# CAPSTONE PROJECT

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AS PART FULFILLMENT FOR DATA ANALYTICS BOOTCAMP

Vertical Institute| 2024

BANK CULTURE

This intangible environment influences decision-making, employee behavior, customer service, and overall business strategy within a bank. It plays a crucial role in shaping its reputation, customer trust, regulatory compliance, and long-term success
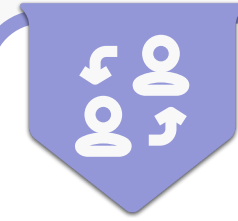
Core Values
Customer focus that prioritizes exceptional customer service, where customer needs and satisfaction are at the forefront of decision-making processes.
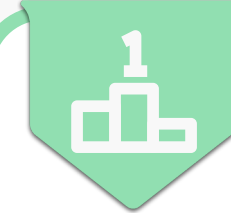
Ethics
Regulatory compliance that ensures adherence to laws and regulations. Banks that are fair and honest where all employees follow legal and ethical standards.
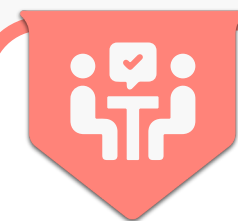
Innovation
Adoption of new technology that improves efficiency, customer experience, and gives the bank competitive advantage.

Diversity
Promoting diversity and inclusion within the bank's workplace, ensures that a variety of perspectives are represented in decision-making processes.

Leadership and Vision
Leaders with a well-defined vision and mission that guides the bank's strategic direction and ensures risks are understood, managed, and mitigated appropriately.

What is a healthy bank culture? Harrison Young, 2016
Banking culture: A customer perspective. Davies, S et al, 2016

PROBLEM

"Bank churn" refers to the phenomenon where customers stop using a bank's services, close their accounts, or switch to a different financial institution.

IMPACT

This can be a significant concern for banks as retaining customers is often more cost-effective than acquiring new ones.

POSSIBLE CAUSES

CUSTOMER SERVICE

- Inconsistent service
- Negative experience
- Unresolved issues
- Lack of personalisation
- Inconvenient branch locations and operating hours

COMMUNICATION

- Lack of transparency such as hidden charges and fees
- Ethical and cultural misalignment
- Inadequate guidance on finances

RESOURCES

- Lack of product variety
- Inadequate digital experience
- Ineffective marketing strategies

QUALITY

- Better offers from competitors
- Low rewards
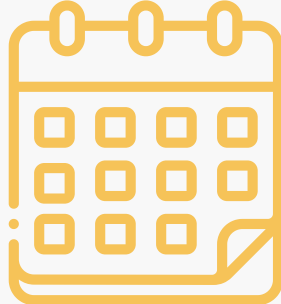- Noncompetitive interest rates

PROBLEM STATEMENT

The lack of financial literacy can influence an individual's ability to make informed financial decisions to manage their day-to-day and future finances. Several factors such as age, gender and income can influence financial literacy. In a financial literacy survey conducted in seven European countries found that **women averaged a score of 3.7 out of 9 questions correct,** while **men averaged 4.5** (Allianz, 2023).

The following study presents data insights for banks into the likely profile of a customer who would stop using a bank's services, close their accounts, or switch to a different financial institution based on age, gender, annual income, credit score and subscription to bank products. By knowing this, bank can be strategic about retaining particular customer demographics in a pointed manner.
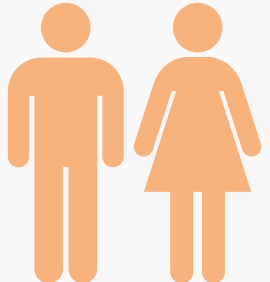
01 AGE
Age can have a significant impact on bank churn rates, as different age groups often have varying financial needs, preferences, and behaviors.

02 GENDER
Bank churn among female customers can be influenced by a variety of factors, many of which are related to how well financial institutions meet the specific needs, and expectations of women.

03 CREDIT SCORE AND INCOME
Customers at different income levels may have distinct financial needs, preferences, and sensitivities, leading to varying reasons for switching banks.

04 BANK PRODUCTS
Credit card subscription and bank balance were used as measures to analyse the impact on bank churn

Women and financial literacy: Closing the gender gap. N26, 2024
How Banks Can Help Close The Gender Wealth Gap And Benefit. Sophia, 2023

METHODOLOGY

DATA

Data was derived from Bank Customers Churn Dataset available on Kaggle uploaded by Santosh Kumar, last updated in 2018. Analysis and data visualization was conducted using Tableau.

Statistics: Student t-test was applied. $p<0.05$ is considered significant

Modification and Assumptions

Modification: Added column row count
Assumptions:
(1) No differences between geographical locations
(2) Bank balance above $10,000 was considered subscription to a bank product
(3) Customers with annual estimated salary above $100K were taken to be high income earners

The impact of various on financial acumen of an individual was studied in 10,000 bank customers (4543 females and 5457 males) and by looking at the relationships between churn and the following:
(1) Age
(2) Gender
(3) Income and credit scores
(4) Financial products:
- Bank balance
- Credit card

AGE ANALYSIS

The banks' customer age profile is predominantly the middle-aged group (35 – 54 year olds) (Figure 2A).

According to the data (Figure 2B), the middle-aged adults showed the highest churn number.

This is unlikely due to lack of involvement of the bank customers since data in Figure 2C shows that this age group was the most active.
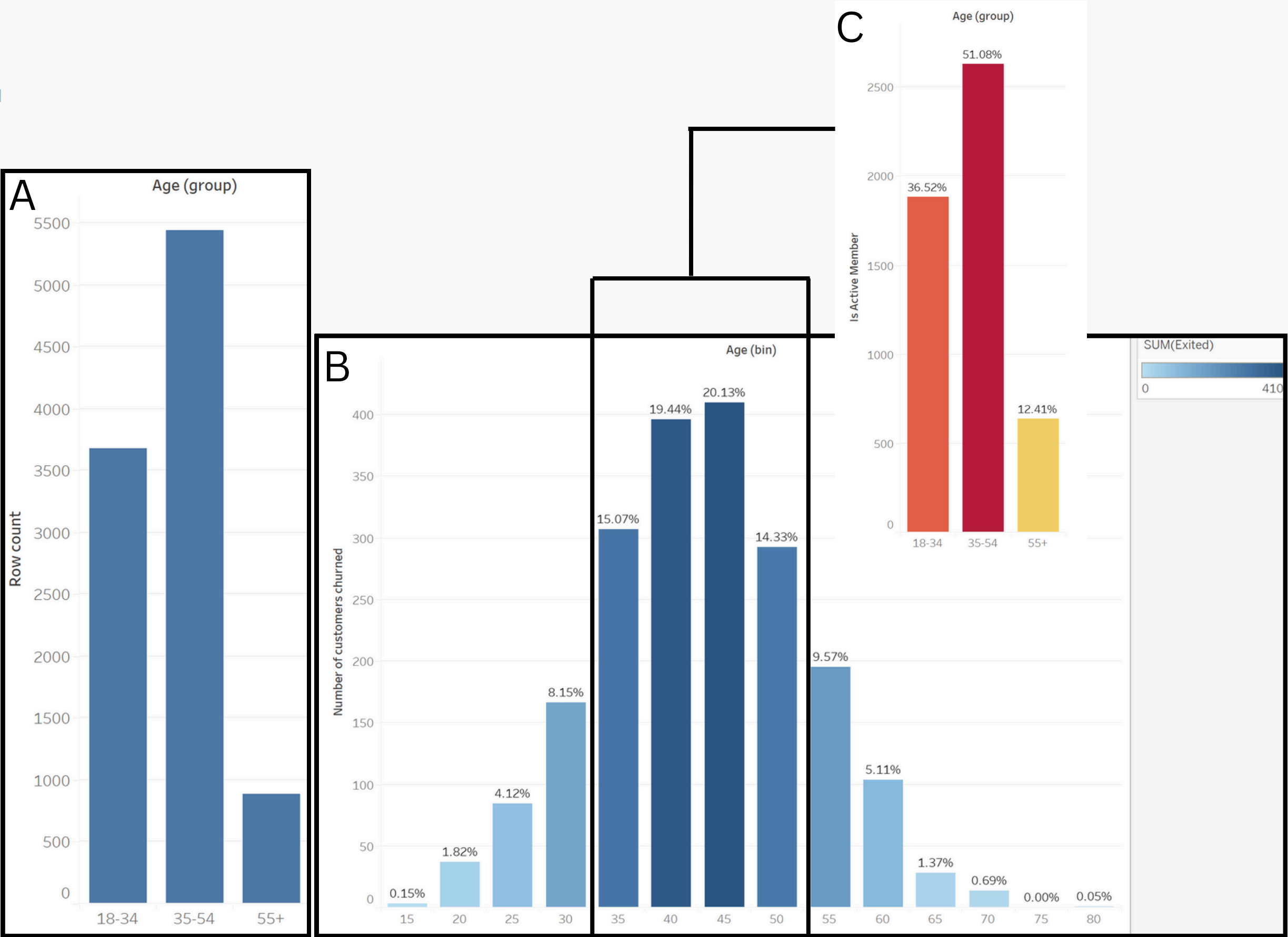

Figure 2: Age as a factor on churn decision

GENDER ANALYSIS

When comparing the average annual estimated salary of female (n=4543) and male bank customers (n=5457), there was no significant difference (p value = 0.417) (Figure IA). However, the **percentage of churned customers was higher in females than males (Figure IB).** Further analysis on annual income according to gender, it was also noted that male bank customers occupied a higher income bracket when compared to females (Figure IC). Therefore, there is a **possibility that the size of the annual income may impact the customers' churn decision.**
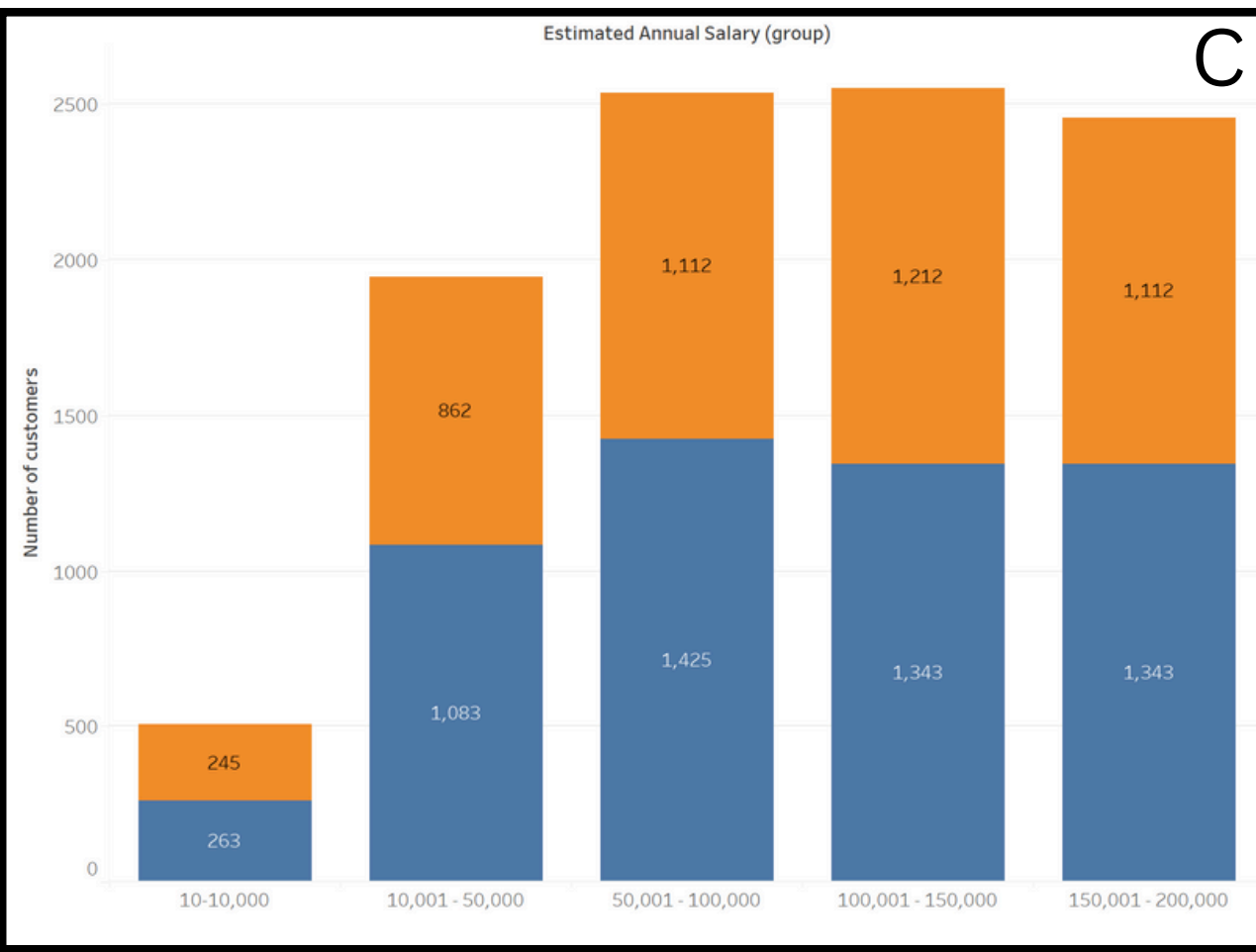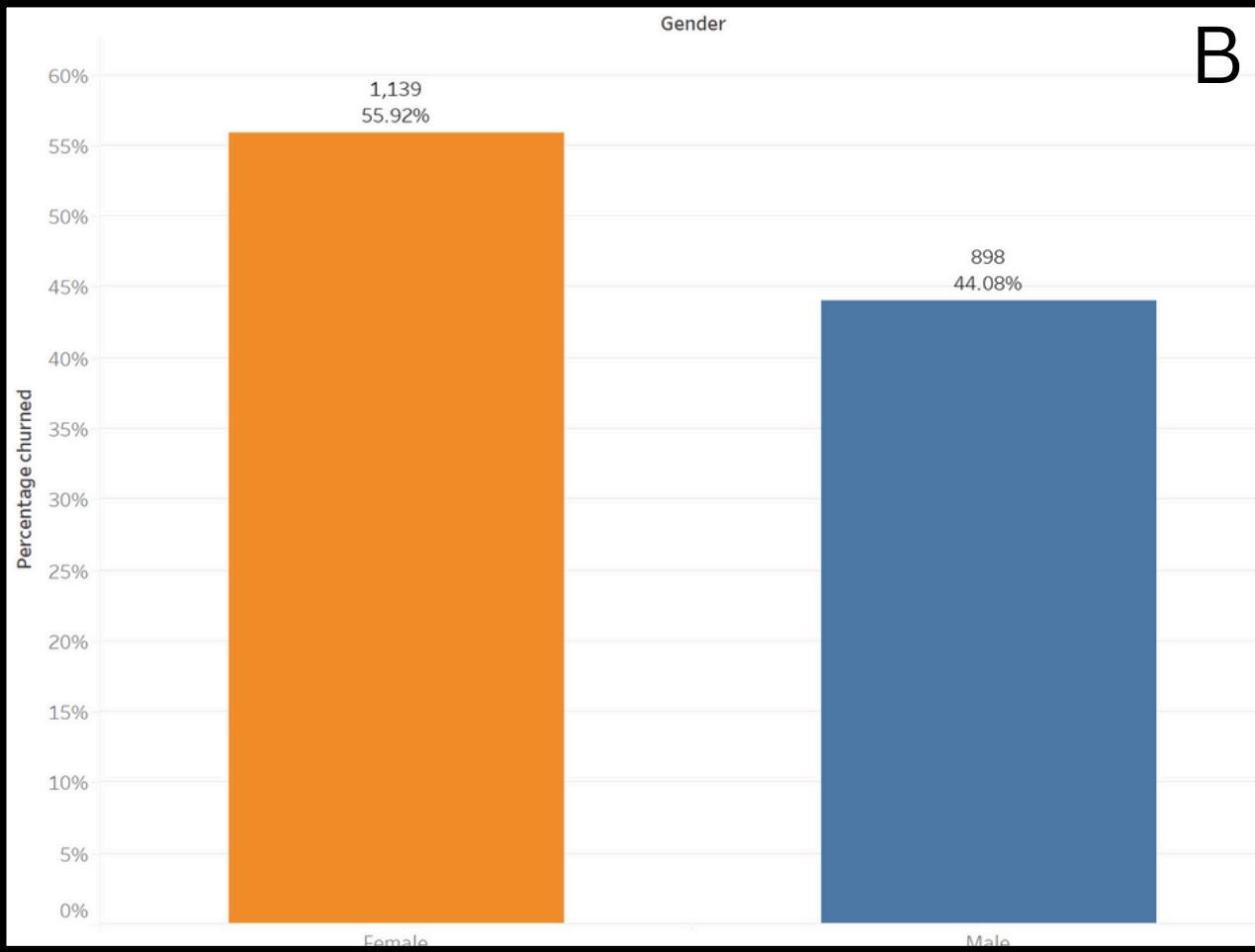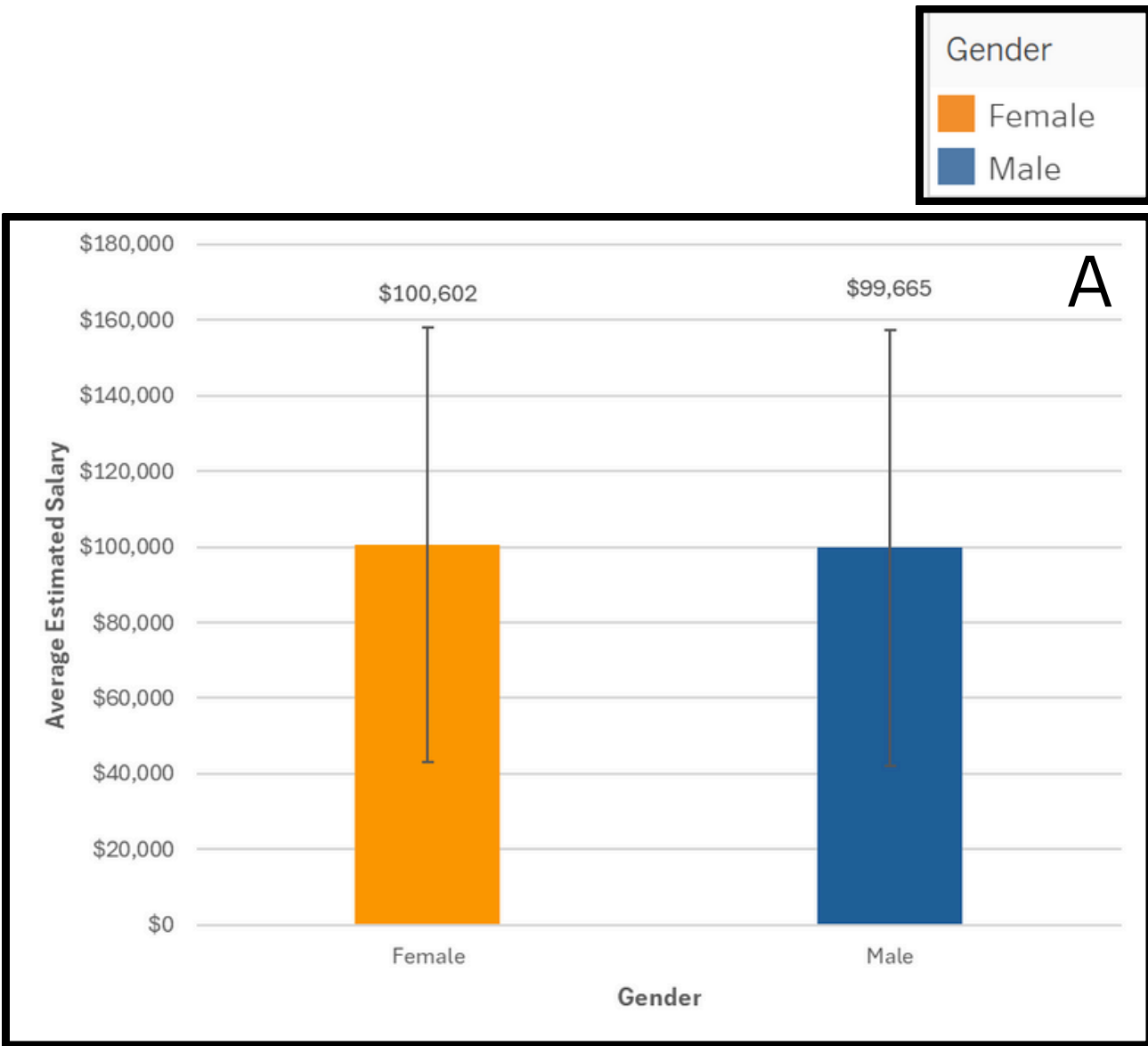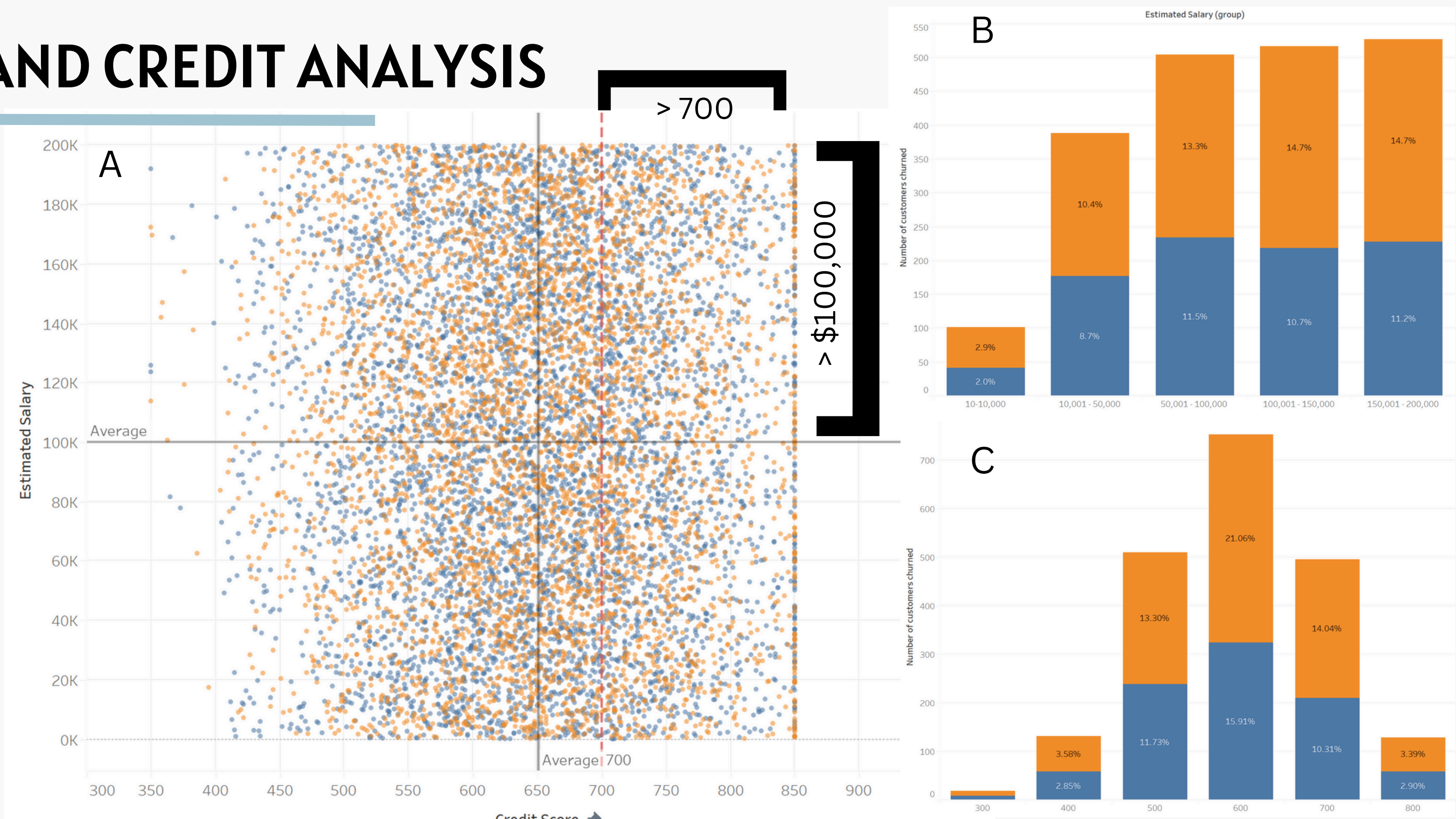

Figure 1: Gender as a factor on churn decision by studying the possible impact of annual income.

INCOME AND CREDIT ANALYSIS

Figure 3: Scatter plot of relationship between income and credit score and its impact on churn according to gender.

According to the scatter plot in Figure 3A, there is no correlation between income and credit score. The bank's customer profile is concentrated within the credit score range of 550 to 750 with >700 being considered a good credit score. Based on the data, the bank is losing these high-income, good credit customers (Figures 3B, C). More so among females than males in this customer demographic.

BANK PRODUCTS

Figure 4: Credit card subscription

- Of the 10,000 bank customers, **7055 customers subscribed to the bank's credit card services.**
- There was a **higher percentage of female customers (55.83%)** subscribed to the credit card.
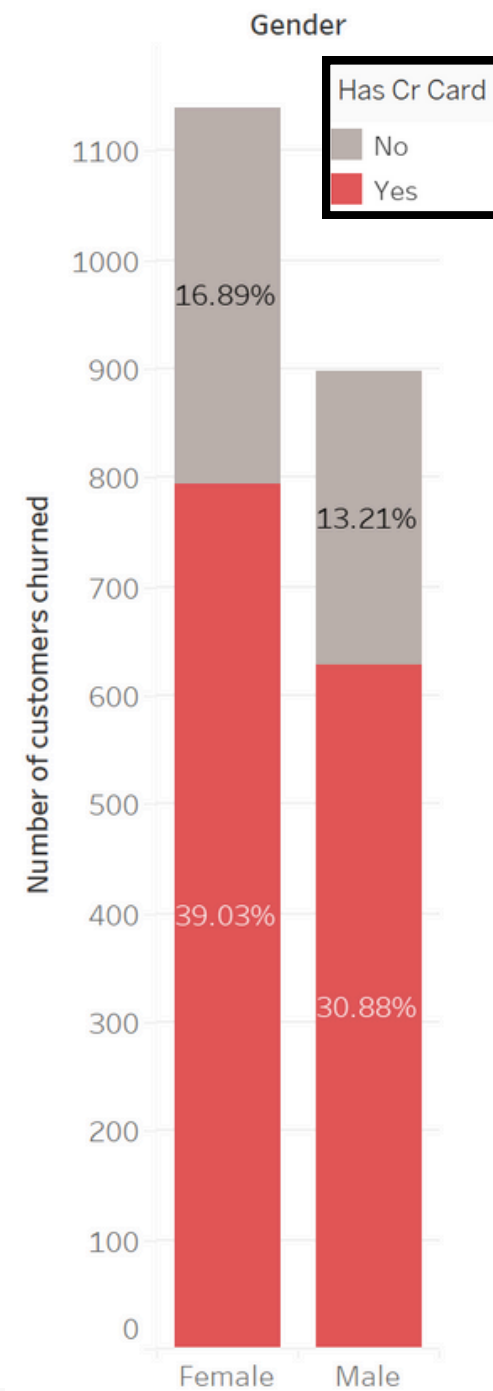- Of these customers, **795 (11.2%) females** and 629 (8.9%) males made a decision to churn.
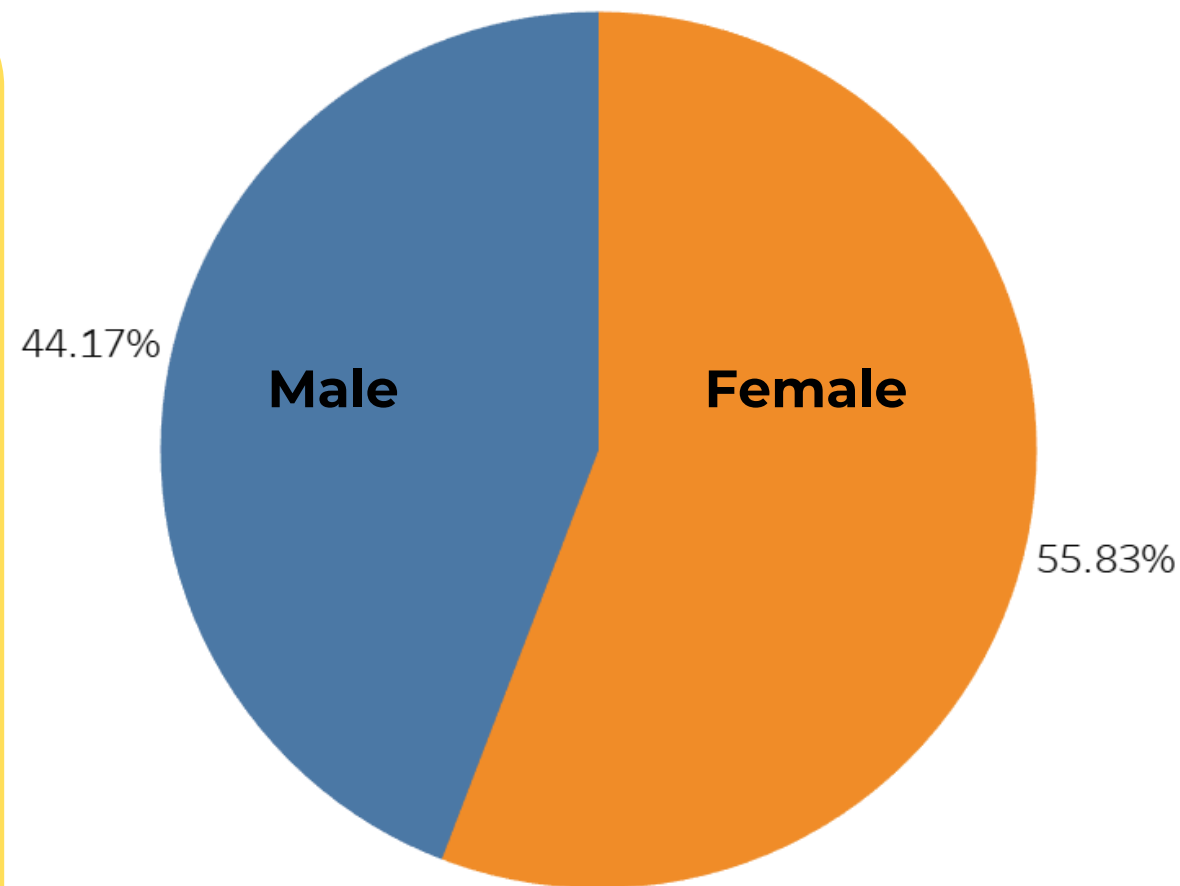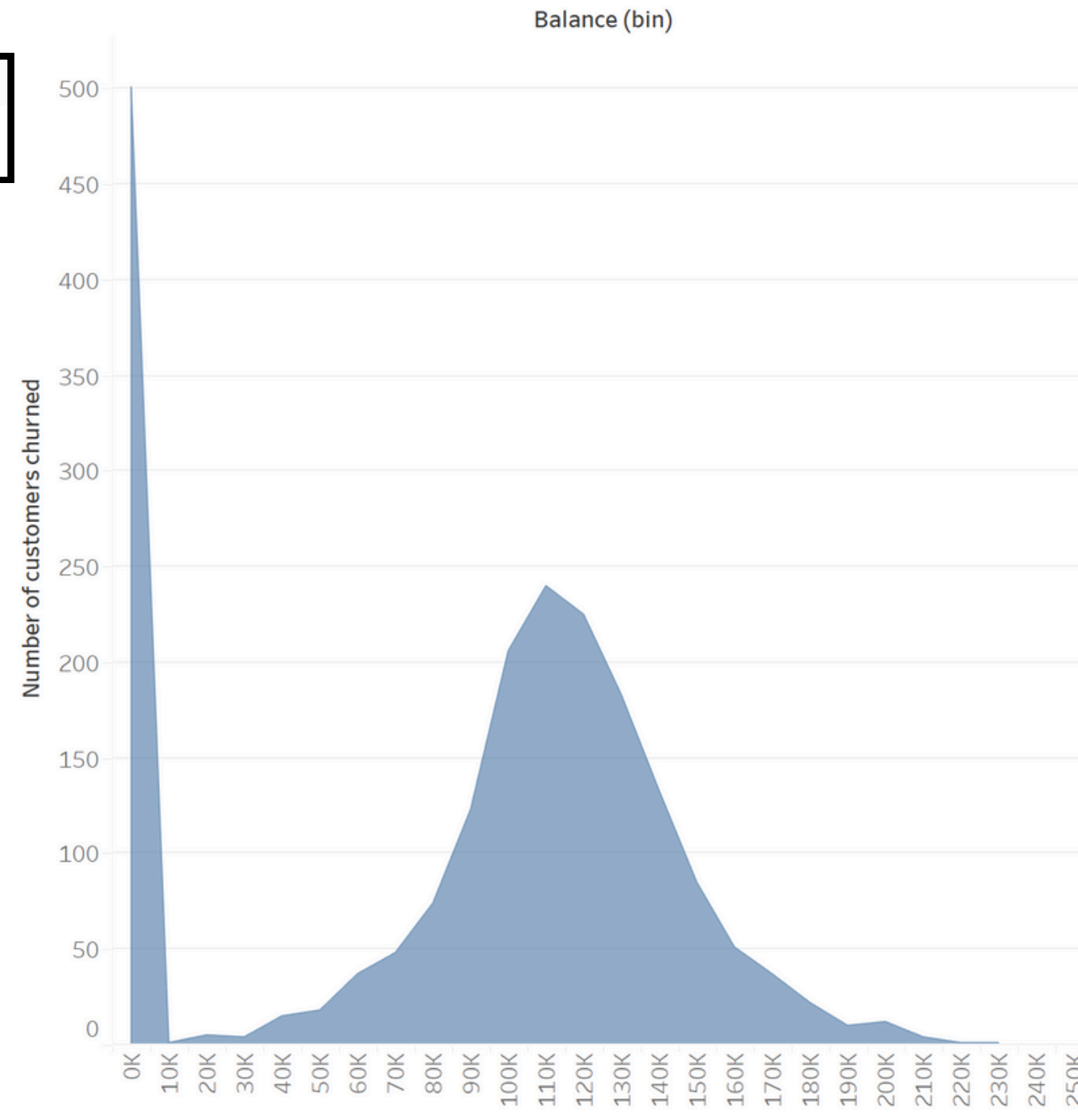

According to the data, of the customers who subscribed to credit cards, 20% of the customers chose to churn. A higher percentage of females compared to males made this decision. With regards to the bank balance, customers with a bank balance of <$10,000 made up a a significant population of customers who churned alongside those who had a bank balance of between $100,000 and $130,000.

RATIONALE AND MITIGATION

Finding 1

Middle-aged customers contributed to highest churn

This age group often have more complex financial needs, such as mortgages, savings plans for children's education, and investments. Banks that do not offer competitive products or personalized financial advice may see higher churn in this age group.

Middle-aged adults often juggle work and family responsibilities, so they appreciate convenience. Therefore, long wait times, poor customer service, or inconvenient branch locations can lead to frustration and churn.

Possible Mitigation

Location of bank branches close to central business districts and work places allows ease of customers' access to bank services during the work week.

Provide personalized financial advice and attractive interest rates for customers to avail to these benefits. Communicate latest promotional offers and deals in a timely and accessible manner.

Ensure digital technology is up to date and maximized for functionality.

RATIONALE AND MITIGATION

Finding 2

Female customers contributed to higher churn compared to males

Women tend to live longer than men, have shorter work tenures, lower earnings and levels of pension. These factors put women at higher risk than men of having financial problems and of approaching retirement with insufficient savings (Weir and Willis 2000).

Possible Mitigation

Women prioritize the safety and security of their accounts particularly concerning online and mobile banking. Providing and communicating the robust security measures or support can help build trust and reduce churn

Bank can provide education, tools, and resources to empower women in their financial decisions. These can be in the form of workshops and online tools that are accessible to women. Workshops should be conducive to be attended by working mothers.

Bank should support causes that are important to female customers, such as women's health, education, and entrepreneurship, can help banks differentiate themselves and retain more female customers.

Weir David R, Willis Robert J. Prospects for Widow Poverty in the Finances of Married Couples in the HRS. In: Mitchell O, Hammond PB, Rappaport A, editors. Forecasting Retirement Needs and Retirement Wealth. Philadelphia: University of Pennsylvania Press; 2000. pp. 208–234.

RATIONALE AND MITIGATION

Finding 3

Customers with credit score of between 600-699 and income above $50,000 comprised the largest churn

Average annual salary significantly impacts banking customers' behavior, preferences, and overall relationship with their financial institutions. Banks often segment customers based on income levels to tailor products, services, and marketing strategies accordingly. High-income customers often qualify for larger loans, premium credit cards, and more favorable credit terms.

Possible Mitigation

High income earners tend to seek sophisticated investment products and wealth management services to see growth in their money. The bank should designate dedicated relationship managers who provide tailored financial planning, and keep the customers informed on exclusive perks. This personalized relationship would be especially attractive to the female high-income customers.

Bank should improve its global access. Many high-income individuals travel frequently or have international financial interests, leading them to seek banks that offer global services, multi-currency accounts, and international investment opportunities.

RATIONALE AND MITIGATION

Findings 4&5

- More female customers subscribed to credit cards and churned at higher percentage if they owned one.
- Customers with low bank balance and mid-range bank balance were likely to churn

Possible Mitigation
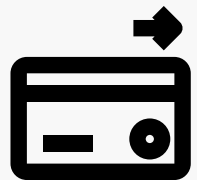
Provide better rewards for credit cards. Women are often meticulous shoppers who compare products and services carefully. If they find better offers, lower fees, or more relevant benefits elsewhere, they may switch banks. The bank can also offer loyalty programs specifically designed to reward behaviors more common among female customers, such as saving regularly or using certain financial products to help reduce churn.

The bank should carry out segmented marketing where they develop marketing strategies that address the specific needs of different income groups, offering products and services that align with their financial goals and expectations.
Also creating tiered banking products that cater to the varying needs of high, middle, and low-income customers can help banks serve a broader customer base effectively.

CAPSTONE PROJECT

Dashboard

THANK YOU!