

CUSTOMER CHURN ANALYSIS WITH DATA VISUALIZATION

PROJECT FOR INTRODUCTION TO DATA VISUALIZATION
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INTRODUCTION

The dataset of my Milestone project is Bank Customer Churn for an Anonymous Multinational Bank. It contains information on how many customers left the bank and the attributes that influenced their decision. I choose raw data in excel (XLSX) file documents. The data has 10,001 rows. It can be found on <https://www.kaggle.com/datasets/radheshyamkollipara/bank-customer-churn>

Description of the dataset.

The dataset contains customer data of account holders at an Anonymous Multinational Bank and the aim of the data will be predicting their customer churn. This data has the following attributes:

- RowNumber: Number of records.
- CustomerId: Customer's ID.
- Surname: Customer's surname.
- CreditScore: Customer's Credit Score.
- Geography: Customer's Location.
- Gender: Customer's Gender.
- Age: Customer's Age.
- Tenure: Number of years that customers have been bank clients.
- Balance: Customer's Bank Balance.
- NumOfProducts: Number of products customers have purchased through the bank, for instance credit card, chequing account, saving accounts, lines of credit, etc.
- HasCrCard: Whether a customer has a credit card or doesn't.
- IsActiveMember: Whether a customer is active or not.
- EstimatedSalary: Customer's salary.
- Excited: Whether a customer left the bank or didn't.
- Complain: Number of complaints by customer.

- Satisfaction_Score: Score provided by the customer for their complaint resolution (1 to 5)
- Card Type: Customer's credit card type.
- Points Earned: Points earned by the customer for using credit cards.

Some questions I hope to answer with my data.

- What kind of customers are more prone to leave the bank?
- Which geography has the highest rate of customer churn?
- Which gender and age group has the highest rate of customer churn?
- Does the customer's credit score influence their decision to leave the bank?
- Does the customer's estimated salary influence their decision to leave the bank?

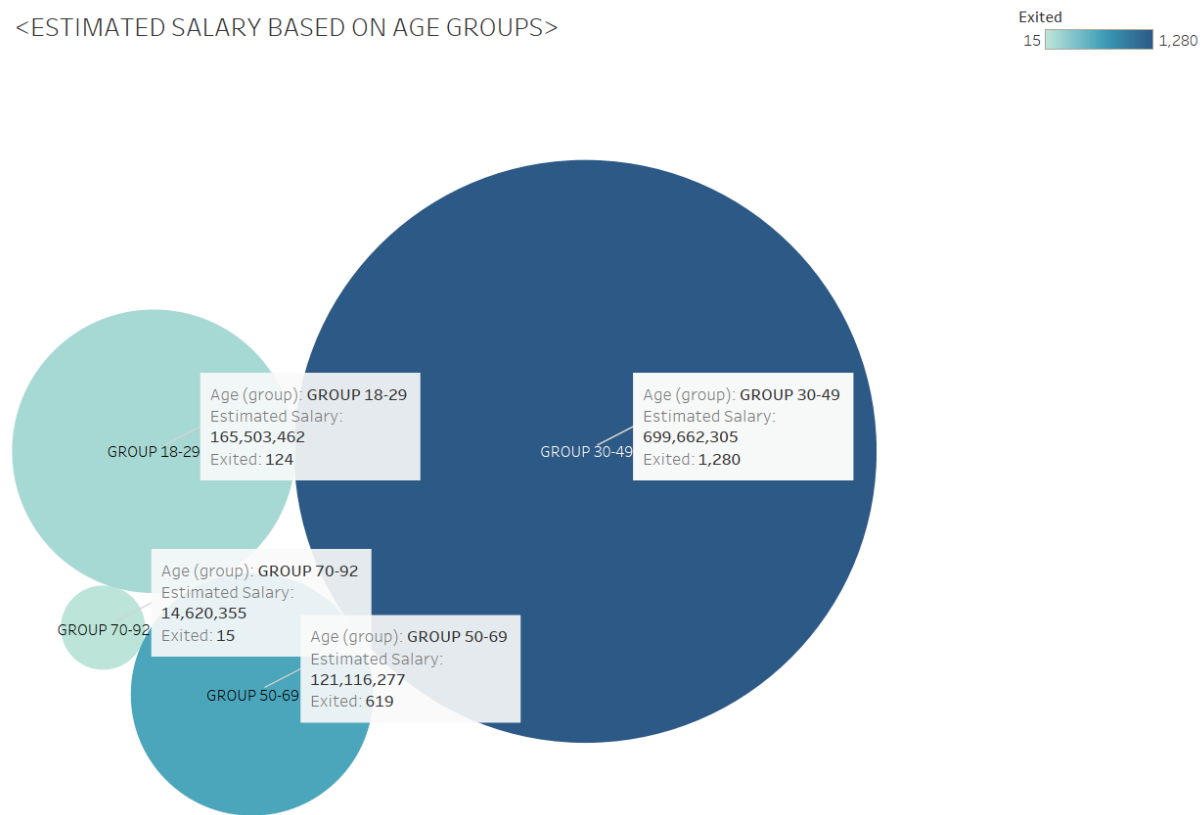
Brief description of the intended audience:

The report's intended audience is most likely bank executives, managers, and decision-makers, notably those in charge of customer retention and expansion plans. The study may be of interest to data analysts and researchers in the banking business. The research offers actionable advice to improve customer retention by providing significant insights into customer behavior, demographics, and churn rates. The intended audience can make informed decisions to improve customer happiness, personalize services, and implement successful strategies to retain customers and drive business growth by understanding the variables that contribute to customer turnover. The ideas presented are intended to assist the audience in addressing specific difficulties and building stronger customer relationships, which will ultimately boost the bank's performance and competitiveness.

Key findings and Recommendations:

1. Estimated Salary Based on Age Groups

<ESTIMATED SALARY BASED ON AGE GROUPS>



Age (group). Color shows sum of Exited. Size shows sum of Estimated Salary. The marks are labeled by Age (group).

The above chart is used to illustrate the estimated salary from each age group. From the graph, I can analyze which age group has the highest salary estimate (699,662,305) and I found that to be age Group 30-49. This is understandable because at that age group, people already have a stable job and have risen the ranks and are being compensated fairly for their contributions in the work force. I can also note that they have the highest numbers of customer churn (1,280). This could be because middle-aged customers often have substantial savings and investment goals. If they find other banks offering better interest rates on deposits or more attractive incentives for investments, they may be tempted to move their funds.

According to the graph, age group 70-92 has the lowest salary estimate (165,503,462) and only 15 customers within the age group left the bank. Customers within this age group are considered as seniors and have past the retiring age. They are no longer in the work force so they make the least amount of money. Due to their age, some of them pass on leaving their money in their account at the bank. Some of them who left the bank might have developed specific needs related to their age, such as larger font sizes, assistance with online banking, or access to in person support. If a bank fails to cater to these requirements, they may seek out a more age friendly institution.

2. CUSTOMER GENDER AND NUMBER OF BANK PRODUCTS

Is Gender Affect Exiting of customer?

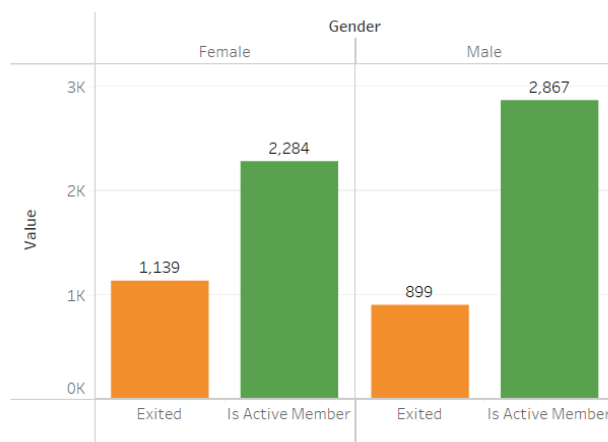
Gender ratio based on complain and exited customer



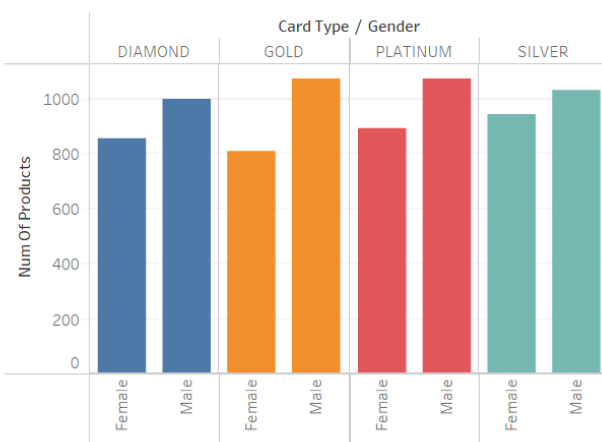
1. Select gender from gender dropdown.

Gender
All

Customer status based on Gender and Geography



Number of products by gender



The analysis from the above chart shows the amount of bank products each gender has in the bank. It also shows how many purchases were made on each card type by both genders. The female gender has the least number of products and card type. I can notice that the platinum card type was the most owned amongst the female gender (1,822), following closing with the silver card type (1,803). The male gender

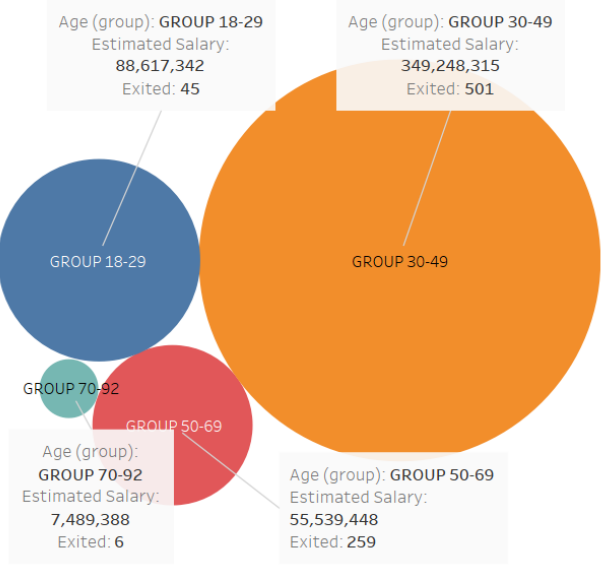
on the other hand, has the highest number of products amongst both genders, with 2,161 gold card type and 2,033 silver card type.

3. CUSTOMER CHURN BASED ON THE AGE GROUP

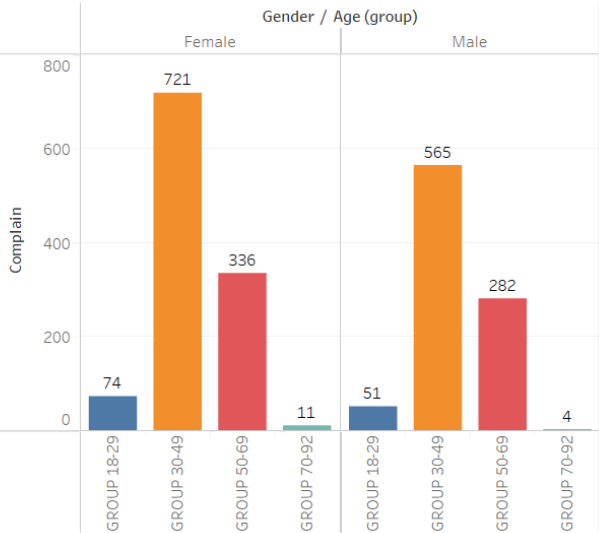
Is Age Group affect on the churn

Age (group)
All

ESTIMATED SALARY BASED ON AGE GROUPS



Number of Complains received by Gender and age groups.



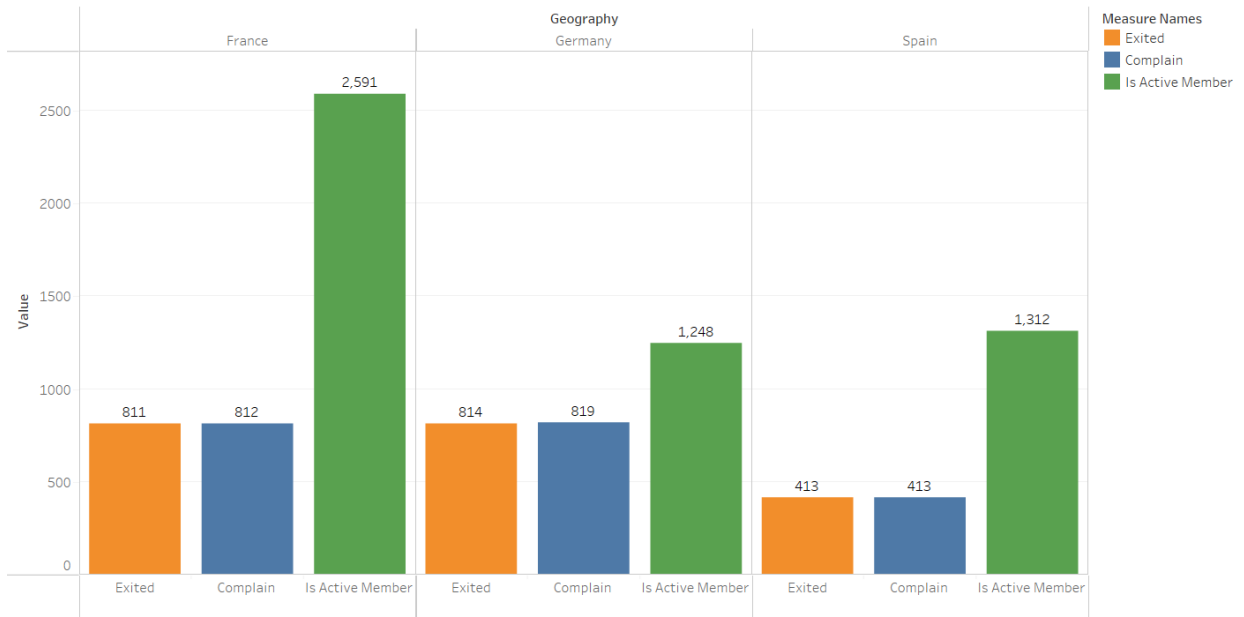
The graph illustrates the distribution of active customers by age group and the accompanying exit rates. It uses color intensity to highlight the age group with the most active consumers, which is represented by a dark blue tint, representing the 30-49 age group as the most populated of all age groups.

Furthermore, the size of the dark blue segment, which corresponds to the 30-49 age range, represents the total number of clients who have left that category. A larger segment size suggests a greater number of inactive customers, offering vital insight into churn rates. In contrast, the age group 70-92 appears in the graph as the smallest section, with a faint color intensity when compared to others. This means that the 70-92 age group has the fewest active consumers of any age group, with a low customer count.

The visual signals in the graph allow for rapid identification of the age group with the greatest churn rate and provide vital information about customer behavior across age groups. This excellent depiction aids in the identification of possible areas of concern and facilitates the understanding of data trends.

4. CUSTOMER CHURN BASED ON GEOGRAPHY

Customer status based on Geography



Complain, Exited and Is Active Member for each Geography. Color shows details about Complain, Exited and Is Active Member.

The graph compares Germany and France in terms of active members, complaints, and outgoing members. France has the most active members (2,591), whereas Germany's membership is unknown. Germany, on the other hand, has the most complaints (819) and exited members (814). France has 811 members who have left the country. This data implies that France has a large consumer base, but that Germany may have concerns with customer service or product, satisfaction. More data from more nations, as well as patterns throughout time, would allow for a more comprehensive examination.

5. CUSTOMER STATUS BASED ON CARD TYPE

Customer status based on card types

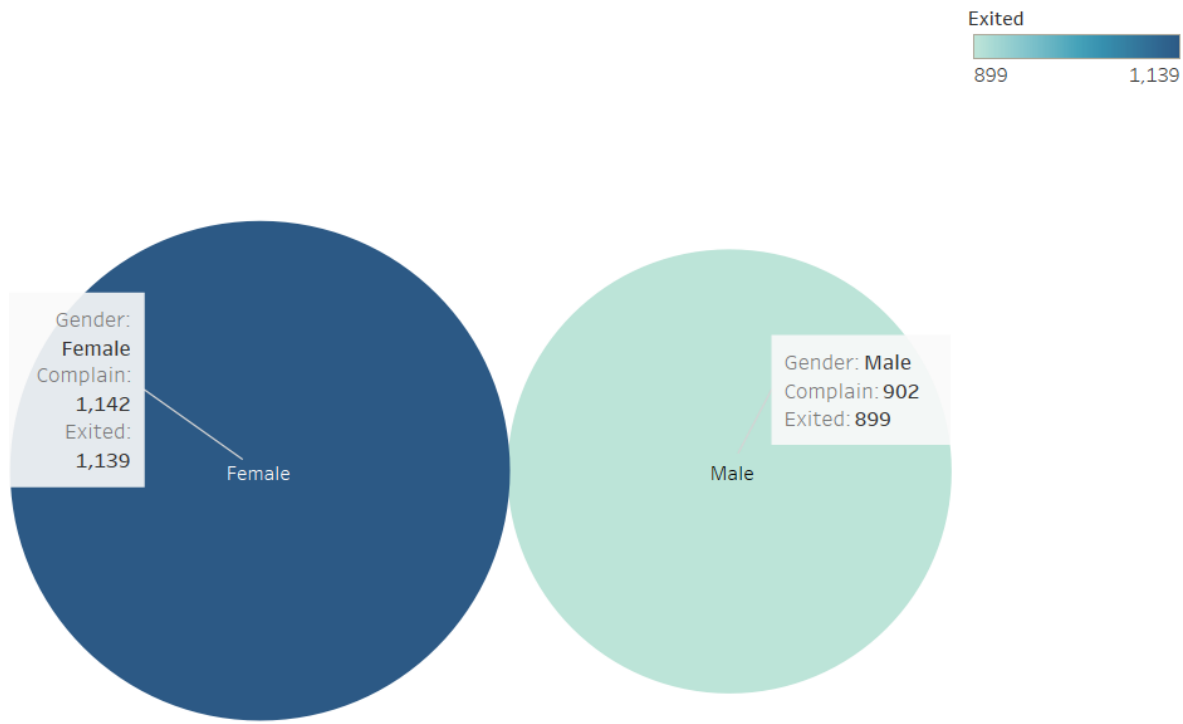


Exited and Is Active Member for each Card Type. Color shows details about Exited and Is Active Member.

The association between customer card types ("Diamond" and "Gold") and their complaints and satisfaction scores is investigated in this study. The Diamond card has the most complaints (547) and customer attrition (546 exits), both of which indicate severe discontent. The Gold card, on the other hand, has the highest satisfaction score (7617 points) and the fewest complaints (484) and exits (4842), indicating satisfied and loyal clients. These insights can assist the organization improve the Diamond card and identify the aspects that contribute to the gold card's high satisfaction, directing strategic decisions to increase customer experience and loyalty across card kinds.

6. EXIT AND COMPALINS BASED ON GENDER

Gender ratio based on complain and exited customer



Gender. Color shows sum of Exited. Size shows sum of Complain. The marks are labeled by Gender. The view is filtered on Gender, which keeps Female and Male.

According to chart, Germany has the greatest customer churn and complaints of any country. France, on the other hand, has the most active clients, as shown in another bar chart. When compared to other card kinds, the Diamond card has the most customer churn, as illustrated in a bar chart or pie chart. Furthermore, as illustrated by a grouped bar chart, female consumers leave the bank more frequently than male customers. These charts aid in the rapid comprehension and comparison of data, making it easier to detect trends and patterns in huge datasets and complex information.

Recommendations.

Reducing customer churn is crucial for any bank to maintain a stable and growing customer base. Here are some recommendations to help banks reduce customer churn:

- **Personalize customer experience:** Use data analytics to understand customer preferences and behavior. Offer personalized recommendations, products, and promotions that align with individual needs and financial goals.
- **Enhance digital banking capabilities:** Invest in user-friendly and secure online and mobile banking platforms. Ensure that customers can easily access and manage their accounts, make transactions, and access customer support digitally.
- **Educate customers:** Provide financial literacy resources and educational materials to help customers make informed decisions about their finances. Educated customers are more likely to stay loyal to a bank that empowers them to make sound financial choices.
- **Customer retention campaigns:** Implement targeted campaigns to retain specific customer segments that may be at higher risk of churn. Tailor promotions and offers to meet their specific needs and preferences.
- **Offer competitive products and rates:** Regularly review and update the bank's product offerings to remain competitive in the market. Provide attractive interest rates, low fees, and incentives to retain and attract customers.
- **Focus on older customers:** Recognize the unique needs of older customers, including those aged 70-90. Offer age-friendly banking services, in-person support, and assistance with digital banking to accommodate their preferences.
- **Proactive communication:** Keep customers informed about changes in policies, new products, or upcoming promotions through personalized messages. Regular communication helps customers feel valued and engaged with the bank.

- **Swift complaint resolution:** Handle customer complaints promptly and professionally. Addressing issues efficiently can turn a dissatisfied customer into a loyal one.
- **Loyalty programs:** Implement loyalty programs that reward customers for their continued patronage. Such programs can incentivize customers to stay with the bank and even refer others.
- **Community involvement:** Engage with the local community by supporting charitable initiatives and events. Showing a commitment to the community can foster goodwill and strengthen customer loyalty.
- **Regularly seek feedback:** Conduct customer surveys to understand their satisfaction levels and areas for improvement. Act on the feedback received to enhance the overall customer experience.
- **Stay ahead of technology trends:** Keep abreast of emerging banking technologies and adopt innovations that align with customer needs and preferences. Staying technologically relevant can attract and retain tech-savvy customers.
- **Monitor customer churn metrics:** Continuously track customer churn rates and identify trends or patterns. Analyze the reasons for customer attrition to address issues proactively.

By implementing these recommendations, a bank can create a positive customer experience, build long-term relationships, and reduce customer churn, ultimately contributing to its growth and success.

Reference at least three outside sources:

1. Study on Customer Churn in the Banking Industry

In this research, they delve into what factors contribute to customer churn in the banking industry. They carefully analyze different customer attributes like demographics, transaction behavior, and satisfaction levels to pinpoint the key drivers of churn. This study aligns perfectly with my own analysis of the Bank Customer Churn dataset. By exploring similar factors, we can gain valuable insights into why customers leave in the banking context, and it can also validate my findings while potentially uncovering factors I might have missed in my initial analysis.

2. News Article: Understanding the Impact of Demographics on Customer Retention

This article discusses how demographics like as age, gender, and location effect customer retention in a variety of businesses. It underlines the need of recognizing diverse demographic groups' specific wants and preferences, which can lead to more effective client retention initiatives. It is closely related to my banking demographic churn analysis, in which I explored how age and gender influence customer attrition. This essay emphasizes the need of personalizing retention efforts based on demographics and inspires me to further fine-tune my advice in this regard.

3. Report on Best Practices to Reduce Customer Churn

Accenture's comprehensive report outlines the best practices in the high-tech sector to reduce customer churn. It covers various strategies related to customer experience, product offerings, and targeted marketing to enhance customer retention. While the report is geared towards the high-tech industry, the principles, and practices it presents are widely applicable, including the banking sector. By drawing insights from this report, we can learn valuable lessons and identify innovative approaches to effectively address customer churn within my banking dataset.

References:

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