VI Capstone Project

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Problem Statement

The number of customers terminating their credit card services are on the rise.

The bank wants to know the profile of these people, such as their education, marital status, income category & transaction amounts etc.

Ultimately, the bank wants to predict the people who are about to terminate their credit card services and implement a new retainment strategy using that data.

Benefits of the Data Charts

With the provided charts and graphs, we can visualize clearly the summary of the bank's credit card services, as well as the profiles of the customers.

These charts can provide the bank with a clearer indicator of customers that are about to leave the services; or have a higher chance of doing so.

Dataset

- The data used in this project was taken from Kaggle:
- https://www.kaggle.com/ datasets/sakshigoyal7/cre dit-card-customers

CLIENTNUM

Client number. Unique identifier for the customer holding the account

A Attrition_Flag

Internal event (customer activity) variable - if the account is closed then 1 else 0

Customer_Age

Demographic variable -Customer's Age in Years

A Gender

Demographic variable -M=Male, F=Female

Dependent_count =

Demographic variable -Number of dependents

A Education_Level

Demographic variable -Educational Qualification of the account holder (example: high school, college graduate, etc.)

▲ Marital_Status

Demographic variable -Married, Single, Divorced, Unknown

▲ Income_Category =

Demographic variable -Annual Income Category of the account holder (< \$40K, \$40K - 60K, \$60K -\$80K, \$80K-\$120K, >

▲ Card_Category

Product Variable - Type of Card (Blue, Silver, Gold, Platinum)

Months_on_book =

Period of relationship with bank

Total_Relationshi... =

Total no. of products held by the customer

Months_Inactive_... =

No. of months inactive in the last 12 months

Contacts_Count_1... =

No. of Contacts in the last 12 months

Credit_Limit

Credit Limit on the Credit Card

Total_Revolving_... =

Total Revolving Balance on the Credit Card

Avg_Open_To_Buy =

Open to Buy Credit Line (Average of last 12 months)

Total_Amt_Chng_... =

Change in Transaction Amount (Q4 over Q1)

Total_Trans_Amt

Total Transaction Amount (Last 12 months)

Total_Trans_Ct

Total Transaction Count (Last 12 months)

Total_Ct_Chng_Q... =

Change in Transaction Count (Q4 over Q1)

Avg_Utilization_R... =

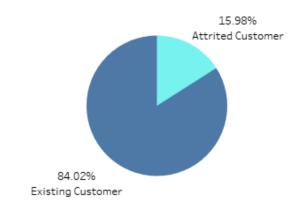
Average Card Utilization Ratio

Tableau - Live version available here

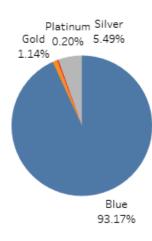
https://public.tableau.com/views/VICapstoneProject 16711104415370/CapstoneProject?:language=en-US&publish=yes&:display count=n&:origin=viz share link

- In the first slide, we have the bank's profile as well as customer's credit card categories.
- From the charts, we can tell that the attrition rate is approximately 16%.
- We can also tell that a majority of the card holders are under the "Blue" Card Category.

Attrition Rate



Card Category



- The first part of the next slide shows the customers' attrition rate according
 to their education level. From here, we can tell that a big portion of card
 holders fall under the "Graduate" category. We can also see that this
 category has the highest attrition rate.
- On the second chart, we can see the customers credit limit, revolving balance as well as the transaction amounts. By average, the attrited customers has a lower credit limit, lower total revolving balance & lower total transacted amount.



- On the third slide, we can see the customers' transaction amounts based on their profiles, such as gender, marital status, education etc. in a tree map.
- From here, we can see that many of the top transaction amounts consist of existing customers and rarely the attrited customers (since it does not show up in the top few attrition flag filter).

 717642633 M Graduate Married Blue \$60K - \$80K 801036033 M High School	721220583 F Graduate Married Blue \$40K - \$60K 756658083 M Post-Graduate	717783483 F Post-Graduate Divorced Blue Less than \$40K 708942408 F Uneducated	709094358 F Graduate Single Blue Less than \$40K 711398433 M High School	M M M Graduate U Married S Blue E	712210458 M Uneducated Single Blue \$40K - \$60K		F High School Single Blue	717081483 M Graduate Divorced Blue \$80K - \$120K	711686658 M High School Married Silver \$80K - \$120K	Attrition Flag (All) Existing Customer Total Trans Amt 16,377 17,995 ClientNum Top Trans. Am 50
Single Blue \$40K - \$60K 716004258	Single Blue \$80K - \$120K	Single Blue \$40K-\$60K	\$60K - \$80K 712438308 F High School Married Blue	708462258 F High School Married	M Hi M	igh School Iarried	718123608 M Graduate Married Blue K \$80K-\$120K	720515883 F Graduate Married Blue Less than \$40K	717788958 M Graduate Divorced Blue \$80K - \$120K	
 /16004258 M High School Single Blue	M Post-Graduate Married Blue	F High School Single Blue		Blue Less than \$40K		ilver ess than \$40K				
 \$60K - \$80K 713758758	\$80K - \$120K 785038908	Less than \$40K 710232483	714949758	713986908 F High School Married						
M High School Married Silver	F Graduate Married Blue	F Uneducated Married Blue	F Graduate Single Platinum	Blue Unknown	M Ur M	neducated larried		F High School Single Silver	788779983 M Post-Graduate Married Blue \$80K - \$120K	
Less than \$40K	Less than \$40K	789074358	720608658	710005683 M		lue 40K - \$60K				
 712503408 M Graduate Married	780613758 M High School Single	M High School Single	F Uneducated Single	College Single Blue \$80K - \$120K	M Ur	neducated				
Blue \$80K - \$120K	Blue Less than \$40K	\$60K - \$80K	Blue Less than \$40K	770977833	BI	Single Blue \$120K+		778444908 M Graduate	714586458 F High School	
 778428108 F Graduate Single Blue Less than \$40K	789539058 M Uneducated Single Blue Less than \$40K	716894658 F Graduate Divorced Blue Less than \$40K	720852108 M High School Divorced Blue \$120K+	M Graduate Married Blue Less than \$40K	F Hi Si BI	64316708 igh School ingle lue ess than \$40K		Married Silver \$120K+	Divorced Blue Less than \$40K	

- On the last slide, the heatmap shows the utilization rates of the customers according to the card & income categories
- From both attrited and existing customer tree maps, we can tell that the blue card with customers income < \$40k has a high utilization rate. However, there is a significant difference between the utilization rate of the existing customers (0.42) and the attrited customers (0.22).



Possible conclusions

- With all the relevant data provided, certain insights can be concluded as follows:
- i. Since a big chunk of cardholders are graduates, a starting point could be to look from the financial situations of a graduate.
- > What are the financial struggles they face?
- > How or what services can the bank offer to this group of customers for a higher retainment rate?
- A big percentage of the attrited customers have a low transaction amount, even though they are in the platinum category. Possible problems could be:
- > Are the offers/services provided at the highest category (Platinum) not attractive enough?
- > Are more customers dropping off after facing a similar situation?

