

Credit Card Customer Churn

Credit Card ..	Intro	Background ..	Question to ..	1 & 2 card ty..	3 & 4 inactiv..	5 & 6 month..	1 & 2 Age an..	3 Education	4 & 5 Income ..	Combined fi..	Correlation	Findings	Suggestions	recomm..
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By : Alison Reavell-Roy

Retrieved from: https://www.freepik.com/premium-vector/credit-card-icon-payment-3d-rendering_22680239.htm

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"Churn" is:

A term used in business to express the number of customers leaving a company. Churn-rate is the measure of how many customers are leaving the company.

Problem at hand:

- The business manager wants to decrease the churn-rate.
- The manager is looking for insights to which types of customers are churning and looking for suggestions that would market their card better to retain customers.
- We will understand the trends to which types of customers have a high churn-rate by analyzing and identifying the data.

The process will begin with

- Understanding the dataset
- Asking questions
- Exploratory Data Analysis (EDA)
- Finding insights
- Visualiztion ..

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Background Information

- The collected data show the following information:
 - Customers are cancelling their credit card services
 - In a total of 10127 customers that have credit cards, 1627 of the customer are churning
- Churn rate = customer lost / total number of customers
 - 16.07% of the customer churn their card
- The recommendations will be presented to:
 - The Bank Manager
- Data Searching:
 - The dataset consist of diffrent variables: credit card category, card utilization, months on book, products owned with the bank, age, gender, income and marital status
 - The dataset is from kaggle: <https://www.kaggle.com/datasets/sakshigoyal7/credit-card-customers>

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Question to be Answered

Card Behaviour:

1. What percentage of customers churn their cards?
2. Considering the type of card they own, who churns the most?
3. How many inactive months do those that churn have compared to those that do not?
4. Who had higher uses of their cards? Churners or existing customers?
5. How many months do churners keep their cards on average?
6. How many products do churners own vs those that are existing customers?

Demographics of Card Holders:

1. Who churns the most, males or females?
2. What is the average age that credit card users churn the most?
3. Considering education level, who churns the most?
4. Considering income level, who churns the most? ..

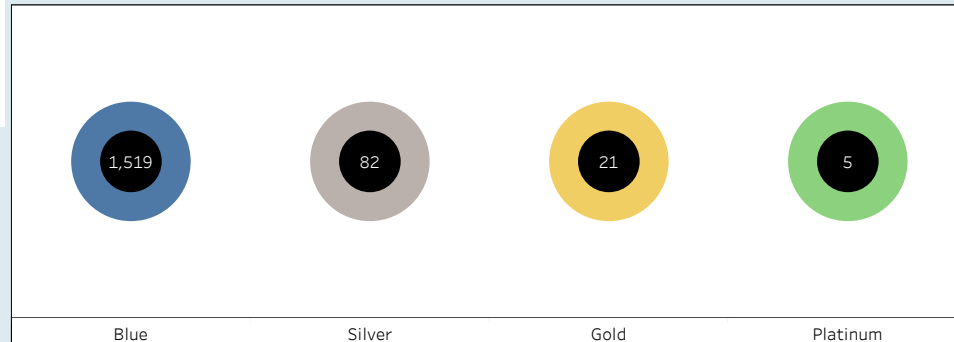
Credit Card Customer Churn

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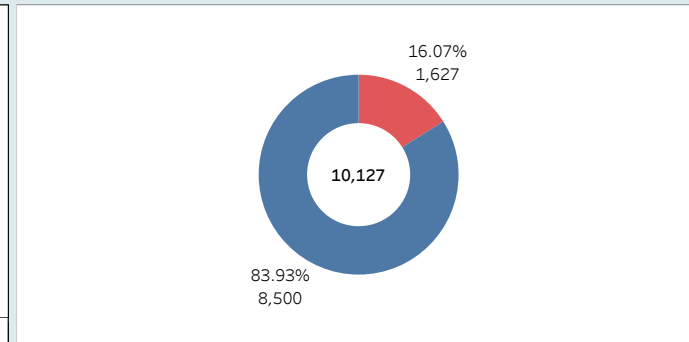
Card Behaviour: Card Category



Card Catogory for Churned Customers



Churned vs Existing Customers



Attrition Flag
■ Churned Customer
■ Existing Customer

Card Category
 All

1. What percentage of customers churn their cards?

16.07% of the customers are churning

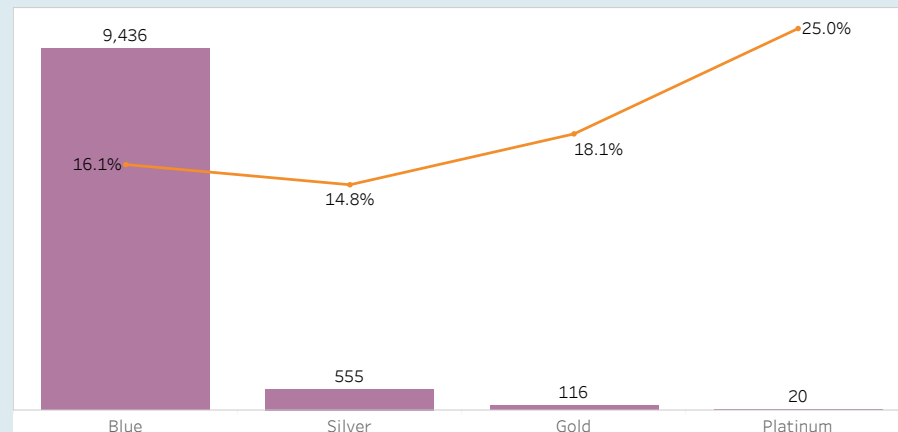
2. Considering the type of card they own, who churns the most?

The majority of churning customers hold Blue cards (1519 customers)

However; the highest churn rate is held by the platinum customers at 25%

Silver card holders have the lowest churn-rate (14.18%) and are the second largest number of customers (555 customers)..

Customers and Churn-rate by Card Category



Measure Names
■ % of Customers
■ Calc -Churn rate

Line graph refers to Churn rate
 Bar graph refers to the number of customers

Credit Card Customer Churn

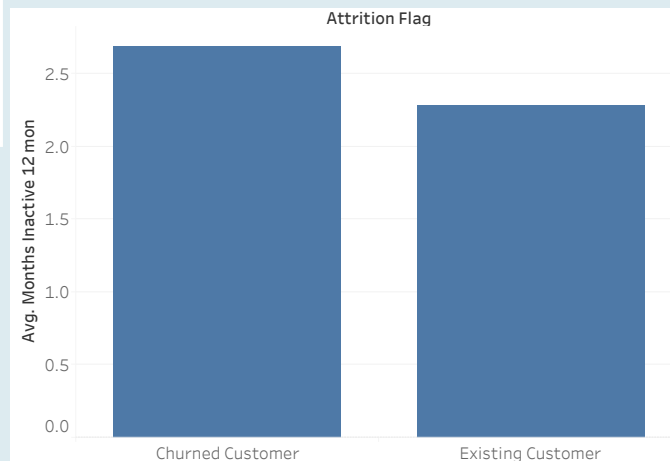
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Card Behaviour: Inactive Months and Utilization

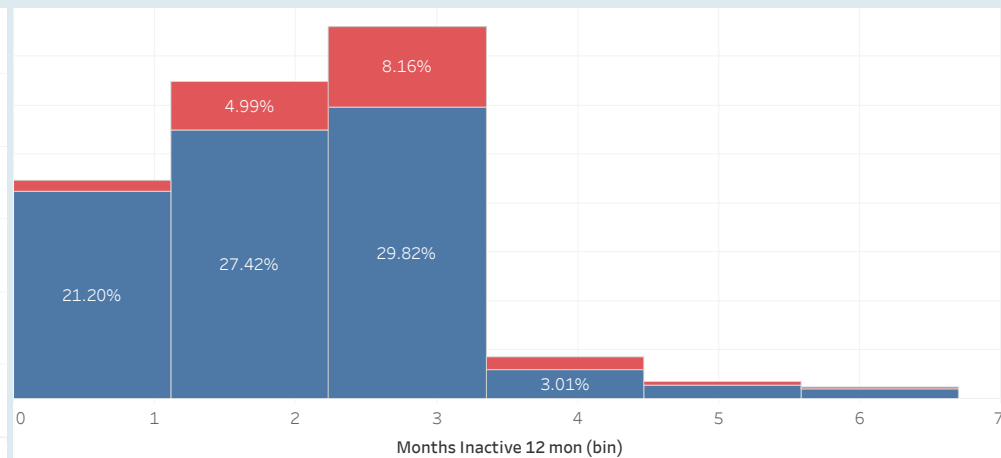
Attrition Flag
■ Churned Cust..
■ Existing Cust..



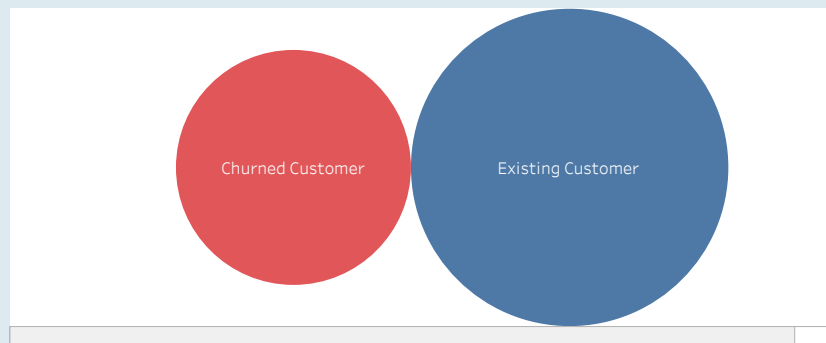
Inactivity



Months Inactive: Churned and Existing Customers



Rate of Utilization



3. How many inactive months do those that churn have compared to those that do not?

Customers that churn have a longer inactive time (approximately 2.7 months/year) compared to existing customers (2.3 months/year).

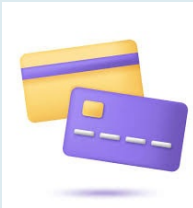
4. Who had higher uses of their cards? Churners or existing customers?

Customers that churned had less use of their credit cards 0.16 versus existing customers used their cards 0.30.

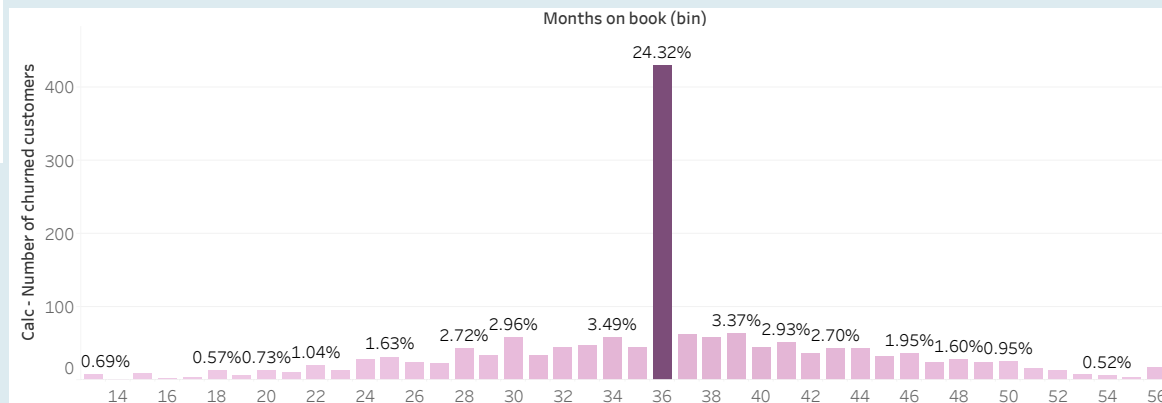
Credit Card Customer Churn

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Card Behaviour: Months in Books and Products Owned



Distribution of Months on Book



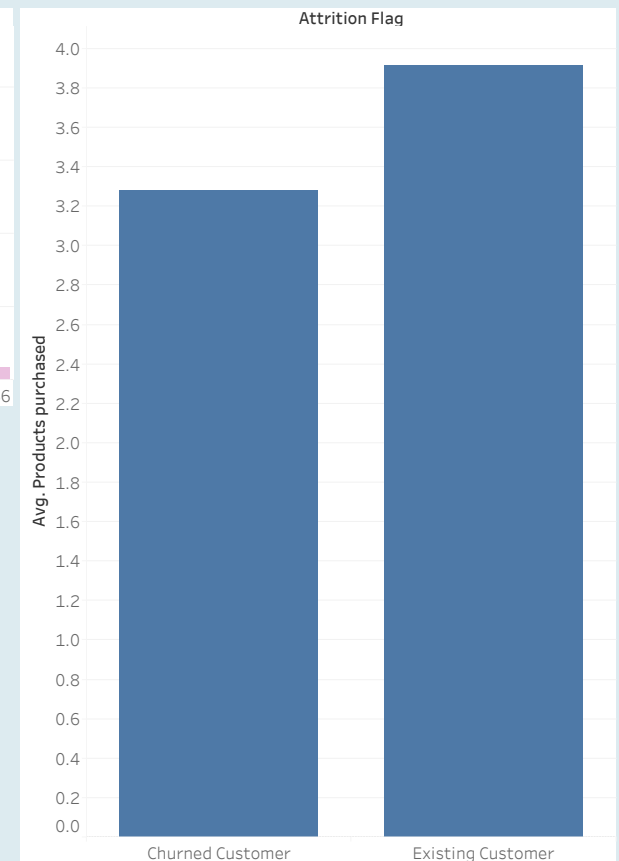
5. How many months do churners keep their cards on average?

The majority of customers that churn is at 36 months (24.32%)

6. How many products do churners own vs those that are existing customers?

Customers that churned owned on average 3.3 products where existing customers own almost 4 products

Products Owned



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Demographic: Age and Gender

Attrition Flag

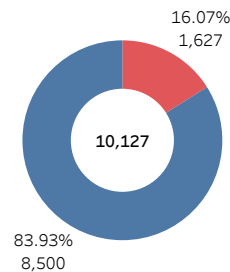
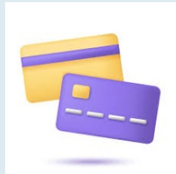
■ Churned Customer

■ Existing Customer

Gender

All

Churned vs Existing Customers



1. Who churns the most, males or females?

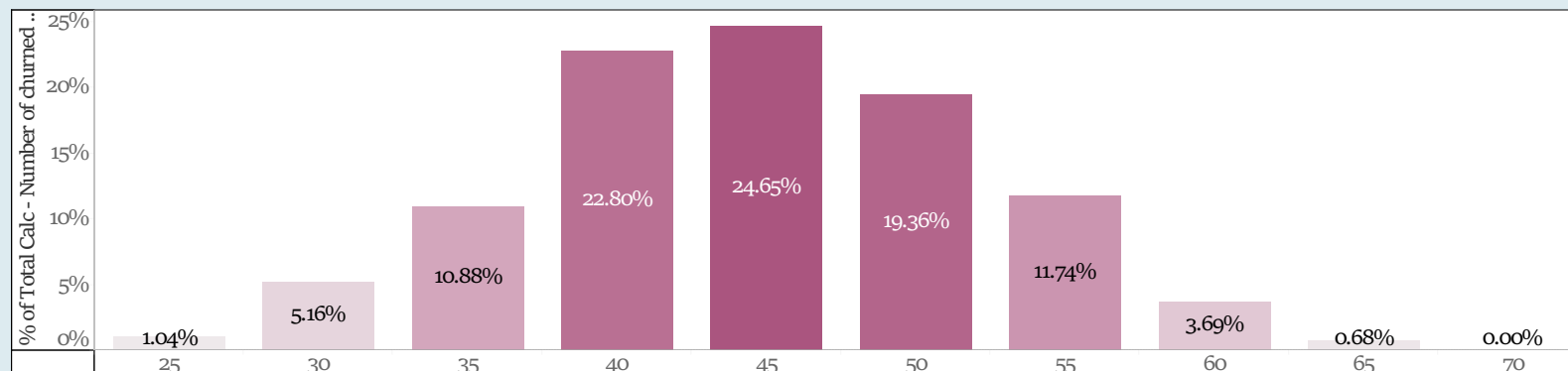
17.36% of females are likely to churn when compared to males at 14.62%

2. What is the average age that credit card users, are churning the most?

Churning is most common among customers aged 45 years at 24.65% followed by age of 40 at 22.90% and age of 50 at 20.22%

Ages 25 years old and 65 to 70 years old churned the least

Churn Customer by Age

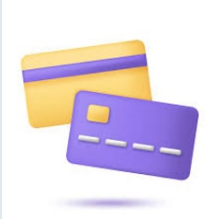


Credit Card Customer Churn

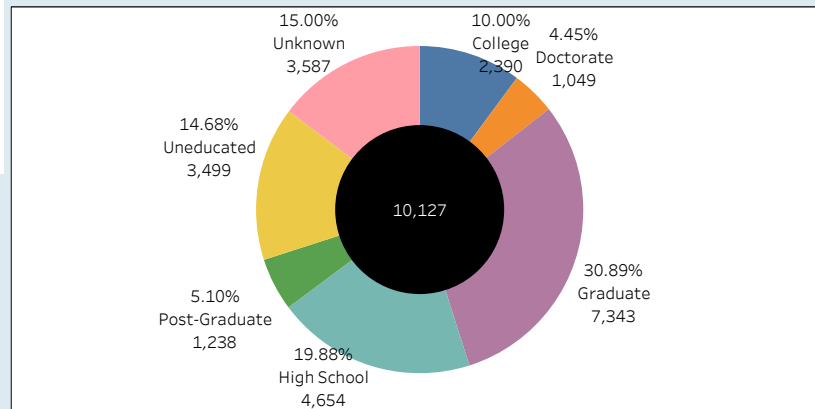
Intro	Background ..	Question to ..	1 & 2 card ty..	3 & 4 inactiv..	5 & 6 month..	1 & 2 Age an..	3 Education	4 & 5 Income ..	Combined fi..	Correlation	Findings	Suggestions	recommend..	Thank you
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Demographic: Education

Attrition Flag
All



Education Level



3. Considering education level, who churns the most?

The largest number of customers are Graduates (7343 customers) and make up the largest number of churners (1178 customers); however, they have the second lowest churning rate (15.57%)

Doctorates make up the smallest number of customers (1049 customers) but have the highest churn-rate at 21.06%

Those with an education level of college and high school had the lowest churn-rate of 15.20%

Churn-rate by Education Level

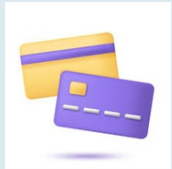
Doctorate	21.06%
Post-Graduate	17.83%
Unknown	16.85%
Uneducated	15.94%
Graduate	15.57%
College	15.20%
High School	15.20%

Credit Card Customer Churn

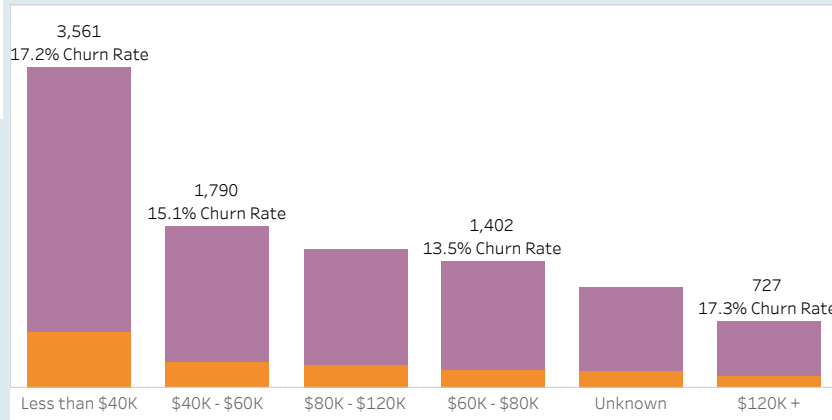
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Demographics: Income and Marital Status

Measure Names
 ■ % of Customers
 ■ Calc-Churn rate



Income



4. Considering income level, who churns the most?

The largest number of customers are those with income less than \$40K

Customers with incomes of \$120k+ and below \$40K churn the most at 17%.

Customers earning between \$60-80K have the lowest churn-rate at 13.5%

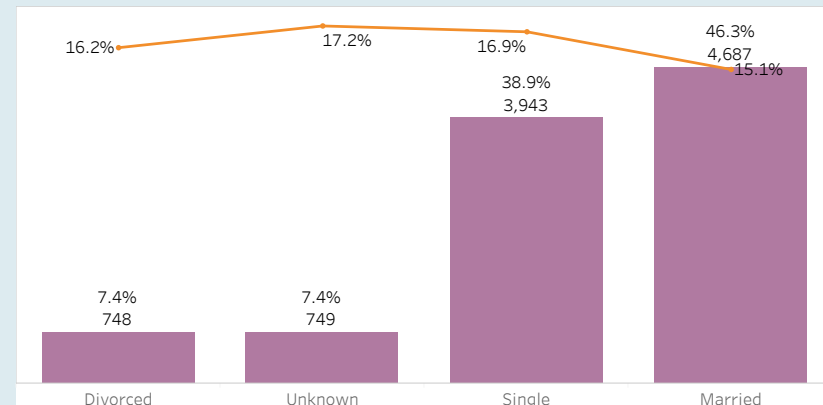
5. Considering marital status, who churns the most?

The largest number of customers to churn are those that are married at 4687 customers; however, they have the lowest churn-rate at 15.1%

Divorced customers are the smallest group of churners with 748 customers.

The Unknown marital status has the highest churn-rate at 17.2%

Marital Status



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Demographic: Combined Fields vs Card Type



When considering all demographics :

The customers at highest risk to churn (14.81%) are married females, making less than \$40K/year and holding a blue card.

% of Total Calc - Churned customers Flag

0.00%  14.92%

Avg. Avg Utilization Ratio

0 to 0.405

Avg. Products purchased

1 to 5

Months Inactive 12 mon (bin)

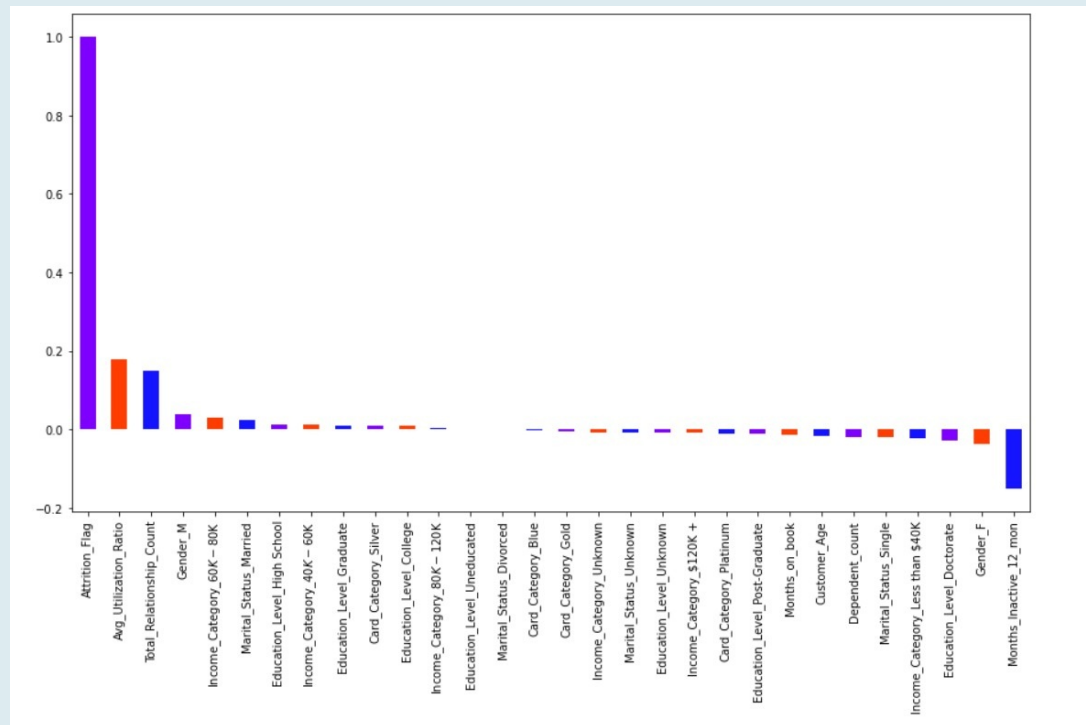
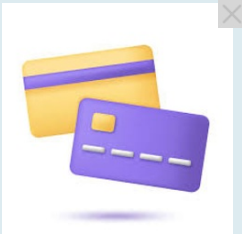
All

Gender	Marital S..	Income Categ..	Card Category			
			Blue	Silver	Gold	Platinum
Female	Divorced	Less than \$40K	2.54%	0.00%		
		\$40K - \$60K	0.80%	0.00%	0.00%	
		Unknown	0.87%	0.00%	0.00%	0.00%
	Married	Less than \$40K	14.92%	0.43%	0.06%	0.06%
		\$40K - \$60K	5.02%	0.12%	0.06%	
		Unknown	4.58%	0.25%	0.00%	
	Single	Less than \$40K	14.49%	0.43%	0.19%	0.06%
		\$40K - \$60K	3.65%	0.12%	0.06%	
		Unknown	4.21%	0.19%	0.06%	0.12%
	Unknown	Less than \$40K	2.66%	0.19%	0.00%	
		\$40K - \$60K	0.43%	0.00%	0.00%	
		Unknown	0.93%	0.00%	0.06%	
Male	Divorced	Less than \$40K	0.31%	0.00%		
		\$40K - \$60K	0.37%	0.06%	0.00%	
		\$60K - \$80K	0.50%	0.12%		
		\$80K - \$120K	1.18%	0.19%	0.00%	
		\$120K +	0.50%	0.06%		
		Unknown	0.00%	0.00%		
	Married	Less than \$40K		0.06%	0.00%	
		\$40K - \$60K	2.54%	0.06%		0.06%
		\$60K - \$80K	4.89%	0.25%	0.19%	0.00%
		\$80K - \$120K	6.07%	0.31%	0.00%	
		\$120K +	2.97%	0.19%	0.06%	0.00%
		Unknown	0.00%			
	Single	Less than \$40K	0.56%	0.12%		
		\$40K - \$60K	2.41%	0.25%	0.00%	
		\$60K - \$80K	4.40%	0.31%	0.12%	0.00%
		\$80K - \$120K	4.71%	0.80%	0.19%	
		\$120K +	3.16%	0.43%	0.06%	0.00%
		Unknown	0.25%			
	Unknown	Less than \$40K	0.06%	0.00%	0.00%	
		\$40K - \$60K	0.68%	0.06%	0.00%	
		\$60K - \$80K	0.87%	0.00%	0.06%	
		\$80K - \$120K	1.36%	0.06%	0.12%	0.00%
		\$120K +	0.37%	0.00%		
		Unknown	0.06%	0.00%		

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Correlation



The Correlation between the Attrition flag as Dependant variables and the independent variable

The the variables that have the highest correlation to the credit card churn are utilization ratio, products owned, Males, Income of 60-80k, Married, high school education level, Silver cards

The variables with lowest(negative) correlation are months inactive and gender females

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Findings



16.07% of the customers are churning

Type of Card

The majority of churning customers hold Blue cards (1519 customers). However; the highest churn rate is held by the platinum customers at 25%

Silver card holders have the lowest churn-rate (14.18%) and are the second largest number of customers (5.04%)

Inactive time

Customers that churn have a longer inactive time (approximately 2.7months/year) compared to existing customers (2.3months/year).

Utilization

Customers that churned had less use of their credit cards 0.16 versus existing customers used their cards 0.3

Length of time as customer

The majority of customers that churn, is at 36 months (24.32%)

Products owned

Customers that churned on average own less products than the existing customers.

Customers that churned owned on average 3.3 products where existing customers own almost 4 products

Gender

17.36% of females are likely to churn when compared to males at 14.62%

Age

Churning is most common among customers aged 45 years at 24.65% followed by age of 40 at 22.90% and age of 50 at 20.22%

Ages 25 years old and 65 to 70 years old churned the least

Education level

The largest number of customers are Graduates (30.89%) and make up the largest number of churners (29.93%)

Doctorates make up the smallest number of customers (4.45%) but have the highest churn-rate at 21%

Those with an education level of College and High school had the lowest churn-rate of 15.20%

Income Level

The largest number of customers are those with income less than \$40K

Customers with an income of \$120k+ and income of less than \$40K churn the most at 17%.

Customers earning between \$60-80K have the lowest churn-rate at 13.5%

Marital Status

The largest number of customers to churn are those that are married at 4687 customers; however they have the *lowest churn-rate at 15.1%*

The least number of churners are the Divorced at 748 customers...

Credit Card Customer Churn

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Suggestions for Marketing and Sales



Card type:

Try to increase the number of your Silver card holders.

Inactivity & Utilization:

Consider providing incentives for those who have active use of their card every month.

Customers Lifetime Value:

Consider providing an incentive after 3 years so customers do not leave.

Products owned:

Market more of your products to existing customers.

Gender:

Target marketing and sales to males, who are less likely to churn.

Age:

Target marketing to younger (25 years) and older (65-70 years) potential clients.

Education level:

Market to those that have an education level of College and High school who have the lowest churn-rate.

Income Level:

Market sales for potential customers that earn between \$60-80K who have the lowest churn-rate.

Marital Status:

Continue to market to married potential customers since they have the lowest churn-rate among all marital status fields.

Credit Card Customer Churn

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Recommendations for Further Analysis to Address Retention

Request for a survey to be sent out to churning customers to understand why they left.
With further information we can understand:

- Why are they churning the card?
- What type of incentive would help to retain them?
- Which incentives can be implemented to prevent the customer from leaving?

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Thank you