

Cyclistic Rider Behavior Analysis Report

A Data-Driven Study to Support Membership Conversion

Prepared by: Nilesh Tayade
Google Data Analytics Capstone Project

1. Introduction

Cyclistic is a bike-share service in Chicago offering more than 5,800 bikes. This report analyzes differences between casual riders and annual members to support membership conversion strategies.

2. Business Task

Cyclistic aims to increase its annual membership base because annual members generate higher long-term revenue than casual riders.

The key business question is:

“How do annual members and casual riders differ in their bike usage behavior, and how can Cyclistic use these insights to improve membership conversions?”

3. Data Sources

12 months of Divvy trip data; ~5.5M rows; public domain; contains timestamps, ride IDs, rider type, bike type, locations, station name and id's etc.

4. Data Preparation

Data cleaned in Power BI Power Query:

- Removed null or missing values
- Removed invalid records (negative, 0-minute rides), We can also ignore rides greater than 24 hours
- Standardized data types

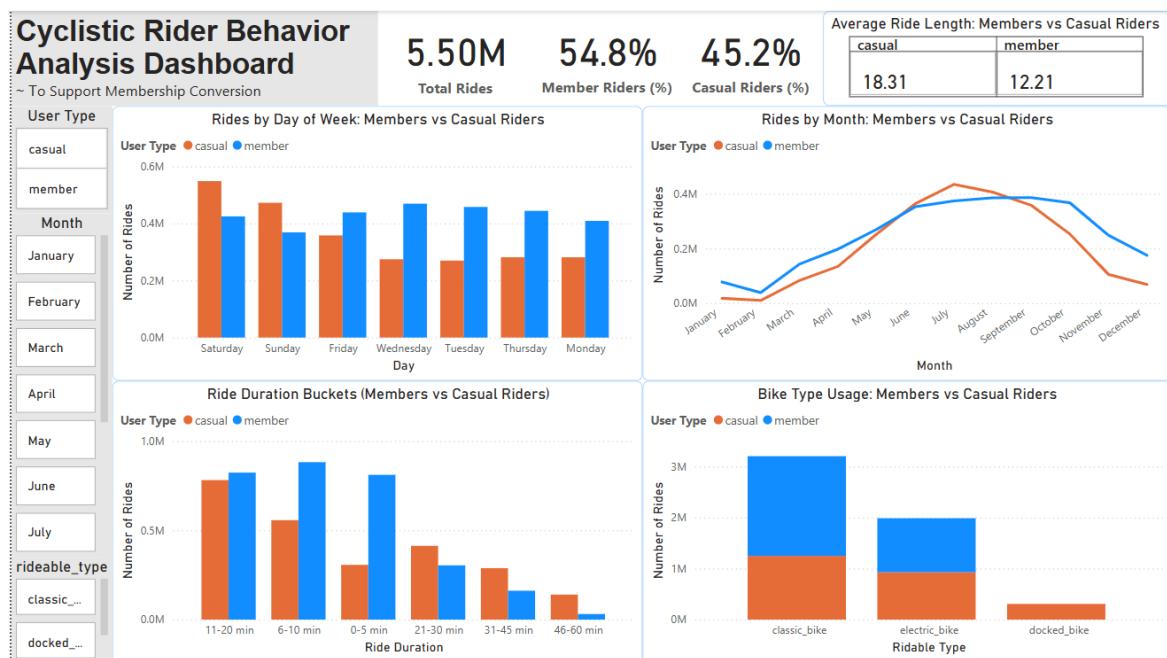
Feature Engineered (New calculated columns added):

- **ride_length_minutes**
Duration.TotalMinutes([ended_at] - [started_at])
- **ride_length_bucket**
Categorized into: 0–5, 6–10, 11–20, 21–30, 31–45, 46–60, 60+ minutes
- **day_of_week**
- **month**
- **weekday_number** (for proper sorting)

These steps prepared the dataset for fast DAX calculations and visualization.

5. Analysis W/ Supporting Visualizations

Here is the dashboard –



Insights:

1. Casual riders take longer rides

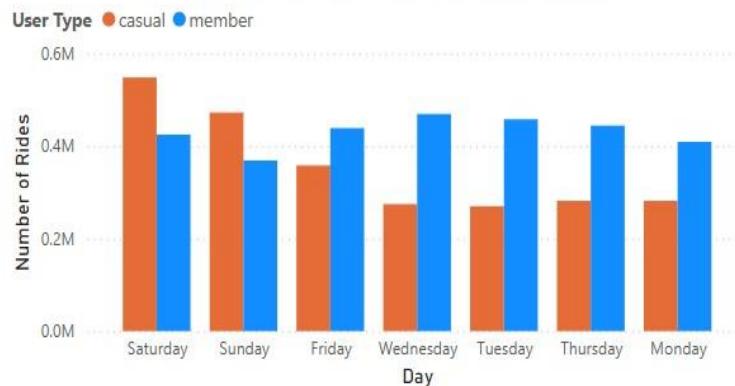
- Casual Avg: **18.31 minutes**
- Members Avg: **12.21 minutes**

Average Ride Length: Members vs Casual Riders	
casual	member
18.31	12.21

Casual riders use bikes for **recreation**, while members ride for **commuting**.

2. Casuals peak on weekends, members on weekdays

Rides by Day of Week: Members vs Casual Riders



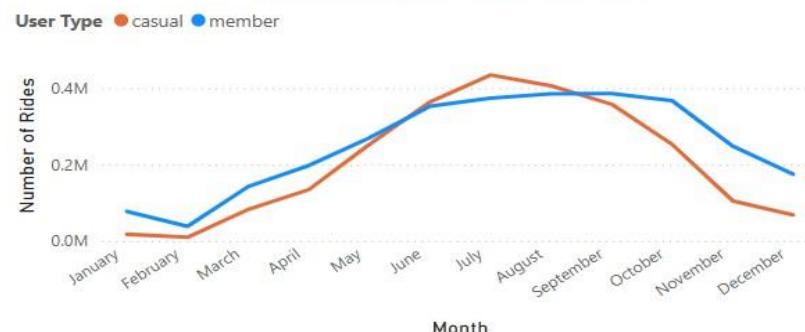
- Casual: Highest on **Saturday & Sunday**
- Members: Highest Monday–Friday

This confirms leisure vs commute patterns.

3. Seasonality affects casual riders more

- Both groups peak during **summer**
- Casual usage fluctuates greatly
- Member usage is more stable

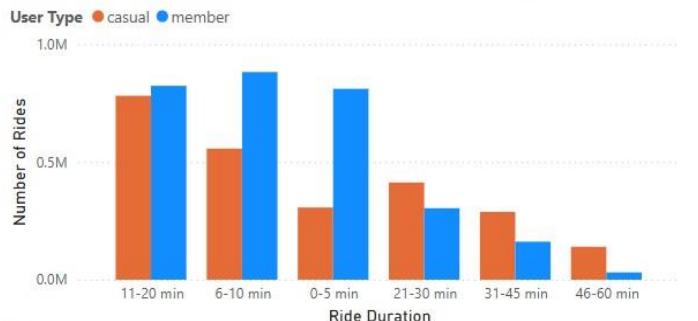
Rides by Month: Members vs Casual Riders



4. Ride duration buckets differ dramatically

- Members dominate **short rides** (0–20 min)
- Casuals dominate **longer rides** (21–60 min)

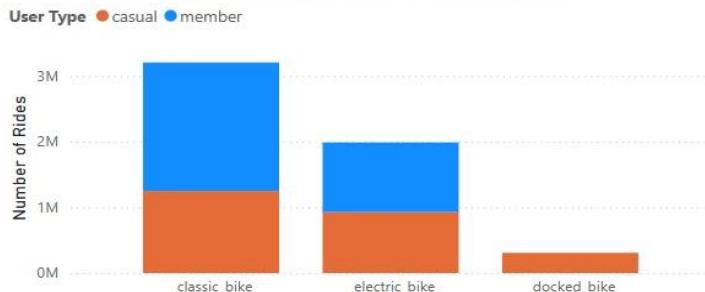
Ride Duration Buckets (Members vs Casual Riders)



5. Bike type preferences are different

- Members prefer **classic bikes**
- Casual riders use **electric bikes** more often

Bike Type Usage: Members vs Casual Riders



6. Recommendations

1. Weekend Membership Promotions (Weekend-focused promotions)

Target casual weekend riders with:

- Weekend passes
- Seasonal membership discounts
- Tourist promotions
- Referral bonuses

2. Market Memberships as a Commuter Solution

Promote:

- Convenience
- Unlimited rides
- Cost savings vs per-ride fees
- Priority access

Target office commuters near business districts and transit hubs.

3. Incentives for Electric Bike Users

Offer:

- Electric-bike credits
- Discounted membership upgrades
- Exclusive electric bike benefits

Appeal directly to casual riders who favor convenience.

7. Conclusion

This analysis highlights clear behavioral differences between casual and member riders. Casual riders represent strong conversion potential. Using targeted marketing strategies based on these insights can significantly increase Cyclistic's annual membership base. The insights and visuals in this report provide a strong foundation for data-driven decision-making.