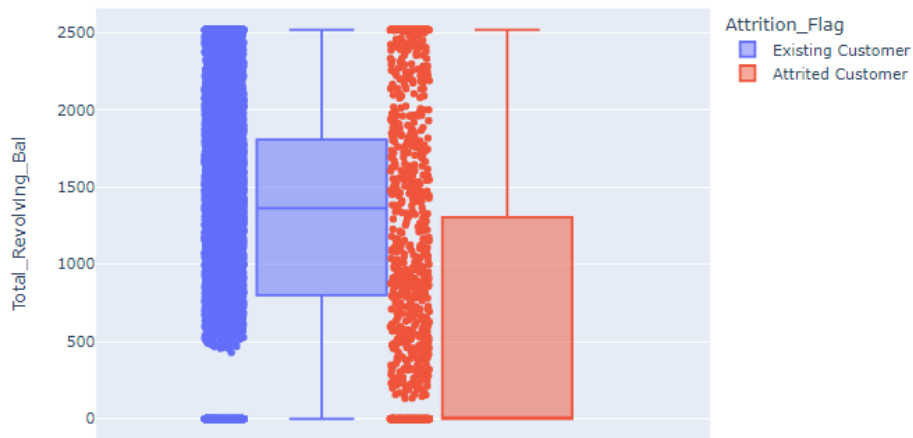
Churned customers tend to have slightly more inactive months, but the distribution is more concentrated from the 1-4 months inactive.

Credit limit on the credit card



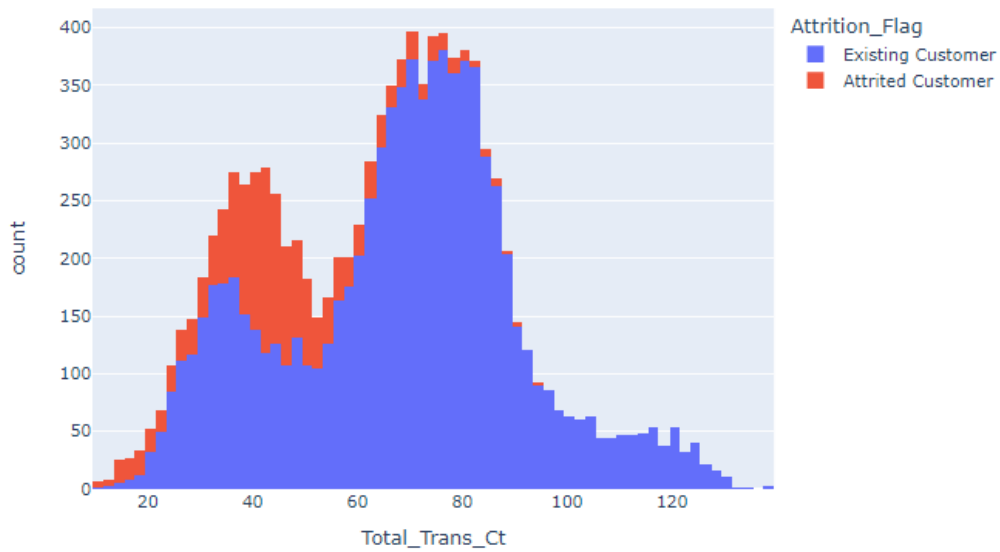
Churned customers have a lower credit limit, so perhaps increase the credit limit for them.

Total revolving balance on the credit card

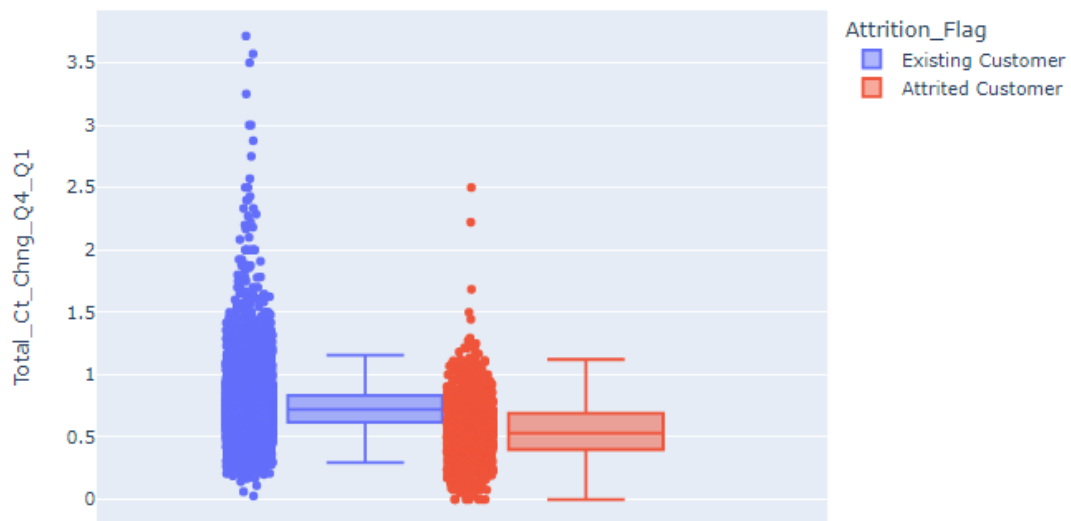


Churned customers have a much smaller revolving balance which, because they don't fully pay off their credit card balance, may signify that they have less disposable income than staying customers that know they can pay off their revolving balance.

Number of transactions made in the last year



Churned customers will have a lower number of transactions, which makes sense as they're less involved with this company and will have a smaller transaction change over time as displayed below.



CONCLUSION:

Total Transaction change, revolving balance, and Number of contacts within the past year are most correlated with a churning customer.

To improve the customer retention-rate the company should work towards keeping a check on factors causing the above factors and should come up with innovative solutions to improving their services for these customers.