

# VI Capstone Project

By Nigel



# 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/credit-card-customers>

# CLIENTNUM	Attrition_Flag	# Customer_Age	Gender	# Dependent_count	
Client number. Unique identifier for the customer holding the account	Internal event (customer activity) variable - if the account is closed then 1 else 0	Demographic variable - Customer's Age in Years	Demographic variable - M=Male, F=Female	Demographic variable - Number of dependents	
Education_Level	Marital_Status	Income_Category	Card_Category	Months_on_book	
Demographic variable - Educational Qualification of the account holder (example: high school, college graduate, etc.)	Demographic variable - Married, Single, Divorced, Unknown	Demographic variable - Annual Income Category of the account holder (< \$40K, \$40K - 60K, \$60K - \$80K, \$80K-\$120K, >	Product Variable - Type of Card (Blue, Silver, Gold, Platinum)	Period of relationship with bank	
Total_Relationshi...	Months_Inactive_...	Contacts_Count_1...	Credit_Limit	Total_Revolving_...	
Total no. of products held by the customer	No. of months inactive in the last 12 months	No. of Contacts in the last 12 months	Credit Limit on the Credit Card	Total Revolving Balance on the Credit Card	
Avg_Open_To_Buy	Total_Amt_Chng_...	Total_Trans_Amt	Total_Trans_Ct	Total_Ct_Chng_Q...	Avg_Utilization_R...
Average Open to Buy Credit Line	Change in Transaction Amount (Q4 over Q1)	Total Transaction Amount (Last 12 months)	Total Transaction Count (Last 12 months)	Change in Transaction Count (Q4 over Q1)	Average Card Utilization Ratio

# Tableau – Live version available here

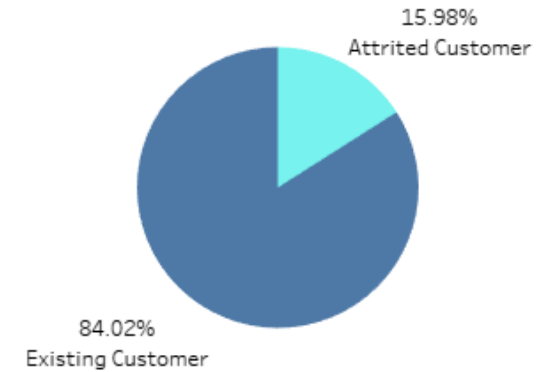
- [https://public.tableau.com/views/VI CapstoneProject\\_16711104415370/CapstoneProject?:language=en-US&publish=yes&:display\\_count=n&:origin=viz](https://public.tableau.com/views/VI CapstoneProject_16711104415370/CapstoneProject?:language=en-US&publish=yes&:display_count=n&:origin=viz) share link



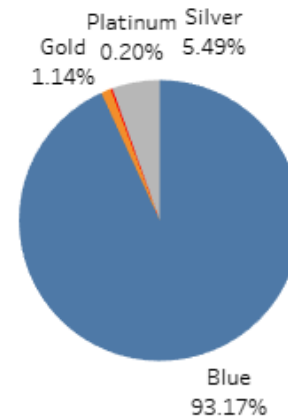
# Data/Charts Explanation

- 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

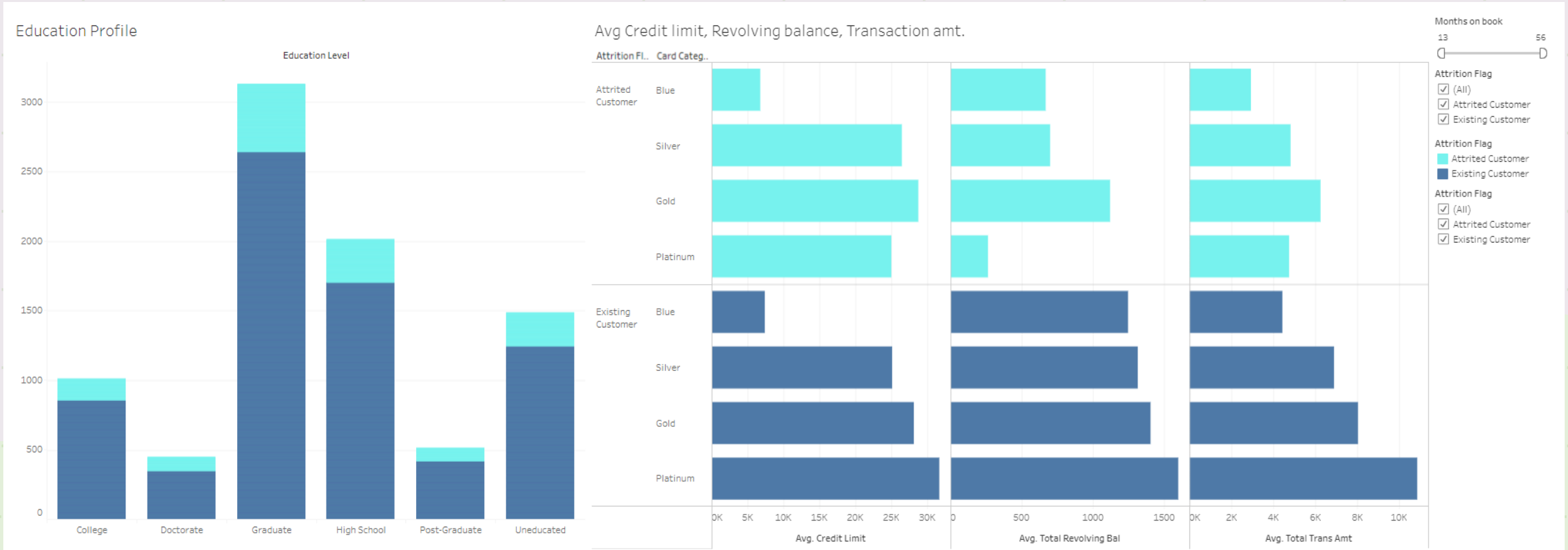


Card Category



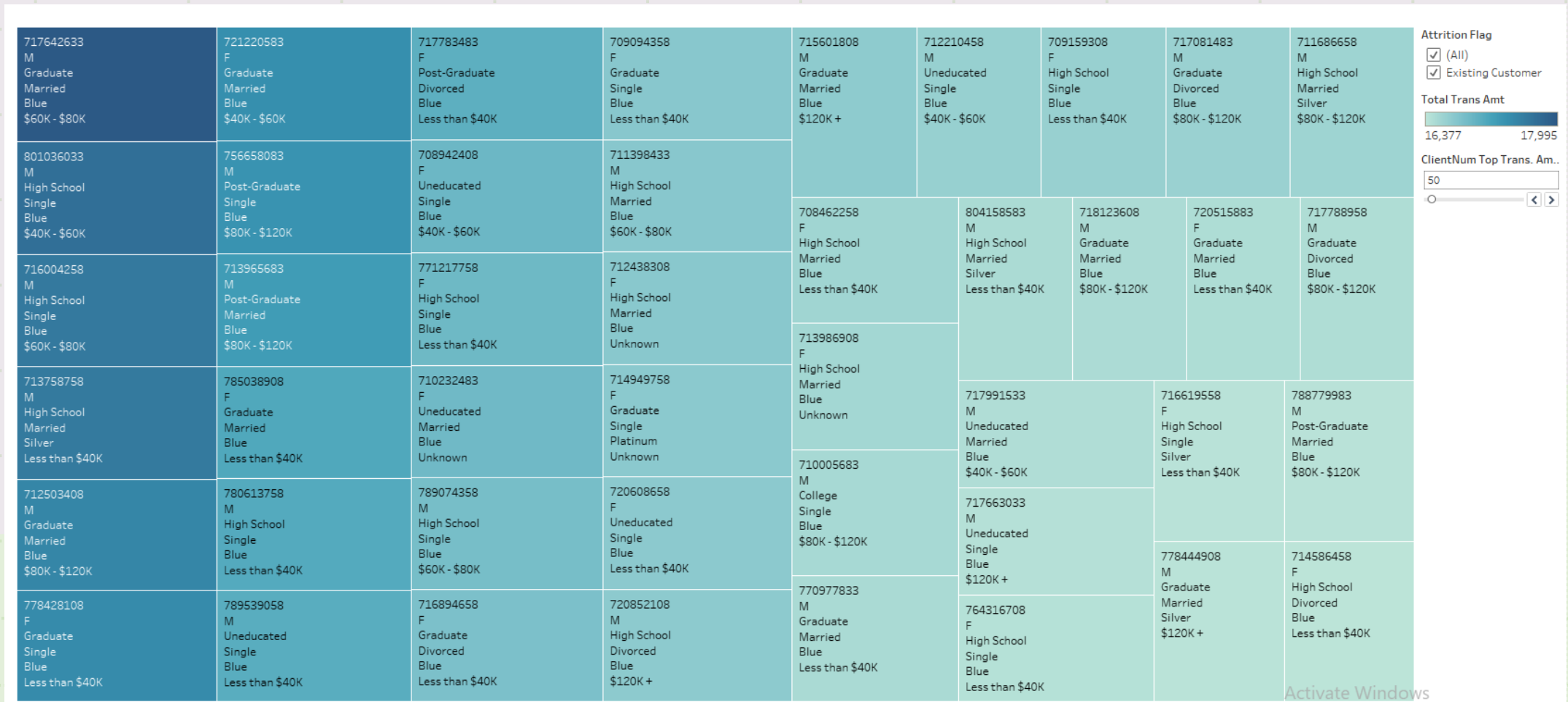
# Data/Charts Explanation

- 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**.



# Data/Charts Explanation

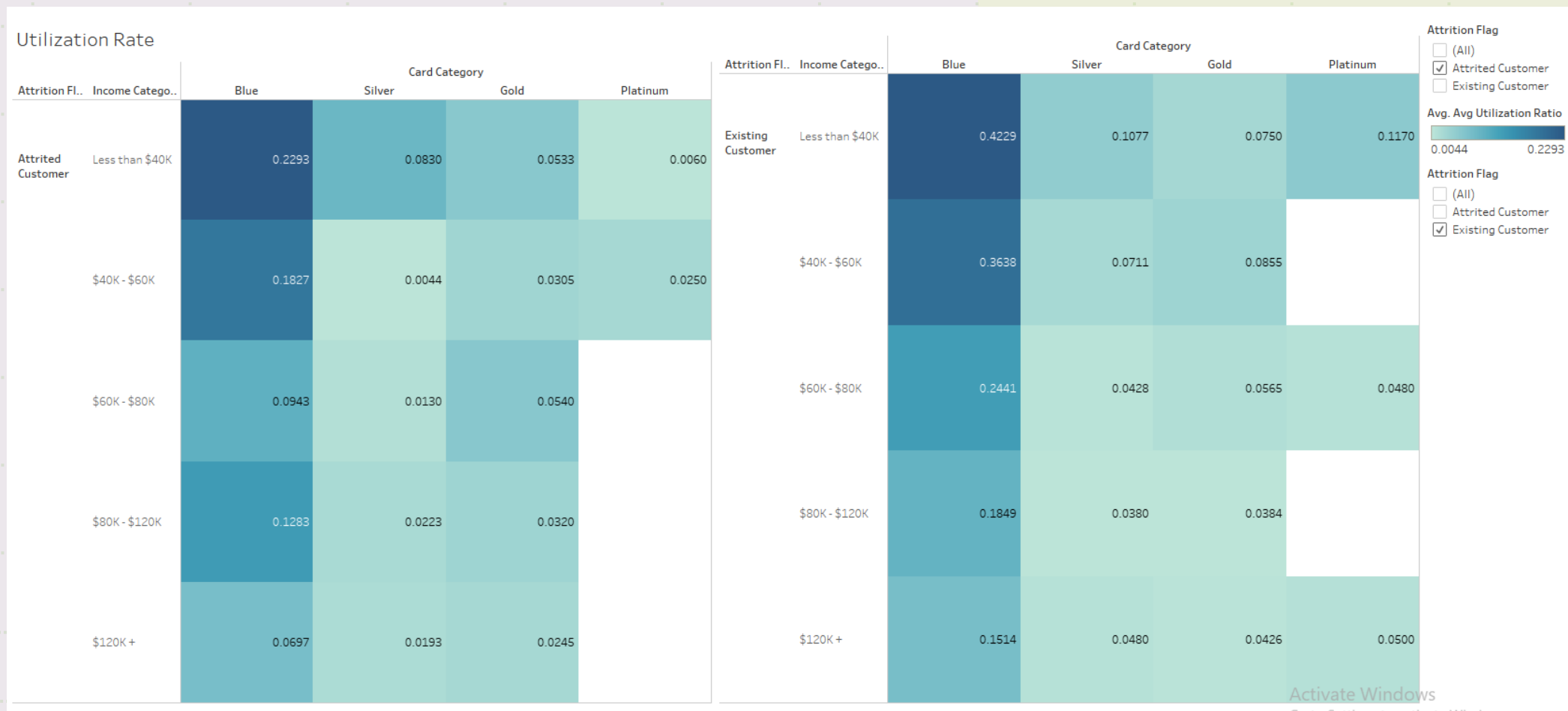
- On the third slide, we can see the customers' transaction amounts based on their profiles, such as gender, marital status, education etc. in a tree map.
- From here, we can see that many of the top transaction amounts consist of existing customers and rarely the attrited customers (since it does not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





# Data/Charts Explanation

- 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?**
  - ii. 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?**



**THANK YOU**



# Appendix

# Visualizing using Excel – Pivot Table

- Advantages: Ability to view the specific numbers in detail.

AutoSave On EXCEL - BankChurners.xlsx • Saved Search

File Home Insert Page Layout Formulas Data Review View Automate Help

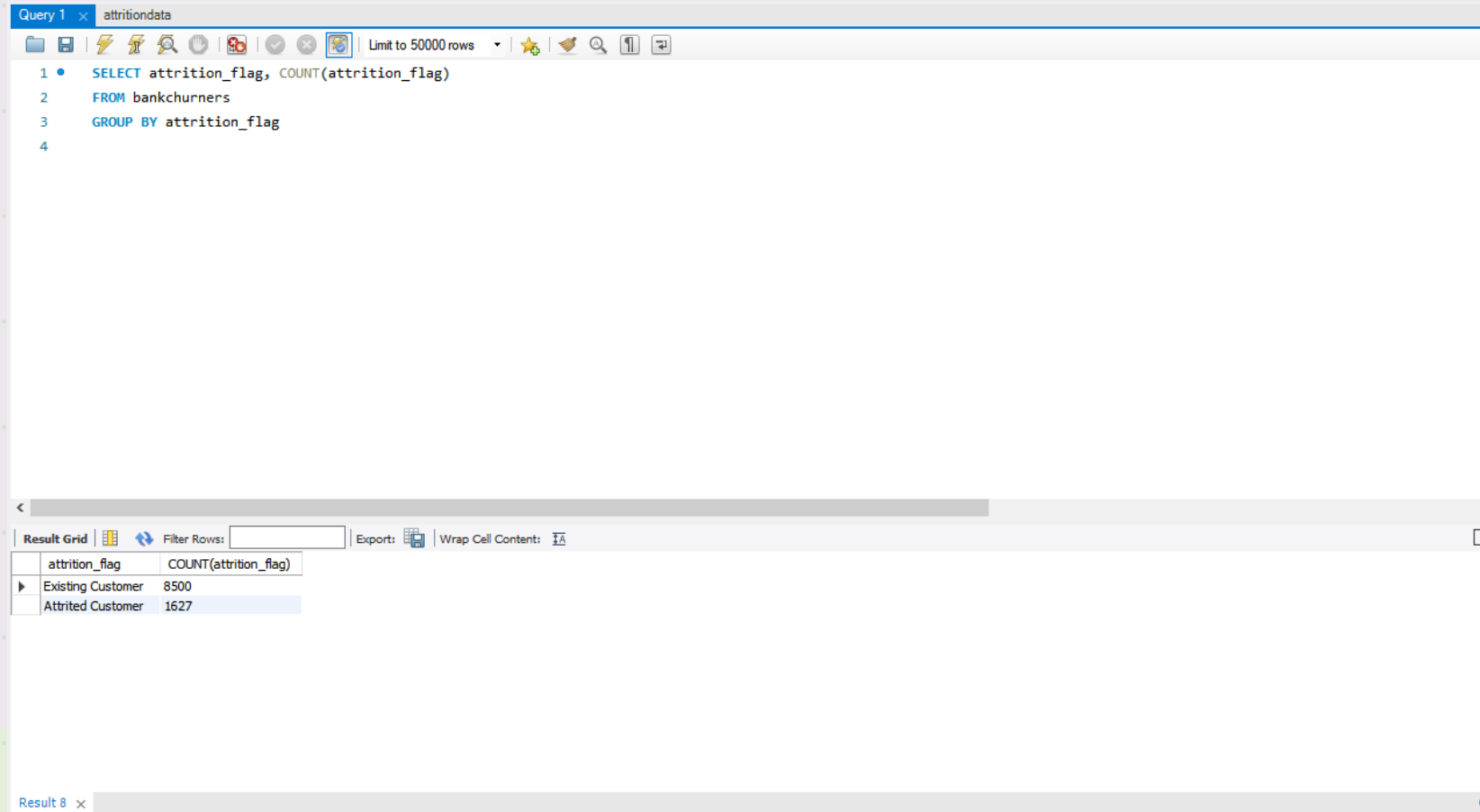
Clipboard Font Alignment Number Styles

N10

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3	Count of Card_Category Column Labels											
4	Row Labels	Blue	Silver	Gold	Platinum	Grand Total						
5	Attrited Customer	1519	82	21	5	1627						
6	Existing Customer	7917	473	95	15	8500						
7	Grand Total	9436	555	116	20	10127						
8												
9	Count of Attrition_Flag Column Labels											
10	Row Labels	College	Doctorate	Graduate	High School	Post-Graduate	Uneducated	Grand Total				
11	Attrited Customer	154	95	487	306	92	237	1371				
12	Existing Customer	859	356	2641	1707	424	1250	7237				
13	Grand Total	1013	451	3128	2013	516	1487	8608				
14												
15	Count of Card_Category Column Labels											
16	Row Labels	Less than \$40K	\$40K - \$60K	\$60K - \$80K	\$80K - \$120K	\$120K +	Grand Total					
17	Attrited Customer	612	271	189	242	126	1440					
18	Existing Customer	2949	1519	1213	1293	601	7575					
19	Grand Total	3561	1790	1402	1535	727	9015					

# Visualizing using MySQL

- Advantages: Ability to pull out and sort data simultaneously within a single query.



The screenshot displays a MySQL query editor window titled "Query 1" with a tab labeled "attritiondata". The query text is as follows:

```
1 • SELECT attrition_flag, COUNT(attrition_flag)
2 FROM bankchurners
3 GROUP BY attrition_flag
4
```

Below the query editor, the "Result Grid" is visible, showing the results of the query. The grid has two columns: "attrition\_flag" and "COUNT(attrition\_flag)". The results are as follows:

attrition_flag	COUNT(attrition_flag)
Existing Customer	8500
Attrited Customer	1627

The interface includes various toolbars for file operations, query execution, and formatting. The status bar at the bottom indicates "Result 8" and provides a link to the results.