CUSTOMER VALUE & RETENTION ANALYSIS

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Customer Value & Retention Analysis

E-commerce Customer Analytics Dashboard

OBJECTIVE

This project analyzes customer behavior to identify key drivers of revenue, engagement, and risk of churn. The goal is to support data-driven decisions around membership strategy, discounting, and customer retention. Intended for product, marketing, and retention decision-makers.

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Role: Data Analyst
Tools: Python, SQL (DuckDB), Tableau

BUSINESS PROBLEM STATEMENT

E-commerce platforms often struggle to strike a balance between growth, discounts, and customer retention. While memberships and promotions are commonly used, their actual impact on customer value and churn risk is often unclear.

This analysis answers the following business questions:
1. Which customer segments generate the most value?
2. Does the membership program improve engagement and retention?
3. Do discounts increase customer value or reduce it?
4. Which customers are at risk of churning?

DATASET & VALIDATION

Dataset Overview

1. Records: 350 customers
2. Each row represents one unique customer
3. Data includes demographics, spending behavior, satisfaction, and recency

Key Fields

1. Total Spend
2. Items Purchased
3. Days Since Last Purchase
4. Membership Type
5. Satisfaction Level
6. Discount Applied

Data Validation

1. No missing values in core metrics.
2. Valid ranges confirmed for ratings and recency.
3. Dataset deemed analysis-ready after minimal handling.

KEY PERFORMANCE INDICATORS

Customer Value

1. Average Customer Spend
2. Average Items Purchased

Retention & Risk

1. Average Recency (Days Since Last Purchase)
2. % At-Risk Customers

Experience

1. Average Rating
2. Satisfaction Distribution
3. Strategy Effectiveness
4. Membership Value Lift
5. Discount Impact on Spend

Total Customers	Avg Customer Spend
350 people	$845.38

Average Recency	At Risk Customer
26.59 Days	**34.57%** At Risk **0.86%** Churned

INSIGHT 1: MEMBERSHIP DRIVES VALUE

Insight

Gold members significantly outperform Silver and Bronze customers across all key metrics.
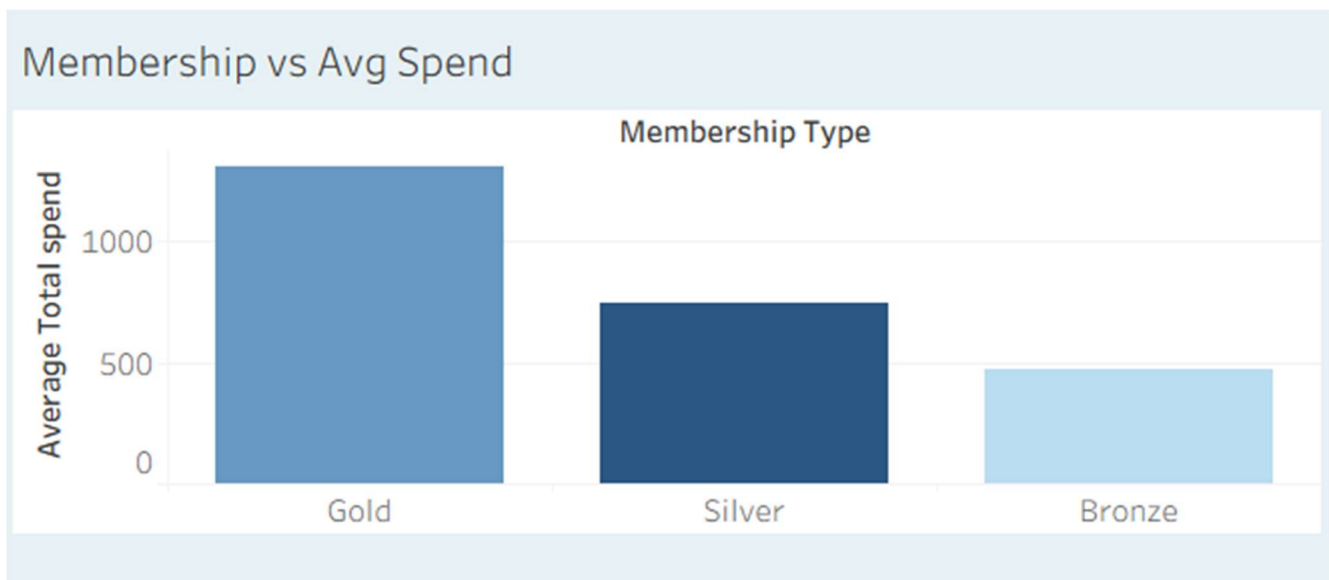
Evidence

1. Highest average spend
2. Highest number of items purchased
3. Lowest recency (most engaged)

Business Implication

The membership program is effective, especially at the Gold tier.

Recommendation

1. Focus on upgrading high-potential Silver customers to Gold.
2. Protect Gold members with proactive retention strategies.

Figure 1: Gold members significantly outperform Silver and Bronze across spend and engagement.

INSIGHT 2: DISCOUNTS FAIL TO INCREASE LONG-TERM CUSTOMER VALUE

Insight

Customers who did not receive discounts show higher average spend and slightly higher satisfaction.
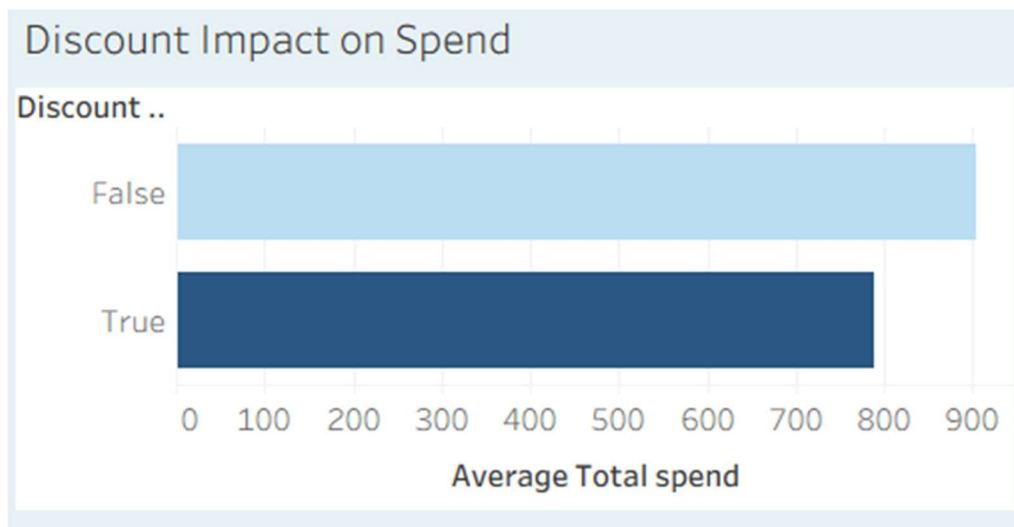
Evidence

1. Lower average spend among discounted customers
2. No meaningful improvement in satisfaction

Business Implication

Discounts are not driving long-term customer value.

Recommendation

1. Reduce blanket discounting
2. Use discounts selectively for acquisition or reactivation only

Figure 2: Discounted customers show lower average spending without improved satisfaction.

INSIGHT 3: SATISFACTION PREDICTS CHURN

Insight

Customer satisfaction strongly correlates with retention.

Evidence

1. Unsatisfied customers have ~2.4× higher recency than satisfied customers
2. Satisfied customers show both higher spending and higher engagement

Business Implication

Poor experience directly translates to churn risk.

Recommendation

1. Track satisfaction as a leading churn indicator
2. Prioritize experience improvements over price incentives
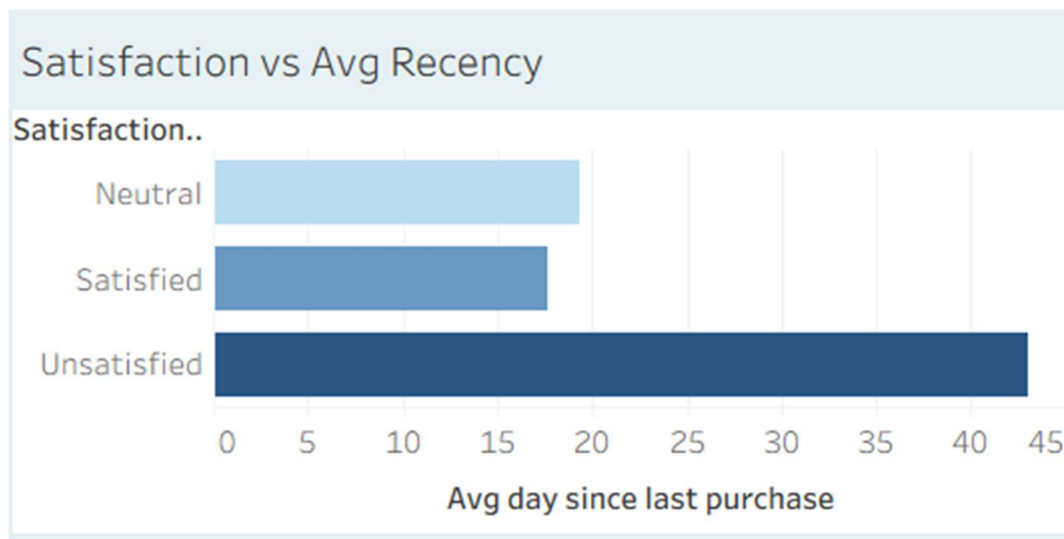
Figure 3: Unsatisfied customers disengage significantly faster than satisfied users.

INSIGHT 4 & 5: CHURN RISK SEGMENTS

Insight 4: Size of Risk

~35% of customers fall into the "At Risk" category
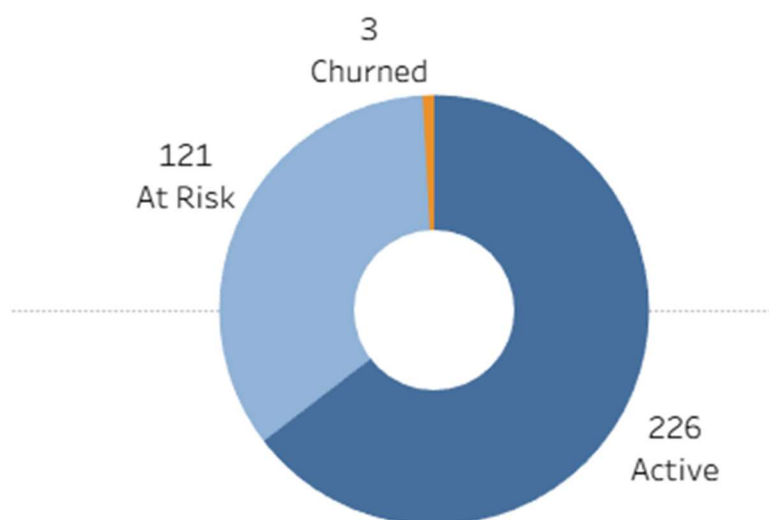
Insight 5: Who Is Most at Risk

All high churn-risk customers belong to the Silver membership tier

Business Implication

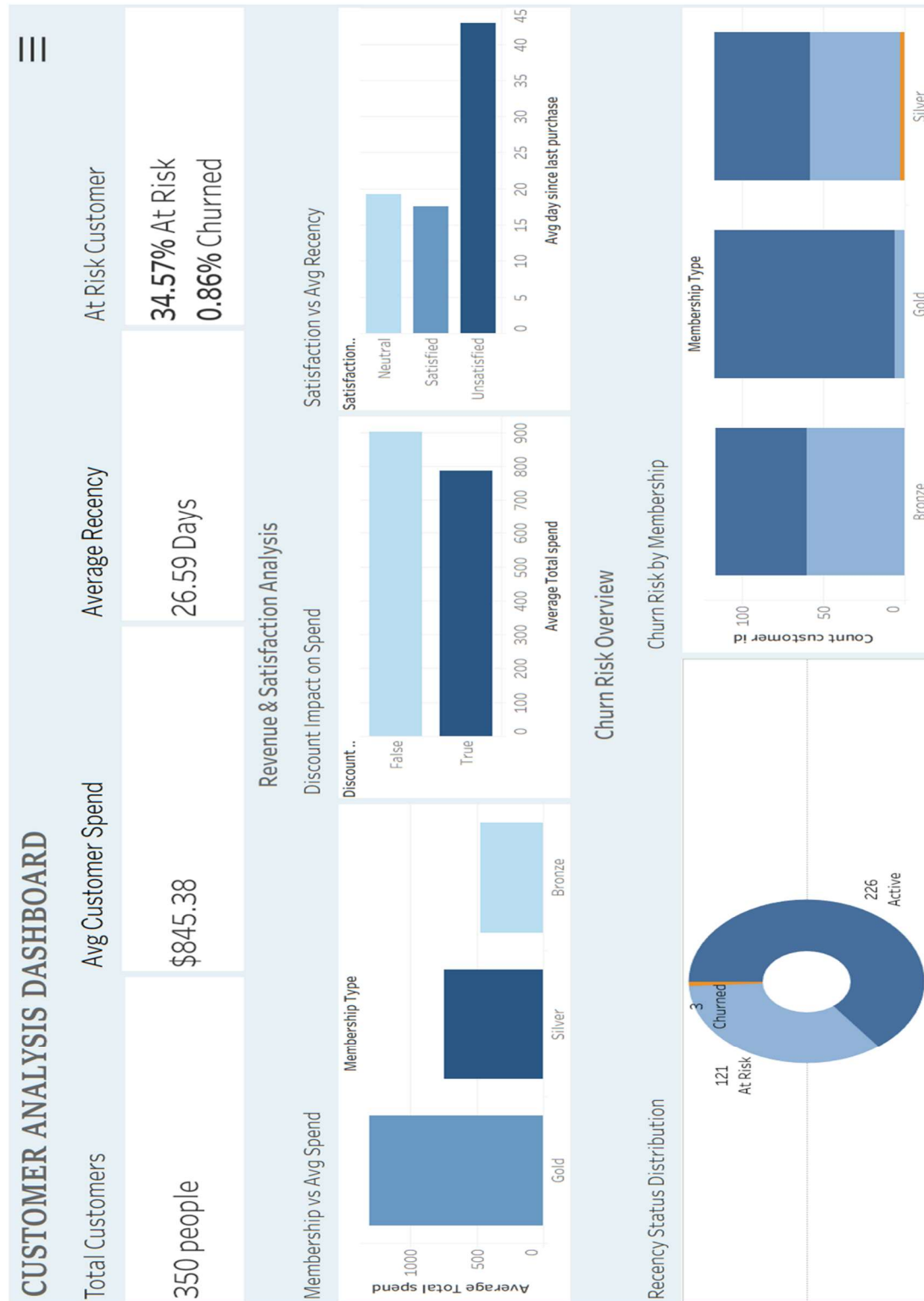Silver members are the most fragile but still valuable segment.

Recommendation

1. Target Silver members with engagement nudges and upgrade incentives.
2. Intervene early before customers fully churn.

Figure 4: A substantial portion of customers is drifting toward churn.

DASHBOARD OVERVIEW

Figure 5: Executive-level customer analytics dashboard highlighting value drivers and churn risk.

LIMITATIONS & NEXT STEPS

Limitations

1. Synthetic dataset
2. No time-series transaction history
3. No cost or margin data

Next Steps

1. Incorporate real transaction-level data
2. Track behavior over time
3. Build predictive churn scoring

GitHub Repository:

https://github.com/ranshull/customer-value-retention

Interactive Tableau Dashboard:

https://public.tableau.com/app/profile/anshul.rawat6788/viz/CustomerAnalysisDashboard_1766764
7716880/Dashboard1