Customer Churn Analysis in the Banking Industry

Understanding churn patterns and identifying key focus areas for retention

Prepared by: *Ridhima Atrey*
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Customer Churn - Current Situation

Customer churn is a major challenge for banks.

Customers leave due to pricing, experience, or lack of engagement.

Banks often react after the customer has already decided to leave.

Why This Analysis Was Needed

Banks need to understand customer behavior before churn happens.

Data analysis helps identify which customers need attention and why.

This analysis aims to support leadership in taking early and focused retention action.

Dataset Overview

The dataset contains customer-level banking information.

Key variables include credit score, tenure, account balance, activity status, and churn indicator.

The churn indicator shows whether a customer has exited the bank or not.

Analysis Approach

The analysis was carried out step by step using SQL.

Customer churn was explored by comparing key variables with churn behavior.

Window functions were later used to rank customers and support business decisions.

Metric Selection Logic

Not all variables contribute equally to understanding customer churn.

This analysis focuses on metrics that directly influence customer behavior and can be acted upon by the bank.

Credit score and **tenure** were selected as the primary metrics for further analysis.

Why Credit Score and Tenure Were Prioritized

Credit score reflects a customer's financial stability and risk profile.

Tenure represents the strength and length of the customer's relationship with the bank.

These two metrics are actionable and show clear patterns when analysed with churn.

Summary Statistics – Key Observations

Summary statistics were calculated to understand the overall distribution of key numerical variables.

Credit score shows wide variation across customers.

Account balance has extreme values, which makes it less reliable as a primary churn indicator.

Metric	Mean	Median	Minimum	Maximum
Credit Score	650.53	652	350	850
Account Balance	76,485.89	97,198.54	0	250,898.09

Relationship Between Credit Score and Churn

Churn behaviour was analysed across different credit score groups.
Customers with lower credit scores showed a higher churn rate compared to customers with higher credit scores.
This indicates that financial stability plays an important role in customer retention.

CREDIT SCORE BAND	CHURN RATE (%)	TOTAL CUSTOMERS
High	19.87	3,116
Medium	19.69	3,850
Low	21.75	3,034

Relationship Between Tenure and Churn

Customer churn was analysed across different tenure groups.
Customers with shorter tenure showed higher churn compared to long-term customers.
This suggests that customers are more likely to leave during the early stages of their relationship with the bank.

Tenure Band	Churn Rate (%)	Total Customers
New Customers	22.58	1,448
Mid Tenure	20.64	3,977
Long Tenure	19.43	4,575

Using SQL Window Functions

SQL window functions were used to analyse customers without aggregating the data.

They allow ranking and comparison while keeping individual customer records intact.

This helps in identifying priority customers clearly and accurately.

Customer ID	Tenure	CreditScore	Retention_rank
15633870	10	850	1
15772777	10	850	2
15706593	10	850	3
15624850	10	850	4
15612776	10	850	5

Customer Ranking Logic

Only retained customers were considered for ranking.

Customers were ranked using tenure as the primary factor and credit score as the secondary factor.

The top five customers were selected using a SQL window function.

What This Ranking Helps the Bank Decide

The ranking helps the bank identify its most valuable existing customers.
These customers have long relationships with the bank and strong credit profiles.
Losing such customers would have a high business impact.
This analysis supports proactive retention decisions instead of reactive actions.

Cohort Analysis – Overview

Cohort analysis is used to understand customer churn over time.

Instead of looking at individual customers, it groups customers with similar characteristics.

This helps identify when churn risk is highest during the customer lifecycle.

Tenure-Based Cohort Definition

Customers were grouped into cohorts based on their tenure with the bank.

Each cohort represents a different stage of the customer relationship.

This approach helps compare churn behaviour across early and long-term customers.

Cohorts Used:

- **0–1 Years:** New customers
- **2–4 Years:** Early-stage customers
- **5–7 Years:** Mid-tenure customers
- **8–10 Years:** Long-term customers

Churn Rate Across Tenure-Based Cohorts

Churn rates were analysed across different tenure-based customer cohorts.
New customers (**0–1 years**) show the **highest churn rate**.
Churn reduces as customers move into mid-tenure stages.
A slight increase in churn is observed among very long-tenure customers.

Tenure Cohort	Total Customers	Churned Customers	Churn Rate (%)
0–1 Years	1448	327	22.58
2–4 Years	3046	617	20.26
5–7 Years	3007	582	19.35
8–10 Years	2499	511	20.45

Cohort Insights and Busines s Impact

Cohort analysis shows that the risk of churn is highest during the early stage of the customer relationship.

As tenure increases, churn generally reduces, indicating stronger customer loyalty over time.

A slight increase in churn among very long-tenure customers suggests that even loyal customers need continued engagement.

These insights highlight the importance of focusing on both early onboarding and long-term relationship management.

Early engagement + ongoing relationship care =

lower churn

What This Ranking Helps the Bank Decide

Customer ranking helps the bank identify which customers should be prioritised for retention.

By combining tenure and credit score, the bank can focus on customers who bring long-term value.

These customers are less risky, more stable, and more likely to respond positively to targeted offers.

This approach allows the bank to act proactively instead of reacting after churn occurs.

Business Use Case – Reduced Interest Rate Offer

Based on customer ranking, the bank can design targeted retention offers.

High-tenure and high-credit-score customers were selected for a reduced interest rate offer.

These customers are valuable and more likely to stay with the bank if rewarded appropriately.

Targeted offers are more effective than offering incentives to all customers.

Expected Business Outcome

Targeted retention strategies are expected to reduce churn among high-value customers.

Focusing incentives on the right customers improves customer lifetime value.

The bank can optimise costs by avoiding blanket discount strategies.

Overall, this approach supports sustainable long-term growth.

Top Three Focus Areas to Reduce Churn

Based on churn analysis, customer ranking, and cohort insights, three key focus areas were identified.

These areas represent the highest impact opportunities for reducing customer churn.

Focus Area 1: Strengthen onboarding and early engagement for new customers.

Focus Area 2: Protect long-tenure and high-credit-score customers through targeted retention offers.

Focus Area 3: Increase engagement among inactive customers to prevent future churn.

Key Takeaways for Leadership

Customer churn is highest during the early stages of the customer lifecycle.

Tenure and credit score are strong indicators for identifying valuable customers.

Cohort analysis confirms that early engagement plays a critical role in retention.

Targeted actions are more effective than applying the same strategy to all customers.

Conclusion and Next Steps

This analysis combined SQL techniques with business reasoning to understand customer churn.
Customer ranking helped identify high-value customers for targeted retention actions.
Cohort analysis highlighted when churn risk is highest during the customer lifecycle.
The next step is to use deeper cohort and behavioural analysis to further improve retention strategies.