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E-commerce CUSTOMER **CHURN** Analysis

Data-Driven Decisions to Reduce Churn and
Increase Customer Lifetime Value

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PROJECT OVERVIEW

Problem: High customer churn is negatively impacting revenue and growth.

Objectives:

- Analyze customer churn within the e-commerce platform.
- Identify key factors contributing to churn.
- Develop data-driven insights to build customer retention strategies.

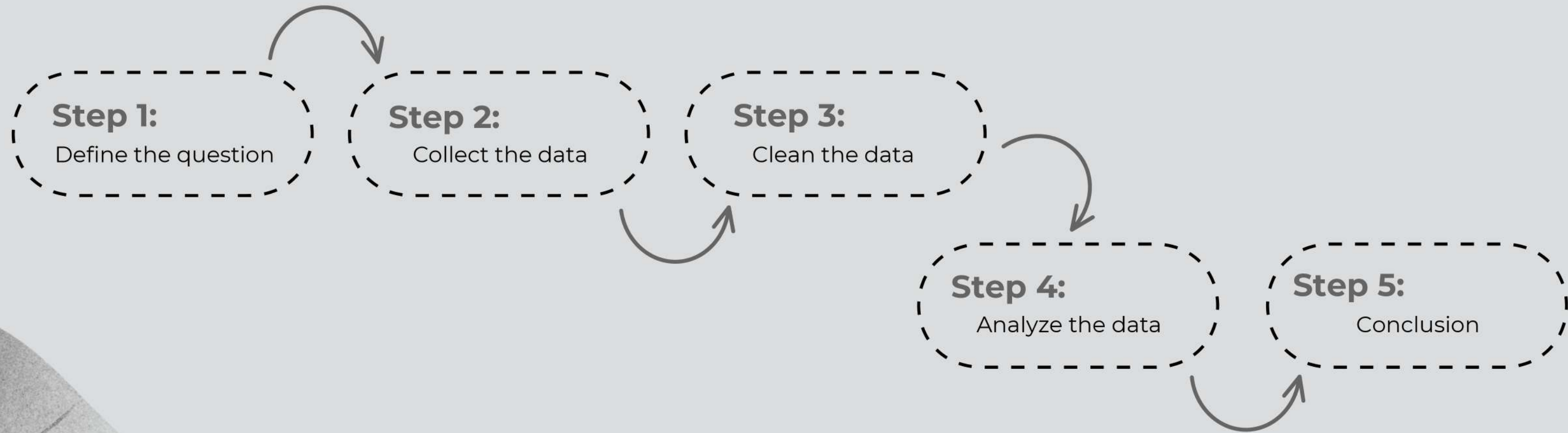
DATASET

Dataset: Source

Description:

- Customer Information: demographics (age, gender, address), shopping behavior (purchase history, favorite products), and platform interactions (app usage time, login device).
- Order Information: purchase history, order value, products purchased, payment methods.

METHODOLOGY



THE DATA ANALYSIS PROCESS

METHODOLOGY

Phase 1: Data Cleaning and Preparation

- Initial Data Exploration: Understand data structure, identify potential issues (e.g., missing values, inconsistent data).
- Handling Null Values: Imputation using the mean of the corresponding column.
- Data Transformation:
 - Standardize inconsistent data (e.g., "Mobile Phone" -> "Phone").
 - Convert data types appropriately.
 - Create new variables (e.g., categorize tenure into different groups).
- Create the final data table ("echurn") for analysis.

METHODOLOGY

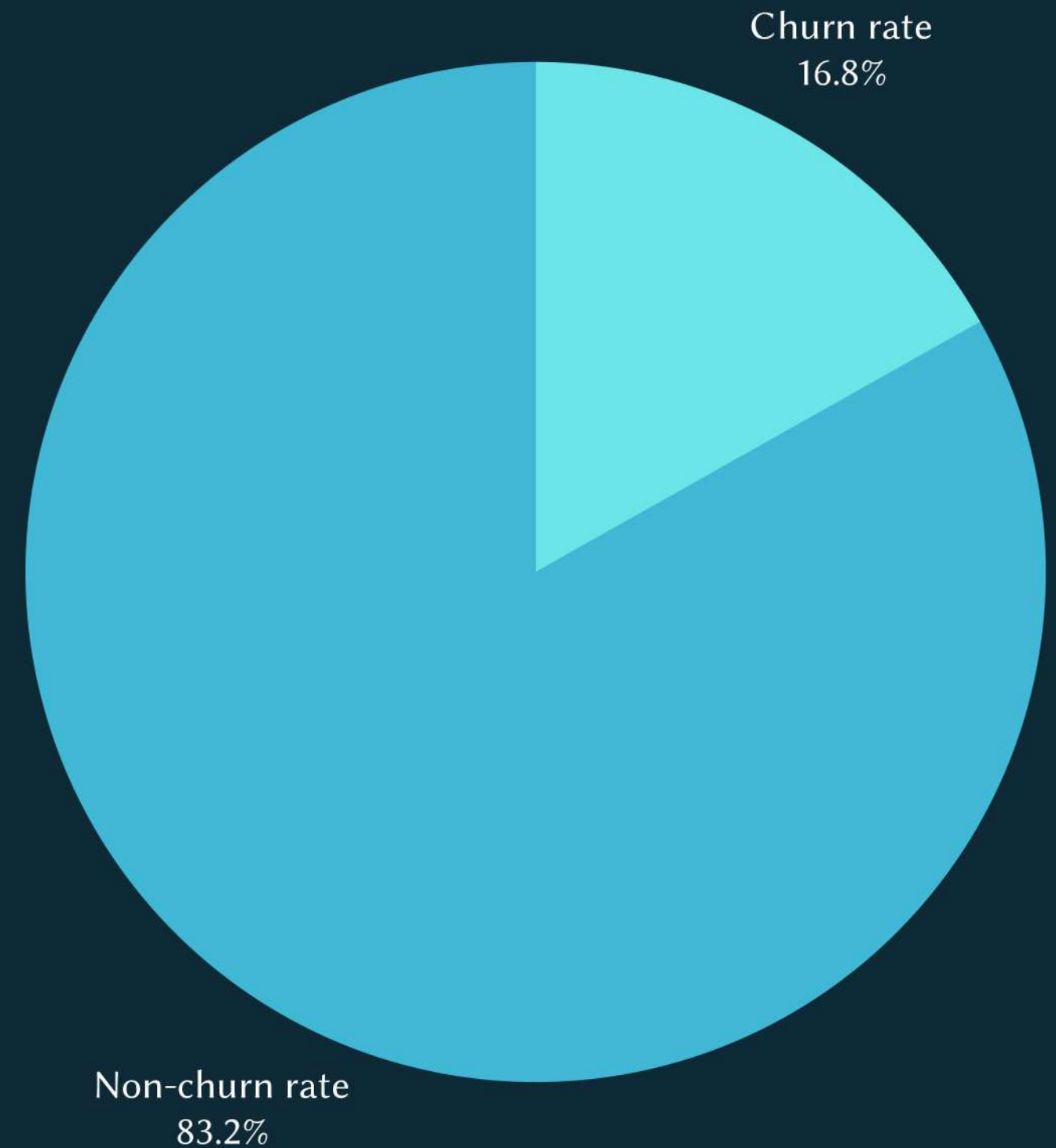
Phase 2: Data Exploration and Analysis

- Calculate the overall churn rate for an overview.
- Analyze the churn rate by different attributes (e.g., gender, age, location).
- Analyze key metrics between churned and non-churned customers (e.g., app usage time, number of orders).
- Advanced Analysis:
 - Analyze metrics by tenure to understand behavioral changes over time.
 - RFM (Recency, Frequency, Monetary) analysis to segment customers based on their value.

INSIGHTS - SECTION

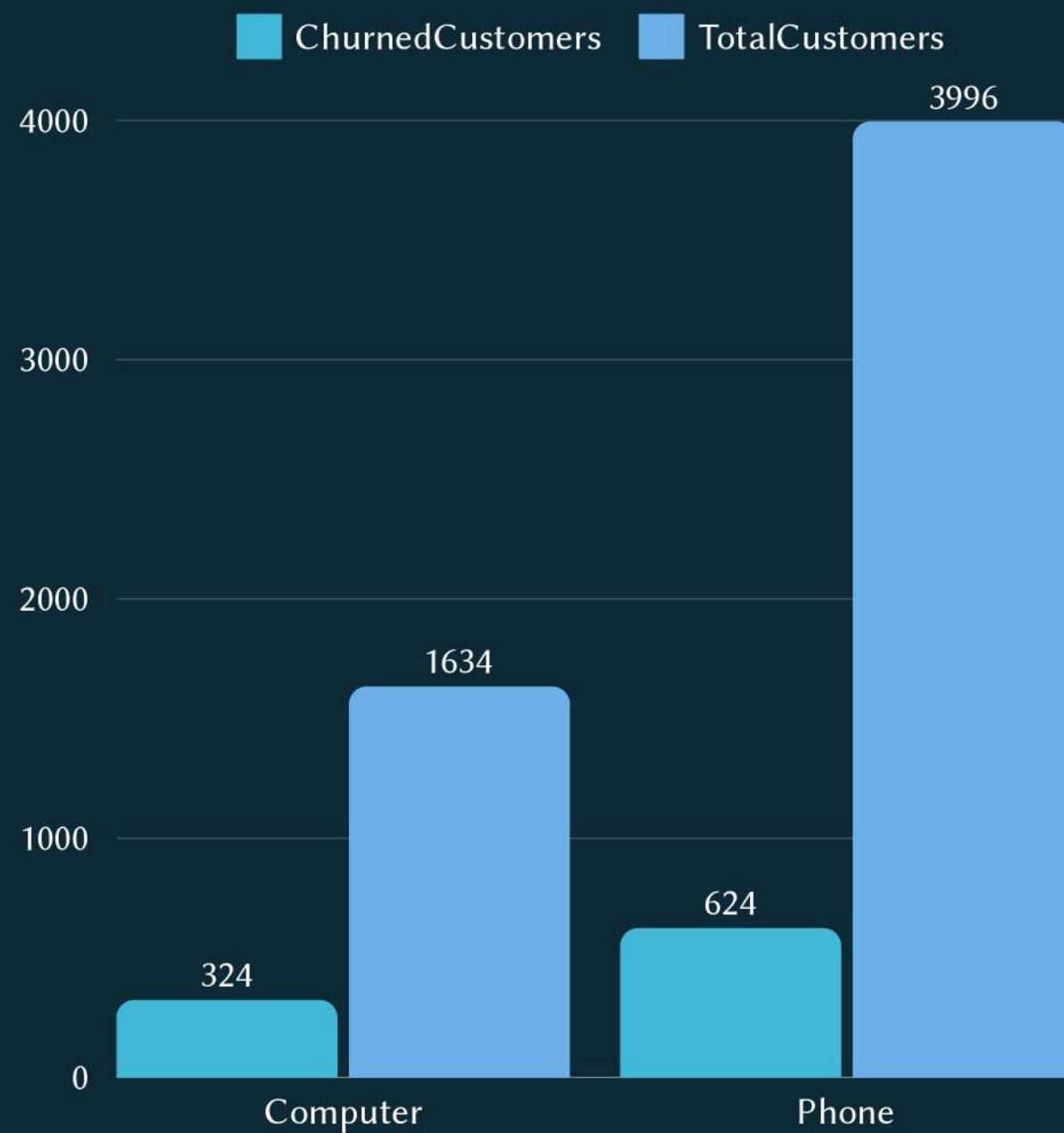
INSIGHTS OVERVIEW

Significant Churn Rate: The overall churn rate stands at 16.84%, signifying a considerable level of customer attrition that necessitates a focused retention rate.



INSIGHTS

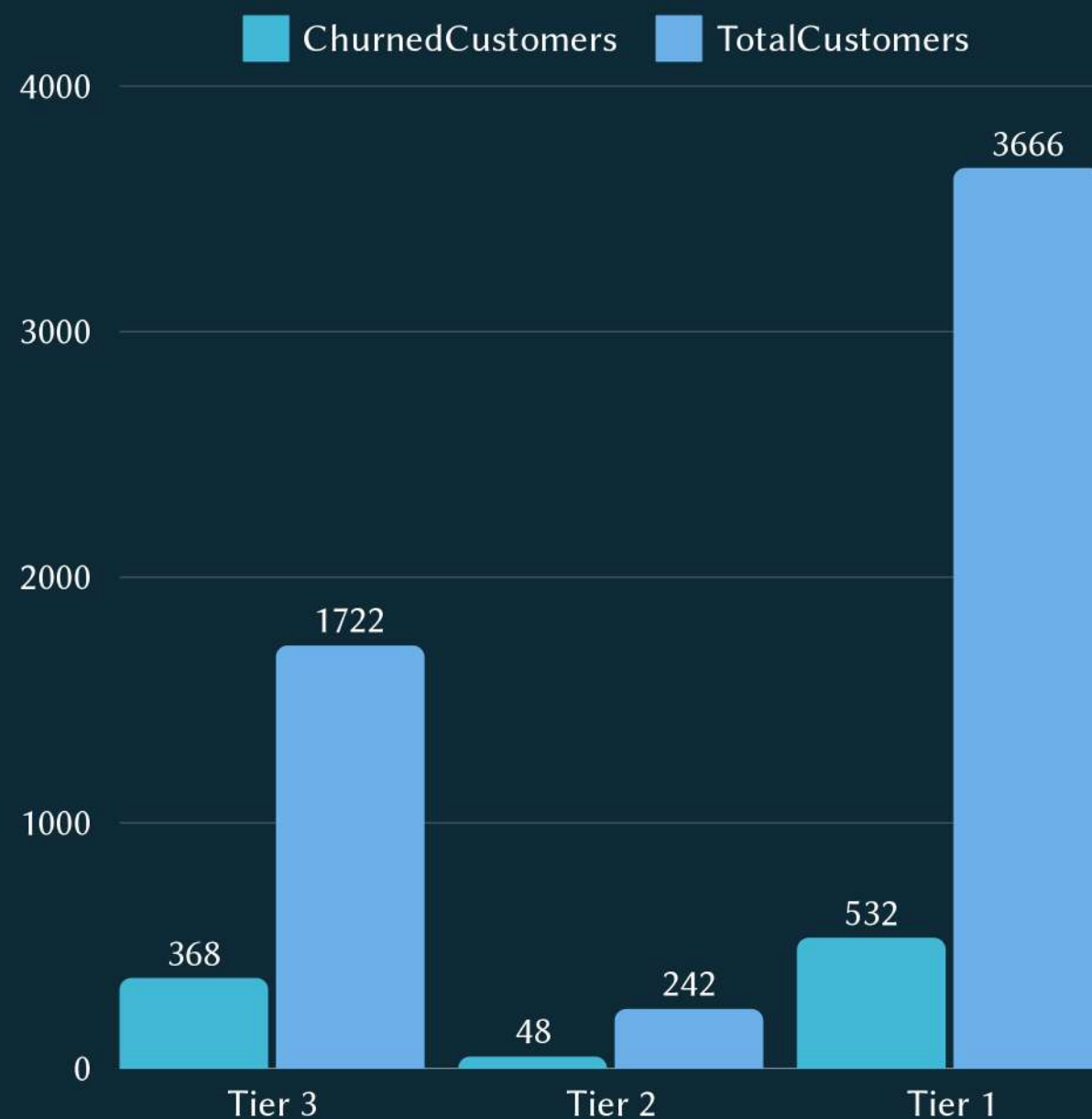
DEMOGRAPHICS & CUSTOMER PREFERENCES



Login Device: Customers who prefer logging in via Computer have a slightly higher churn rate compared to those using mobile devices (Phone). Computer users exhibit a churn rate of around 19.83%, while phone users have a churn rate of 15.62%. This suggests potential disparities in the user experience between the two platforms.

INSIGHTS

DEMOGRAPHICS & CUSTOMER PREFERENCES



City Tier: Customers in Tier 1 cities exhibit lower churn rates compared to Tier 2 and Tier 3 cities. Specifically, City Tier 1 has a churn rate of 14.51%, while City Tier 2 and 3 have churn rates of 19.83% and 21.37% respectively. This variation suggests that service quality, competition, or customer expectations may differ significantly across these tiers.

INSIGHTS

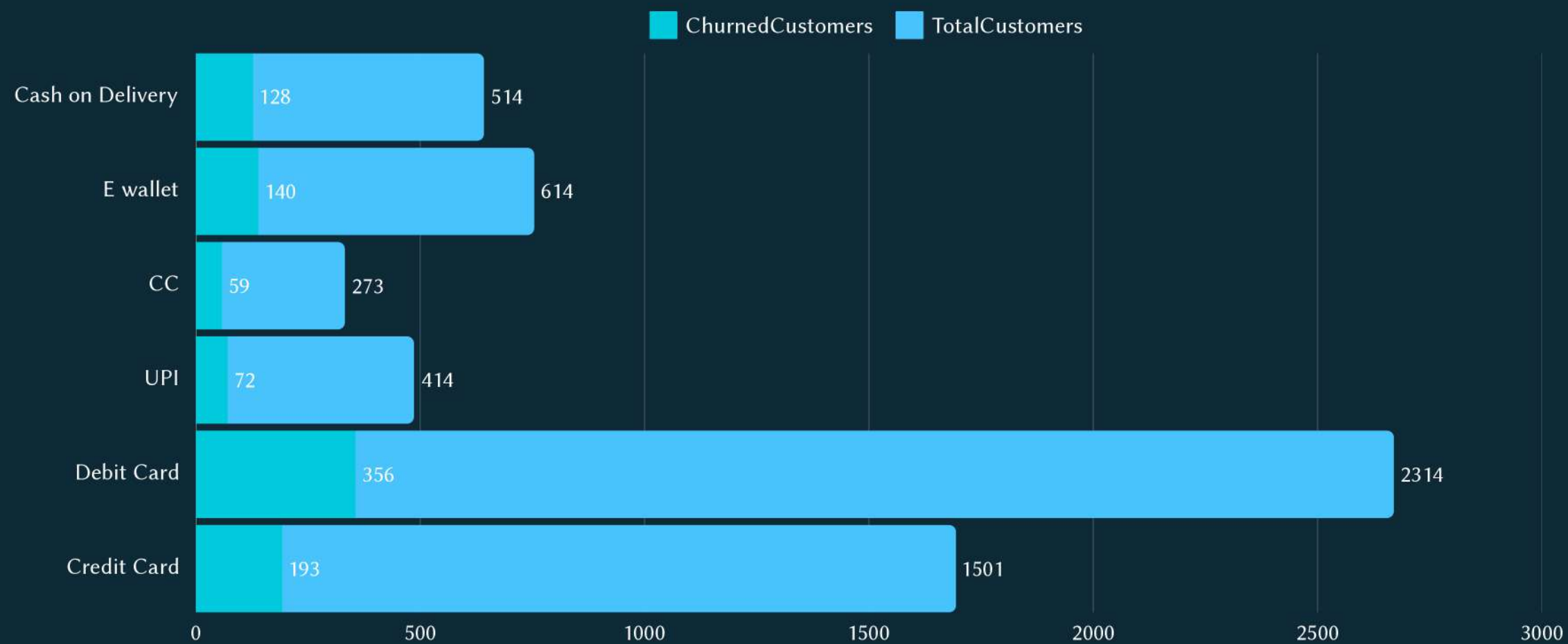
DEMOGRAPHICS & CUSTOMER PREFERENCES

WarehouseToHomeRange ▼ //	TotalCustomer ▼ //	CustomerChurn ▼ //	ChurnRate ▼ //
Far Distance	469	98	20.9
Moderate Distance	874	176	20.14
Close Distance	2318	408	17.6
Very close distance	1969	266	13.51

Warehouse Proximity: Proximity to the warehouse affects churn rates, with closer customers showing lower churn, highlighting the importance of optimizing logistics and delivery strategies.

INSIGHTS

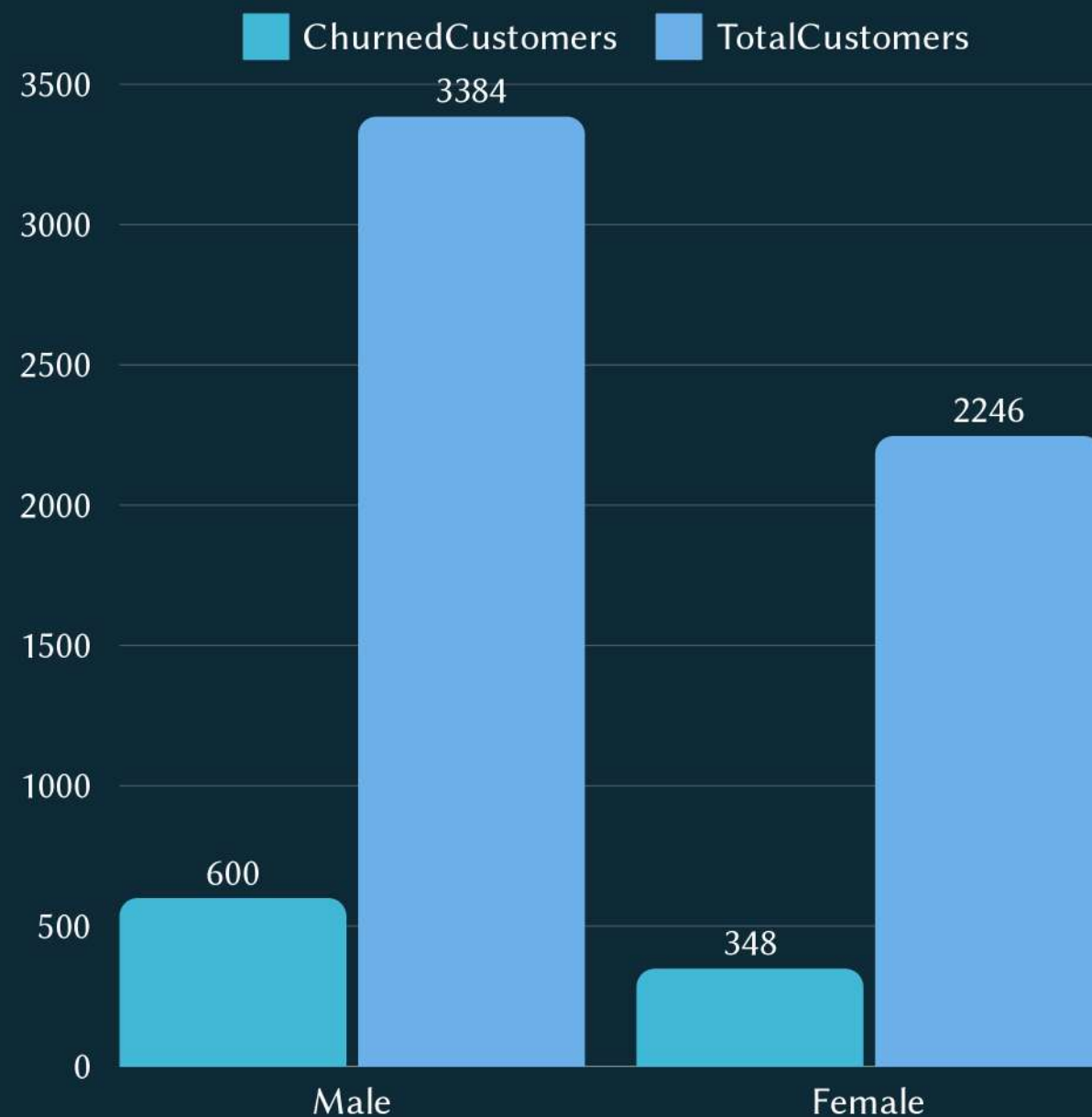
DEMOGRAPHICS & CUSTOMER PREFERENCES



Payment Mode: "Cash on Delivery" and "E-wallet" are associated with higher churn rates (around 24.90% and 22.80% respectively), while "Credit Card" and "Debit Card" have lower churn rates (around 12.86% and 15.38% respectively). This indicates that payment preferences may strongly influence customer retention.

INSIGHTS

DEMOGRAPHICS & CUSTOMER PREFERENCES



Gender: Both male and female customers exhibit churn rates, with males having a slightly higher churn rate compared to females. However, the difference in churn rates between the genders is relatively small. This suggests that gender alone may not be a significant factor in predicting customer churn.

INSIGHTS

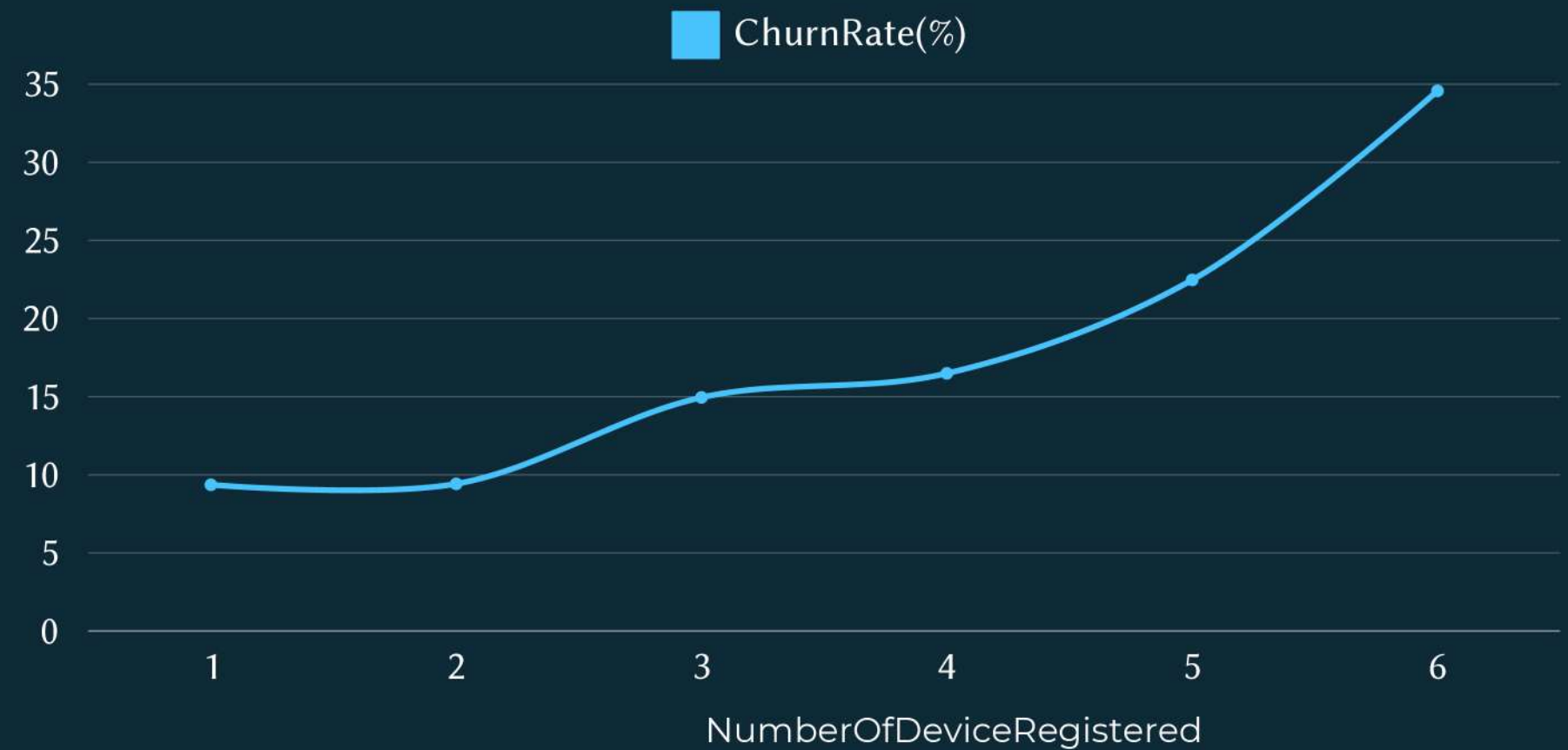
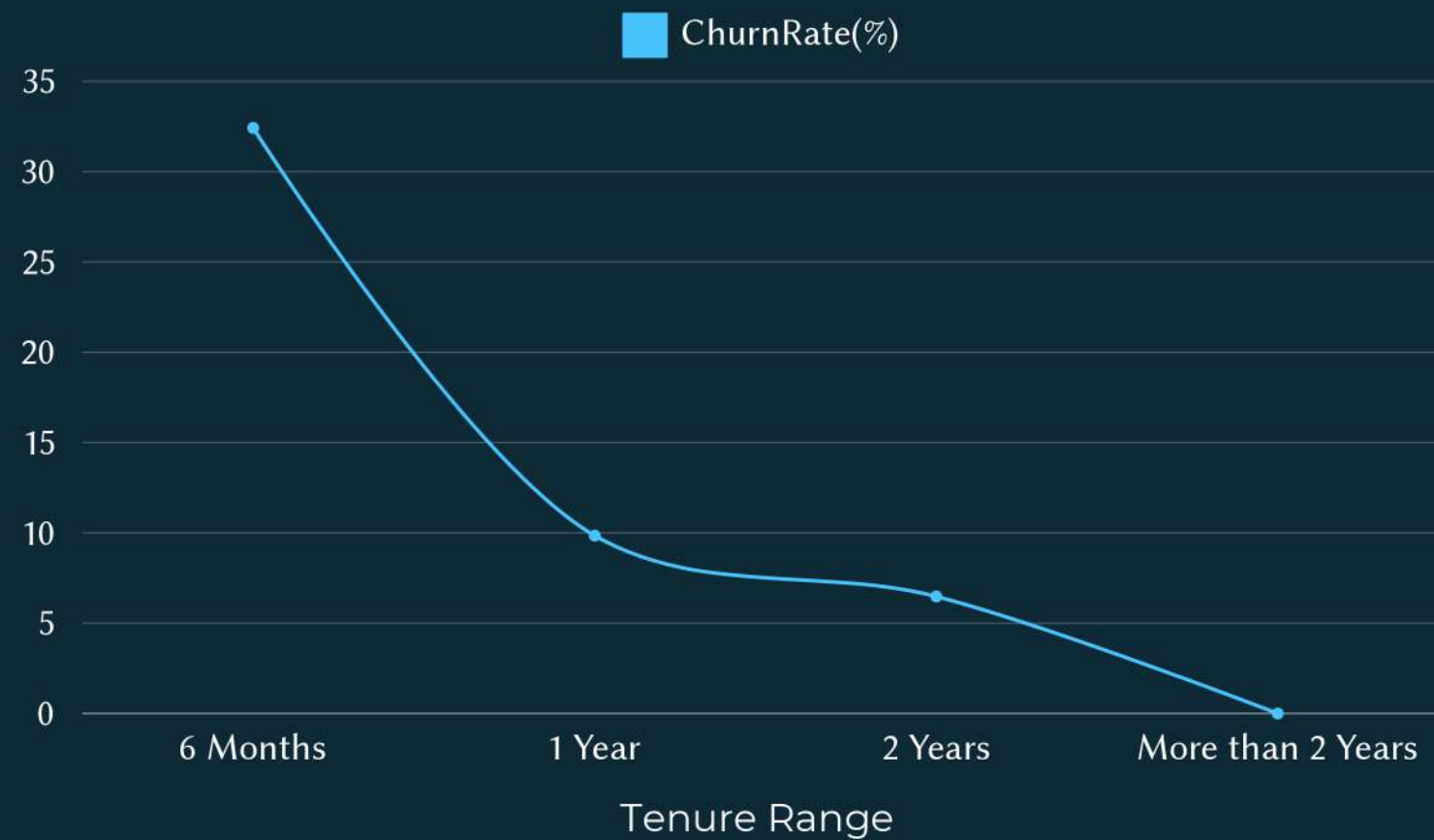
DEMOGRAPHICS & CUSTOMER PREFERENCES



Marital Status: Single customers have the highest churn rate (26.73%), while married customers have the lowest churn rate (11.52%), suggesting that marital status might play a minor role in customer retention.

INSIGHTS

CUSTOMER BEHAVIOR & INTERACTION



Insight: While longer customer tenure significantly reduces churn, a higher number of registered devices can lead to inconsistent experiences and increase churn risk.

INSIGHTS

CUSTOMER BEHAVIOR & INTERACTION

App usage alone does not
differentiate churned from
retained customers.

(Both average 2 hours/day).

Higher **coupon usage among non-churned customers** showcases the effectiveness of **loyalty rewards and personalized offers**.

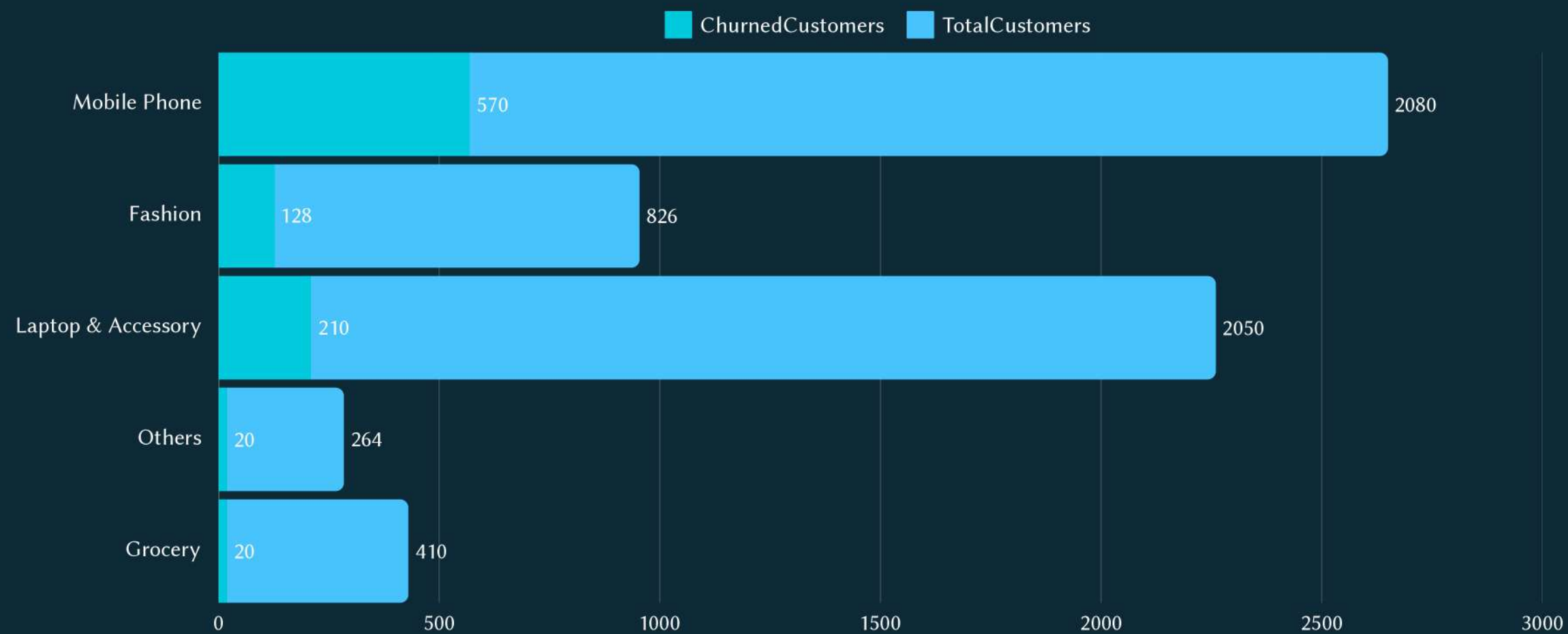
Customer complaints are
**more prevalent among
churned customers**

Churned customers average
four associated addresses,
suggesting **higher mobility**.

A **short time since their last order**
among churned customers indicates
recent disengagement and the need
for improved **customer experience
and retention initiatives**.

INSIGHTS

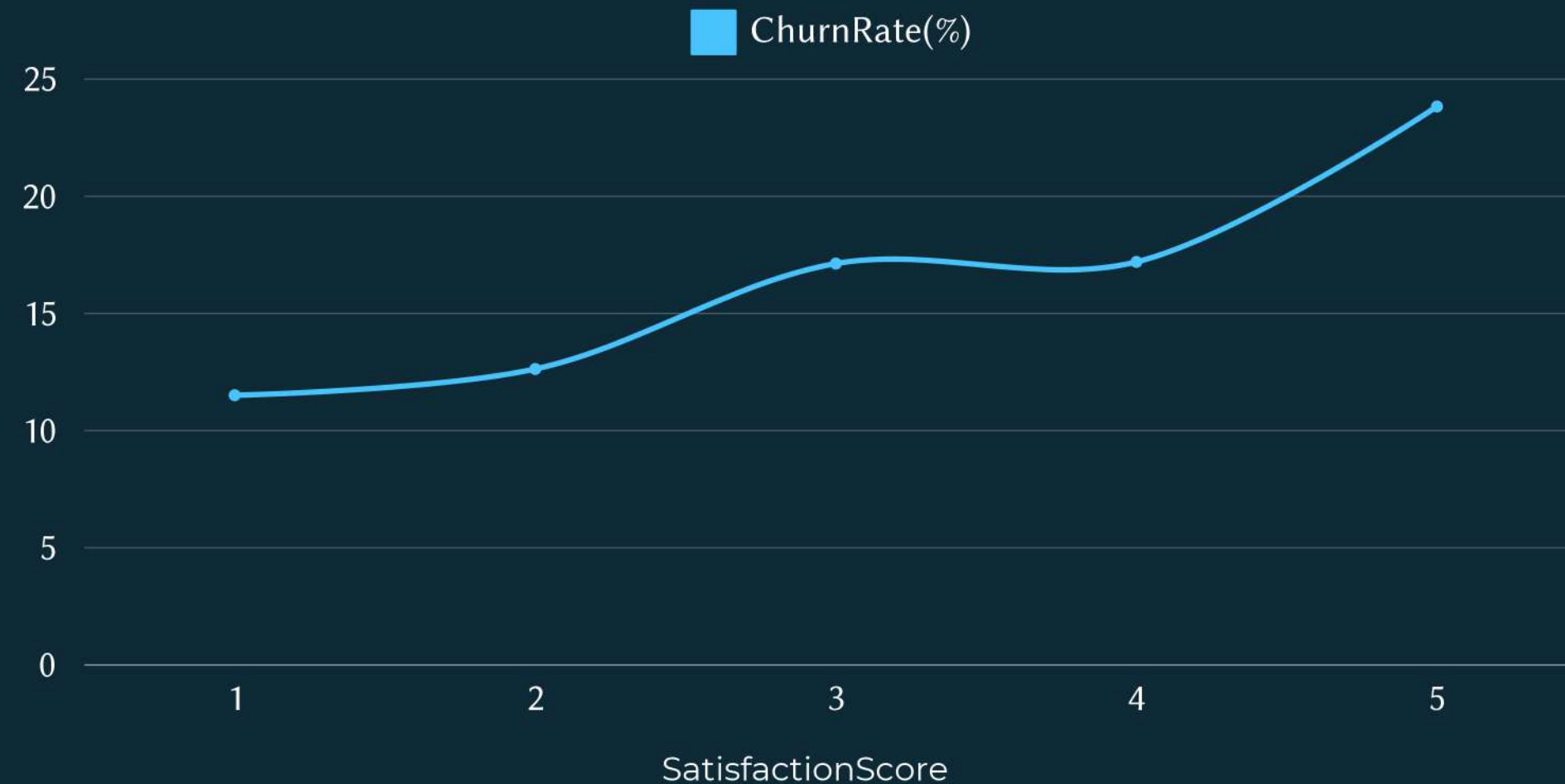
PRODUCTS & SERVICES



Order Category: The "*Mobile Phone*" order category has the highest churn rate (27.40%), while "*Grocery*" has the lowest (4.88%). This highlights the importance of developing tailored retention strategies for specific product categories.

INSIGHTS

PRODUCTS & SERVICES



Satisfaction Scores: Surprisingly, **highly satisfied customers (rating 5)** have a relatively higher churn rate (23.83%) than customers with a rating of 3 (17.20%), which indicates that a good satisfaction score alone may not be sufficient for retention. This suggests the need for proactive retention strategies at all satisfaction levels.

INSIGHTS

PRODUCTS & SERVICES

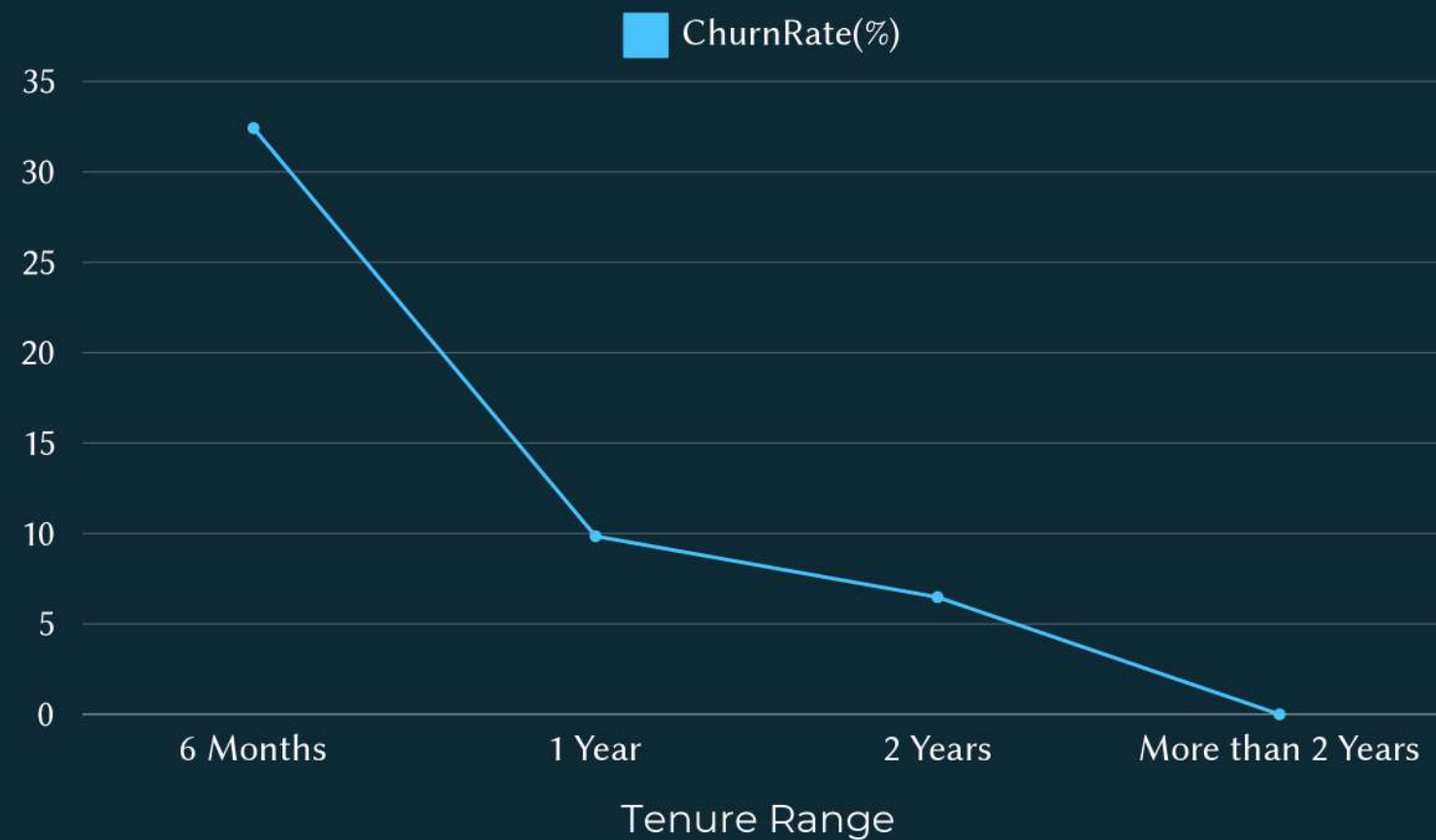
```
, seg_cashbackamt AS (  
  SELECT  
    *  
    , CASE  
      WHEN CashbackAmount <= 100 THEN 'Low Cashback Amount'  
      WHEN CashbackAmount > 100 AND CashbackAmount <= 200 THEN 'Moderate Cashback Amount'  
      WHEN CashbackAmount > 200 AND CashbackAmount <= 300 THEN 'High Cashback Amount'  
      WHEN CashbackAmount > 300 THEN 'Very High Cashback Amount'  
    END  
    AS CashbackAmountRange  
  FROM echurn  
)
```

CashbackAmountRange ▾	TotalCustomer ▾	CustomerChurn ▾	ChurnRate ▾
Moderate Cashback Amount	4305	814	18.91
High Cashback Amount	1157	124	10.72
Very High Cashback Amount	156	10	6.41
Low Cashback Amount	12	0	0.0

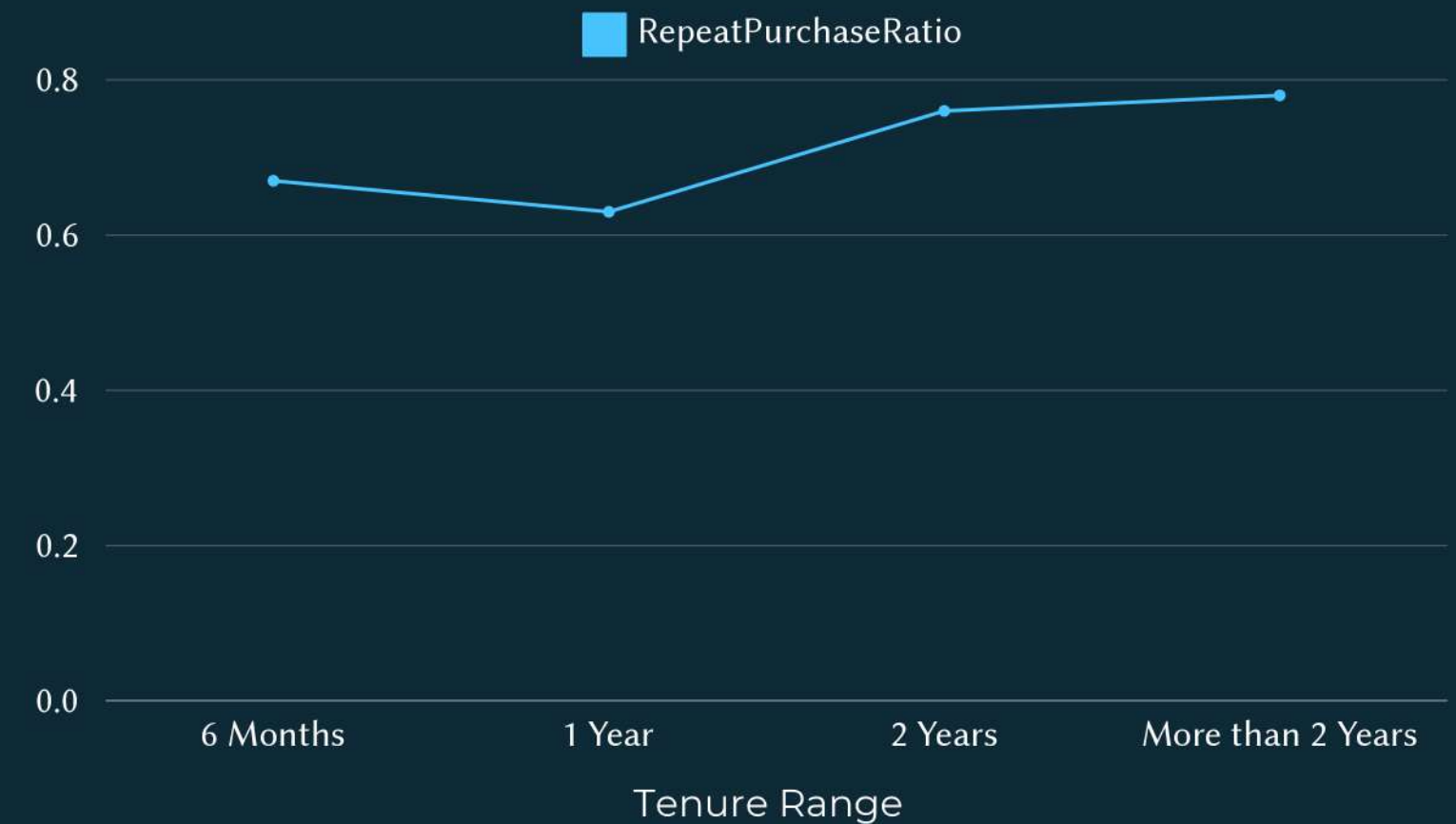
Cashback: Moderate cashback amounts correspond to higher churn rates (18.91%), while higher amounts lead to lower churn (10.72%), suggesting the positive impact of higher cashback on loyalty.

INSIGHTS

ADVANCED ANALYSIS (TENURE)



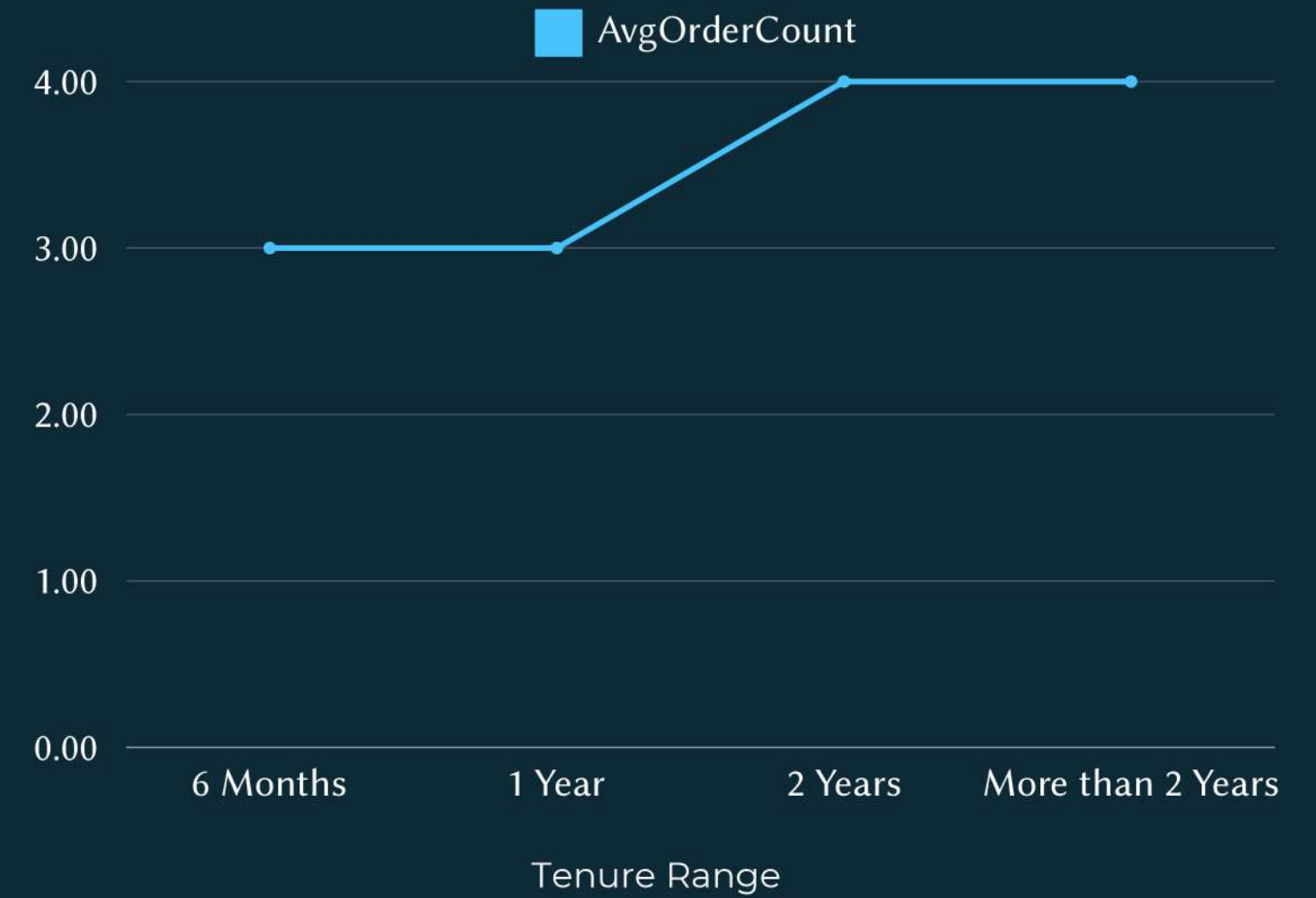
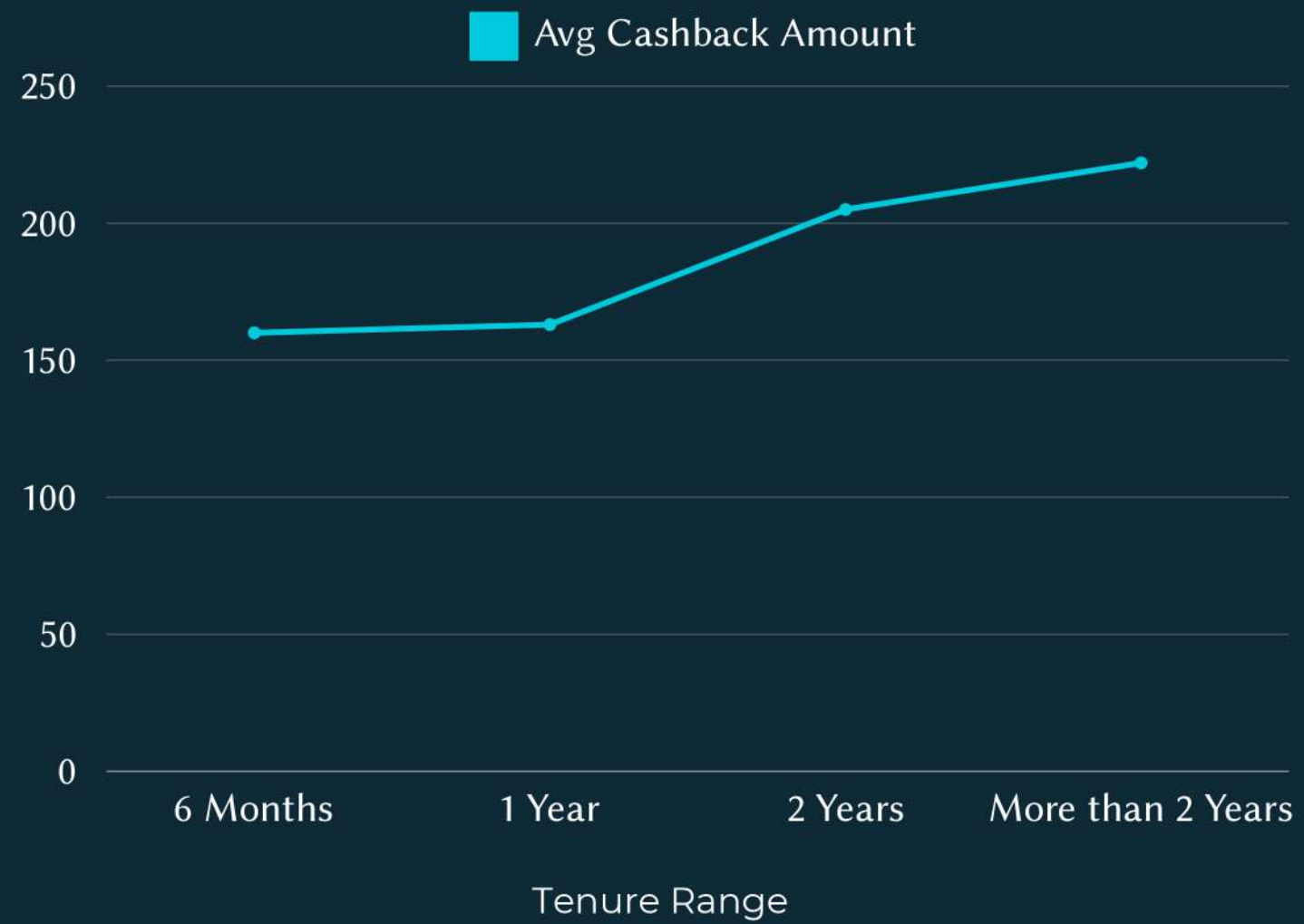
Churn Rate decreases significantly as Tenure increases. The longer customers stay, the lower the likelihood they will churn.



Repeat Purchase Rate increases with Tenure. Customers become more familiar and satisfied with the service over time.

INSIGHTS

ADVANCED ANALYSIS (TENURE)



AvgCashbackAmount and AvgOrderCount tend to increase slightly with Tenure.

INSIGHTS RFM ANALYSIS

- RFM analysis helps us classify customers into different groups based on their value (Lost Customers, Loyal Customers, Big Spenders...).
- Identify high-risk churn segments (Lost Customers, Lost Potential Customers) and prioritize them.

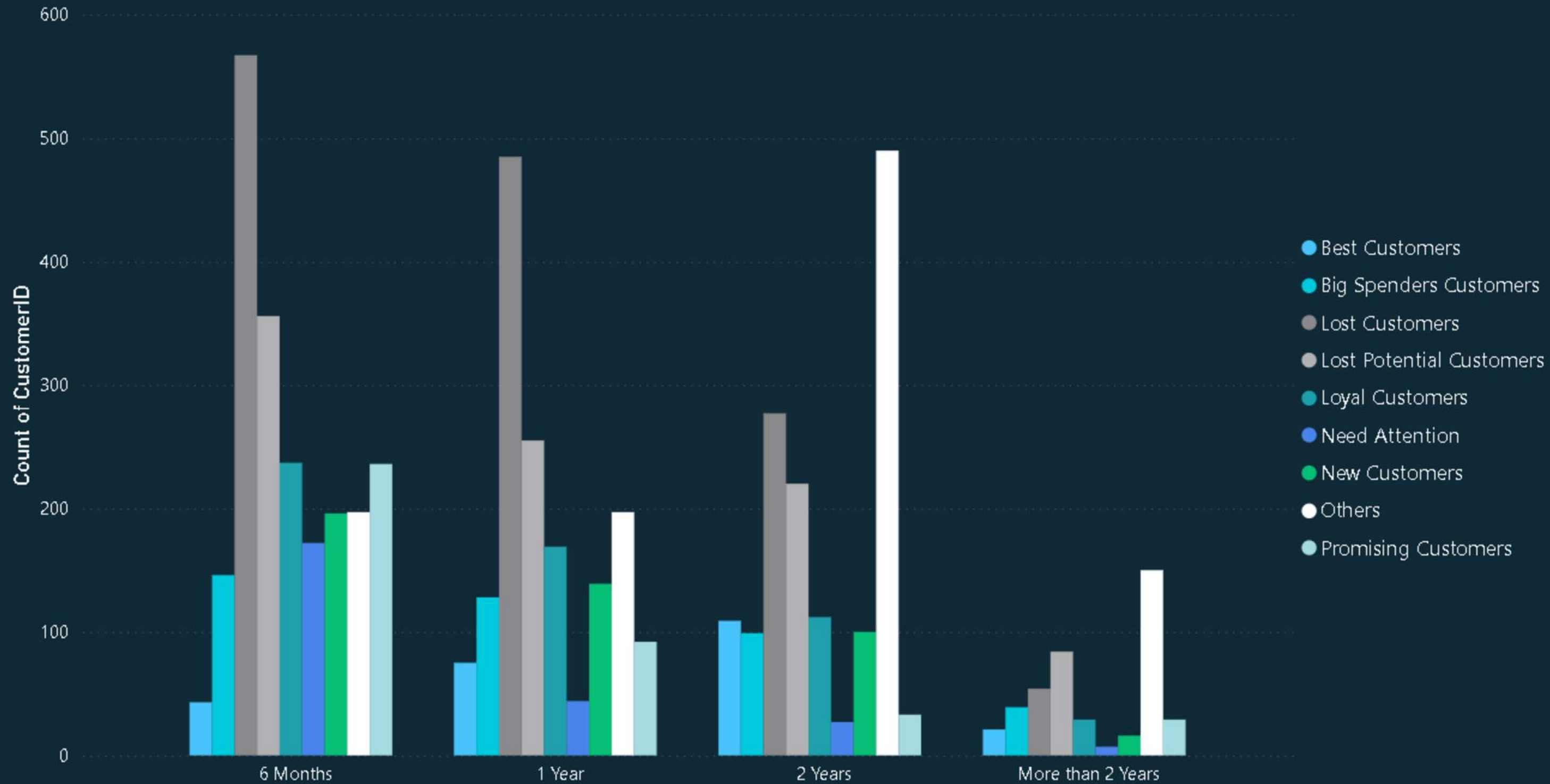
```
-- Create RFM Segments

, rfm_segments AS (
  SELECT
    CustomerID
    , R
    , F
    , M
    , CAST(R AS STRING) || CAST(F AS STRING) || CAST(M AS STRING) AS rfm_segment
    , CASE
      WHEN R = 1 AND F = 1 AND M = 1 THEN 'Best Customers'
      WHEN F = 1 AND R IN (1,2) THEN 'Loyal Customers'
      WHEN M = 1 AND R IN (1,2) THEN 'Big Spenders Customers'
      WHEN R = 1 THEN 'New Customers'
      WHEN R IN (1,2) AND F > 2 THEN 'Promising Customers'
      WHEN R IN (3,4) AND F IN (1,2) THEN 'Lost Potential Customers'
      WHEN R IN (3,4) THEN 'Lost Customers'
      ELSE 'Need Attention'
    END
  AS Segment
  FROM rfm_scores
)
```

CustomerID	R	F	M	RFM_Score	Segment
50001	2	4	2	242	Promising Customers
50002	4	3	4	434	Lost Customers
50003	2	4	4	244	Promising Customers
50004	2	4	4	244	Promising Customers
50005	2	4	4	244	Promising Customers
50006	1	1	4	114	Loyal Customers
50007	4	4	4	444	Lost Customers
50008	4	2	4	424	Lost Potential Customers
50009	3	4	4	344	Lost Customers
50010	4	4	4	444	Lost Customers
50011					Others
50012	4	4	3	443	Lost Customers
50013	3	3	4	334	Lost Customers

INSIGHTS

RFM ANALYSIS



INSIGHTS RFM ANALYSIS

- **Insights:**

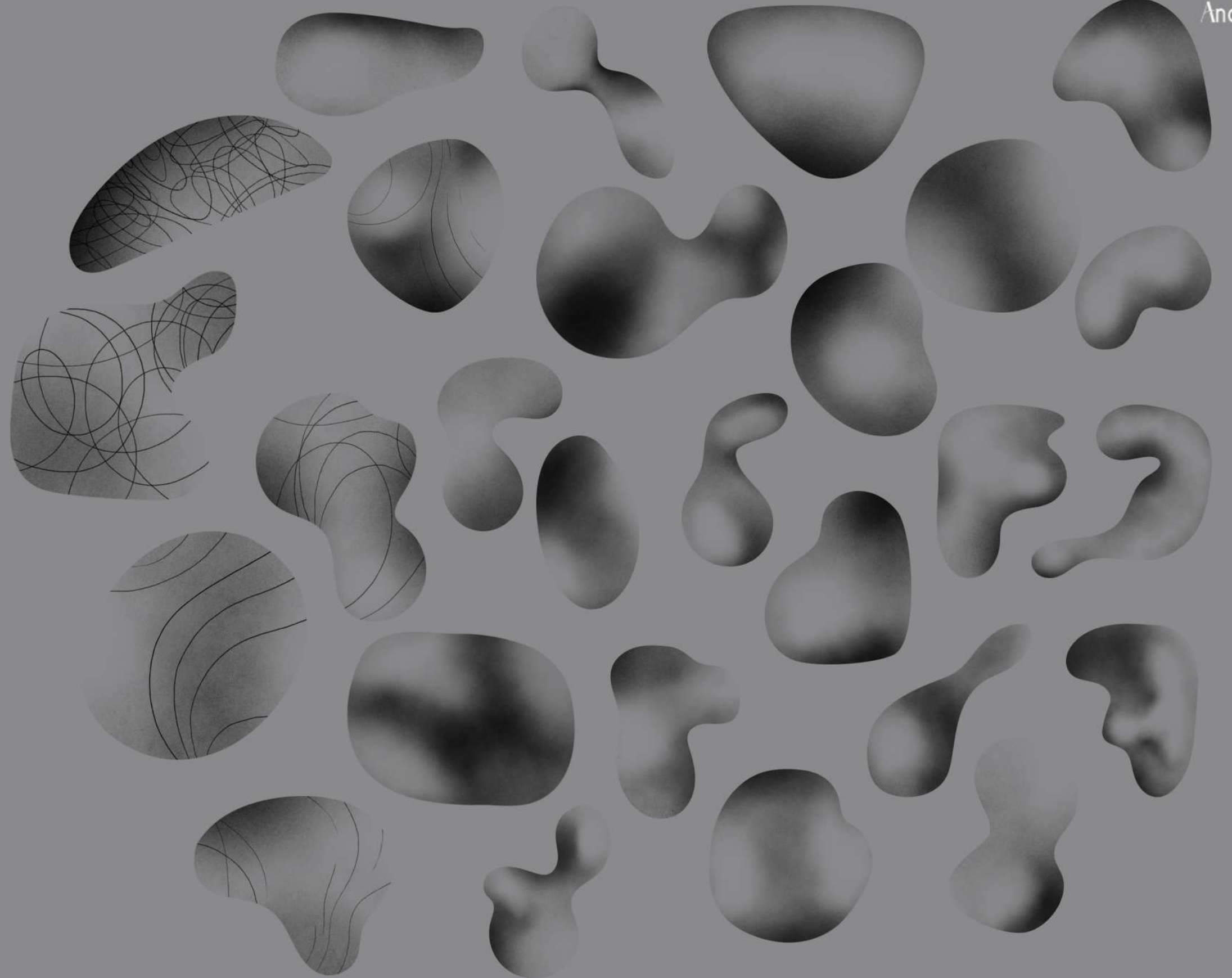
- **"Lost Customers" & "Lost Potential" Dominate Early Churn (6 months - 1 year):** This highlights the critical importance of a strong initial experience to prevent customers from feeling "lost" early on.
- **Significant Drop-off After 2 Years Across All Segments:** A key area of investigation is why customer counts decline sharply after 2 years. Is it churn, or a data issue?
- **"Others" show relatively stable counts across tenures before a drop at 2 years:** Even if the customer has been stable for quite some time, after two years it trends down sharply.
- **Rapid Decline of "New Customers" within First Year:** This emphasizes the need to optimize onboarding and early engagement to convert new users into loyal customers.

- **Overall:** The data highlights the importance of focusing on the initial customer experience (first year) and investigating what drives churn after the 2-year mark.

RECOMMENDATION

RECOMMENDATION

- **Enhance User Experience:** Improve desktop experience, ensure seamless multi-device use, and address regional service disparities.
- **Optimize Operations:** Streamline delivery for speed and transparency, and simplify payment options, incentivizing preferred methods.
- **Boost Loyalty & Retention:** Focus on effective onboarding for early loyalty, develop category-specific retention strategies, and proactively engage customers beyond satisfaction scores.
- **Data-Driven Re-engagement:** Use RFM segmentation for targeted campaigns, maximize coupon effectiveness, and implement a robust loyalty program, while continuously monitoring and iterating.



BUSINESS IMPACT

BUSINESS IMPACT

By understanding the factors that influence customer churn, the e-commerce platform can:

- **Reduce customer loss:** Implement targeted strategies to address churn drivers.
- **Improve customer satisfaction:** Enhance customer experience based on data insights.
- **Increase customer lifetime value:** Retain more customers for longer periods.
- **Improve ROI:** By having a more suitable strategy.



THANKYOU !