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capstone project

problem statement

A bank manager is concerned about a growing trend of customers discontinuing their credit card services. They would like to gain insights into customer profiles and segments that are at risk of churning.

This information would enable them to take proactive measures by reaching out to these customers, enhancing their services, and potentially reversing the customers' decisions to discontinue their credit card services.

dataset

- *CLIENTNUM*
- *Attrition_Flag*
- *Customer_Age*
- *Gender*
- *Dependent_count*
- *Education_Level*
- *Marital_Status*
- *Income_Category*
- *Card_Category*
- *Months_on_book*
- *Total_Relationship_Count*
- *Months_Inactive_12_month*
- *Contacts_Count_12_mon*

- *Credit_Limit*
- *Total_Revolving_Bal*
- *Avg_Open_To_Buy*
- *Total_Trans_Amt*
- *Total_Trans_Ct*
- *Total_Ct_Chng_Q4_Q1*
- *Avg_Utilization_Ratio*
- *Naive_Bayes_Classifier_Attrition_Flag_Card_Category_Contacts_Count_12_mon_Dependent_count_Education_Level_Months_Inactive_12_mon_1*
- ***Naive_Bayes_Classifier_Attrition_Flag_Card_Category_Contacts_Count_12_mon_Dependent_count_Education_Level_Months_Inactive_12_mon_2***

data preparation

Columns Removal

Removed last 2 columns consisting of 'Naive_Bayes…' in the CSV file before linking to Tableau

Data Filtering

Excluding 'Unknown' from the following in Tableau's Data Source level to minimise data ambiguity
- Marital Status
- Income Category
- Education Level

dataset

Definition of each column used in this analysis

Variables	Description
ClientNUM	Unique identifier for the customer holding the account
Attrition_Flag	Internal event (customer activity) variable
Customer_Age	Demographic variable - Customer's Age in Years
Gender	Demographic variable - M=Male, F=Female
Income_Category	Demographic variable - Annual Income Category of the account holder (< $40K, $40K - 60K, $60K - $80K, $80K-$120K, > $120K, Unknown)
Card_Category	Type of Card (Blue, Silver, Gold, Platinum)
Months_on_book	Period of relationship with bank
Total_Relationship_Count	Total no. of products held by the customer
Months_Inactive_12_mon	No. of months inactive in the last 12 months
Total_Trans_Amt	Total Transaction Amount (Last 12 months)
Total_Trans_Ct	Total Transaction Count (Last 12 months)
Avg_Utilization_Ratio	Average Card Utilization Ratio

7,081

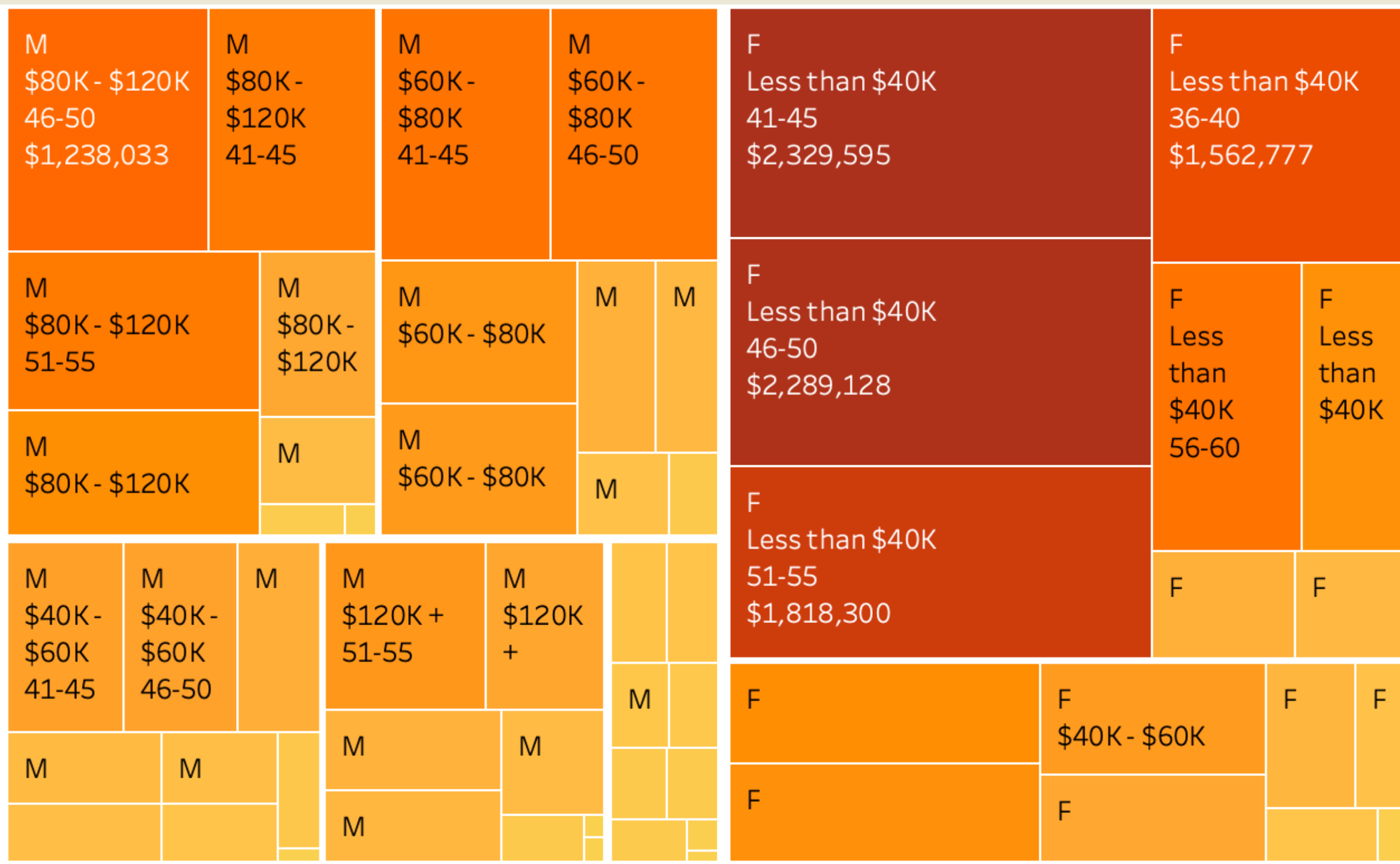customers' profiles after cleaning the dataset

Blue
93.18%

Silver
5.52%

Gold
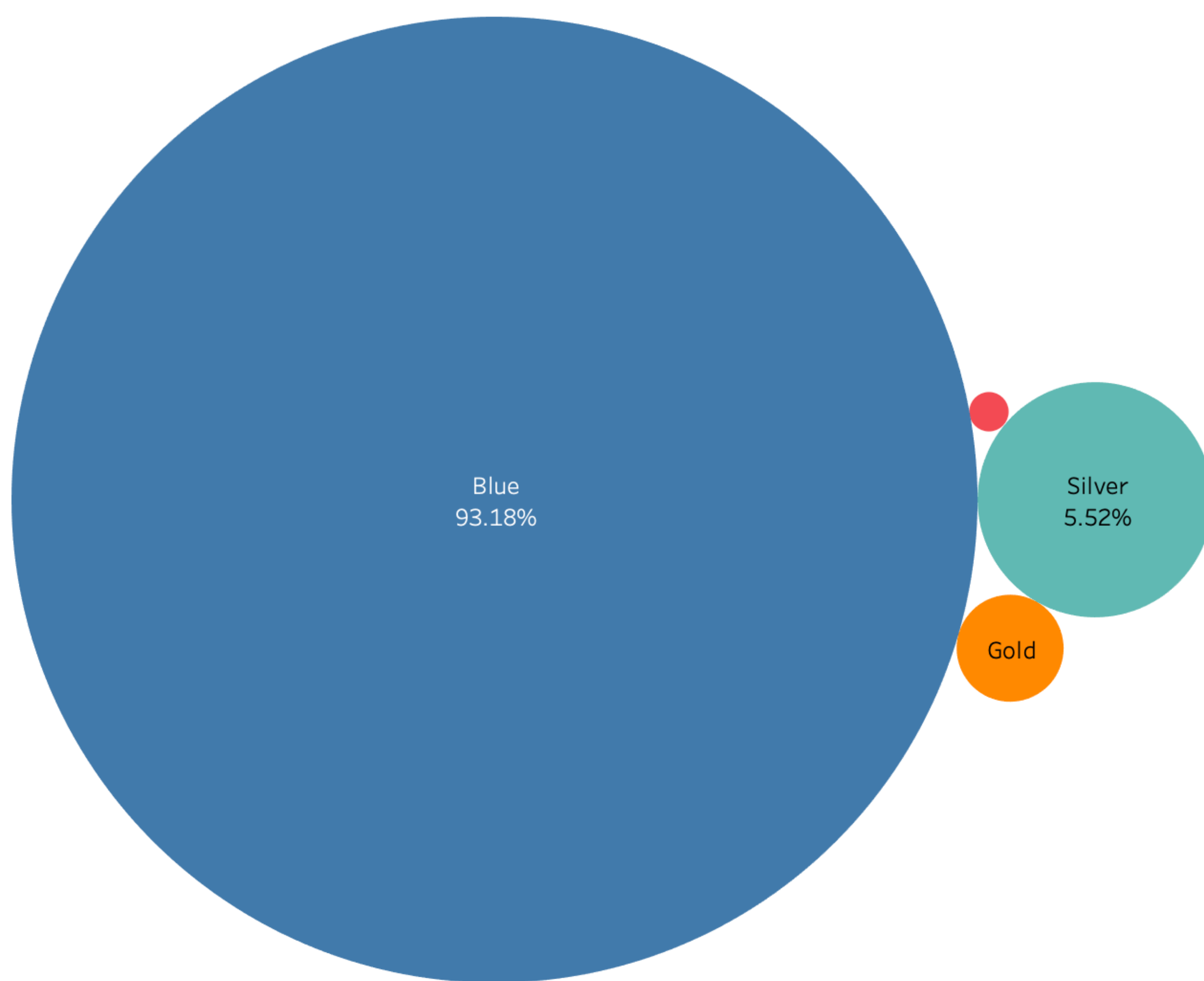
customer profile

Majority of the customers (93.18%) are in the Blue Card category.

customer profile by gender, age groups, income category and transaction amount

customer profile
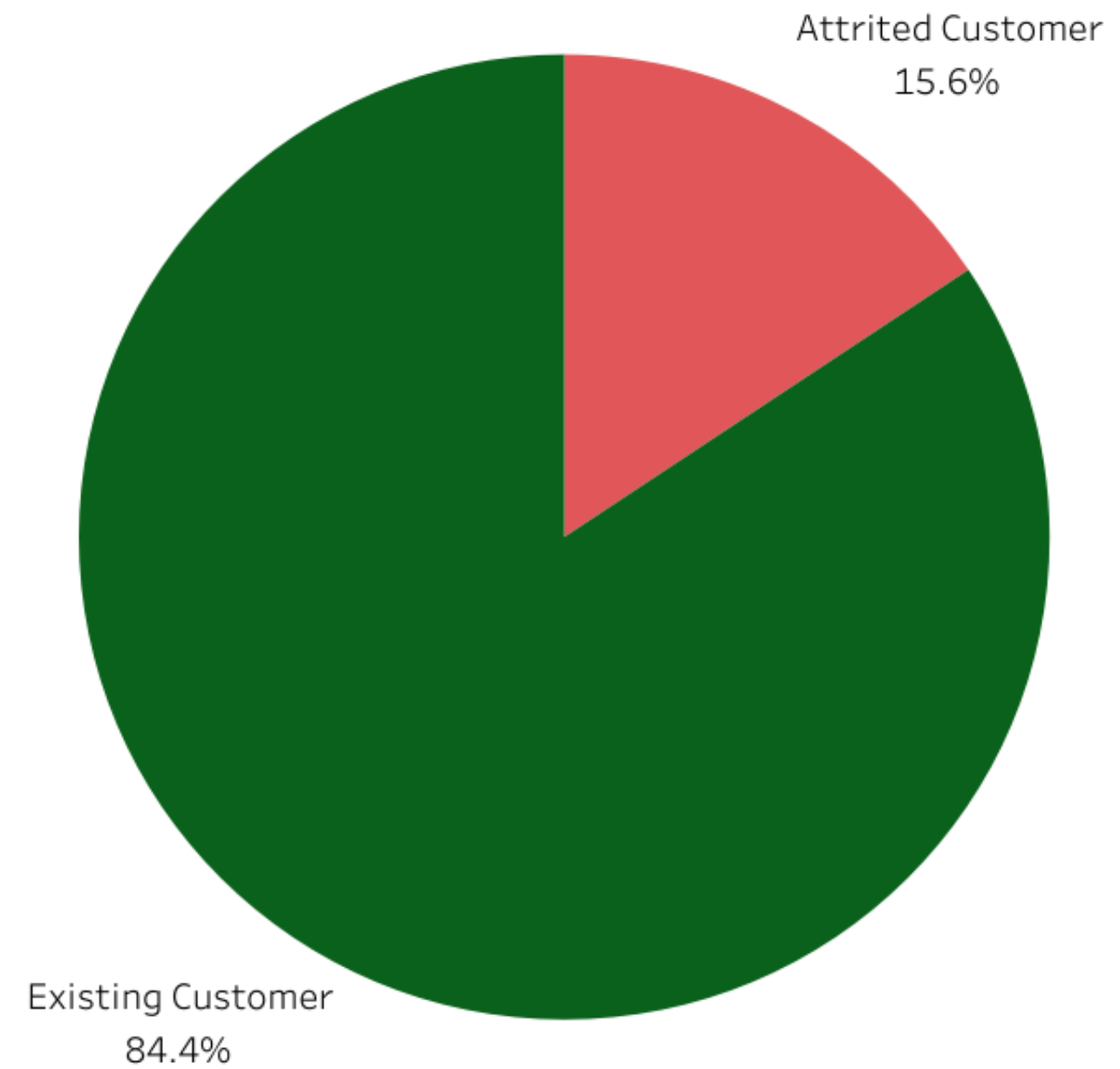
Majority of the customers are from the following segments

- Males from 41-50 age group and earns between $80k - $120k

- Females from 36-50 age group and earns less than $40k

15.6%

of customers have
closed their credit cards

Attrited Customer
15.6%

Existing Customer
84.4%

attrited customers

identifying which categories these customers are from

Card Category	Income Category				
	Less than $40K	$40K - $60K	$60K - $80K	$80K - $120K	$120K +
Blue	40.5%	17.4%	11.9%	14.9%	8.1%
Gold	0.4%	0.2%	0.2%	0.3%	0.2%
Platinum	0.2%	0.1%			
Silver	1.4%	0.6%	0.9%	1.8%	0.9%

which card category has the most cancellation by income group based on attrited customers?

The highest group of attrited customers (40.5%) holds a
Blue Card and earn less than $40K.

Majority of the attrited customers consist of

Females in the
36 to 50 age group

F
41-45
Married

F
41-45
Single

F

F
36-40
Married

F
36-40
Single

M
46-50
Single

M
46-50
Married

M
41-45
Married

M
41-45
Single

M

F
46-50
Married

F
46-50
Single

F

F
56-60
Married

F

M

M

M
36-40

M

M

F
51-55
Single

F
51-55
Married

F

F

M
31-35
Single

M

M

M
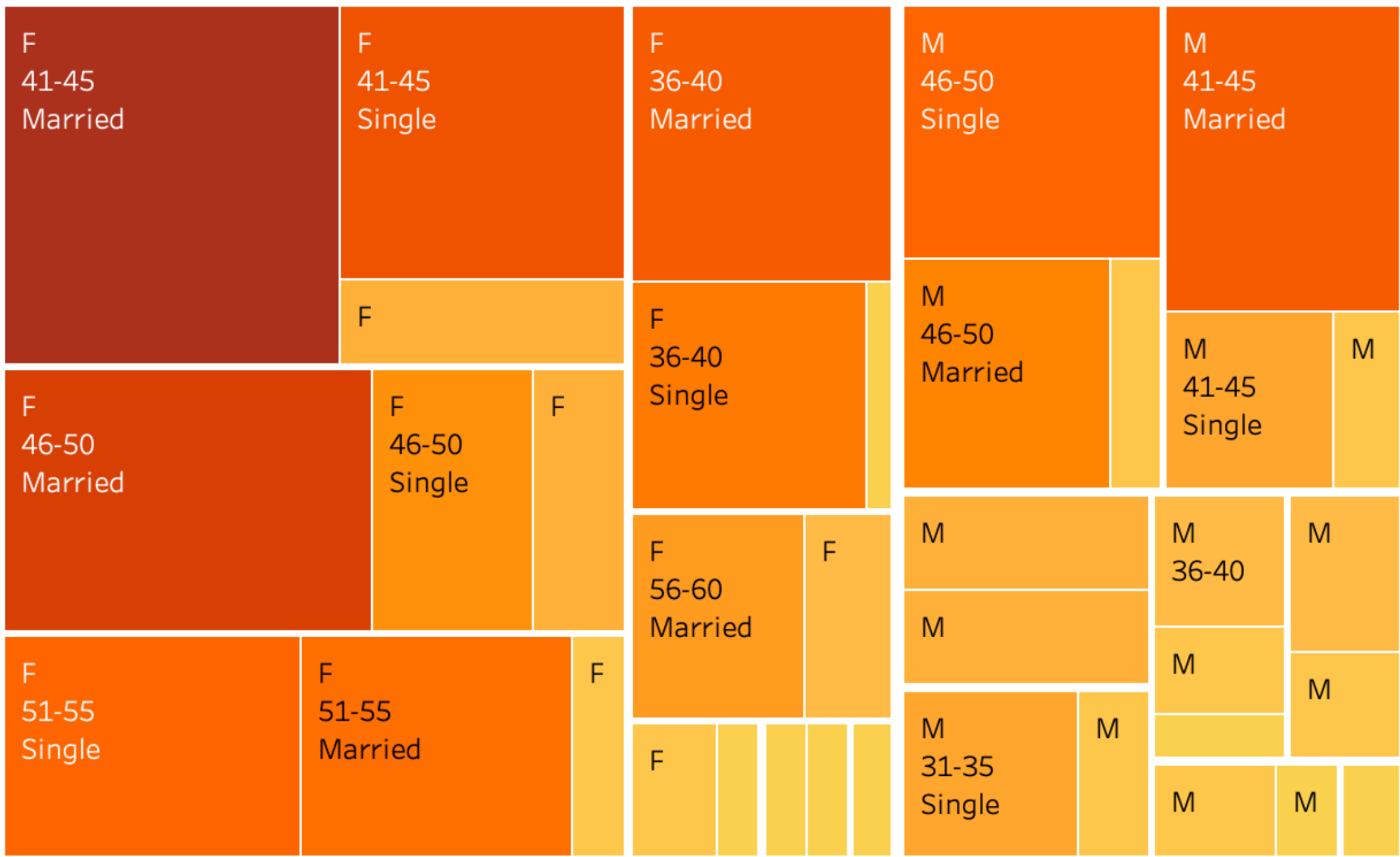
correlation

analysis of potential factors affecting churn rates

Card Category	Income Category	Attrited Customer	Existing Customer
Blue	Less than $40K	2.7	2.3
	$40K - $60K	2.7	2.2
	$60K - $80K	2.7	2.3
	$80K - $120K	2.7	2.3
	$120K +	2.7	2.2
Silver	Less than $40K	2.5	2.3
	$40K - $60K	2.4	2.0
	$60K - $80K	3.1	2.4
	$80K - $120K	2.8	2.2
	$120K +	2.8	2.4
Gold	Less than $40K	2.8	2.9
	$40K - $60K	2.5	2.0
	$60K - $80K	3.0	2.0
	$80K - $120K	2.7	1.9
	$120K +	1.5	2.6
Platinum	Less than $40K	2.5	3.0
	$40K - $60K	3.0	
	$60K - $80K		2.7
	$120K +		2.3

Attrited customers has an average of 2.5 to 3 months before cancelling their cards.

Following category has the respective months of inactiveness before attrition:

Blue — 2.7 months
Silver — 2.7 months
Gold — 2.5 months
Platinum — 1.4 months

Attrited Customers have lower transaction count and amount as compared to Existing Customers.

findings & recommendations

finding

The highest group of attrited customers holds a Blue Card and earn less than $40K. Majority of the attrited customers belongs to Females in the 36 - 50 age group.

1

recommendation

Implement cashbacks or high miles for blue card holders when spending on non-discretionary expenditures categories such as transportation, groceries, and convenience stores. By offering incentives in these areas, it enhances customer retention and satisfaction among this demographic segment.

Additionally, introduce a new initiative such as exclusive ladies only promotion for beauty categories to encourage card usage among the females in the 36 to 50 age group. Introducing the new initiative can build a sense of exclusivity and increase retention.

finding

Attrited customers typically exhibit a period of 2.5 to 3 months of card inactivity before proceeding with card cancellations.

recommendation

Introduce monthly specials exclusively for cardholders, positioning them as a monthly indulgence courtesy of the bank. These specials could entail percentage or dollar discounts on merchant products and/or services.

This strategic initiative not only stimulates spending but also mitigates card inactivity exceeding one month, fostering greater consumer loyalty through the enticing monthly merchant specials.

2

finding

Attrited customers have both lower transaction count and amount as compared to existing customers.

3

recommendation

Combining both recommendation 1 & 2 will incentivize higher transaction frequencies and amount, thereby fostering increased card utilization and card preference.

Furthermore, implementing quarterly surveys to gauge customer preferences regarding promotional offers and perks associated with credit card usage is recommended. This proactive approach enables a comprehensive understanding of market demand for perks and spending behaviors across various card categories and consumer profiles.

thank you