



Cyclistic Bike-Share Case Study (2024)

Using R, Tableau & Data Visualization to Analyze Member and Casual Rider Patterns

By Heena Rathore

Business Task:

The goal of this case study is to help Cyclistic, a bike-share program in Chicago, understand how casual riders and annual members use the service differently — and how to convert more casual riders into annual members.

Tools Used:

- R (for data cleaning and preparation)
- Tableau (for visualization and dashboards)
- Excel / Google Sheets (for quick checks)

Dataset:

- Divvy Tripdata (12 months of 2024 data)
- Source: Divvy Tripdata – Chicago Open Data

Data Cleaning & Preparation

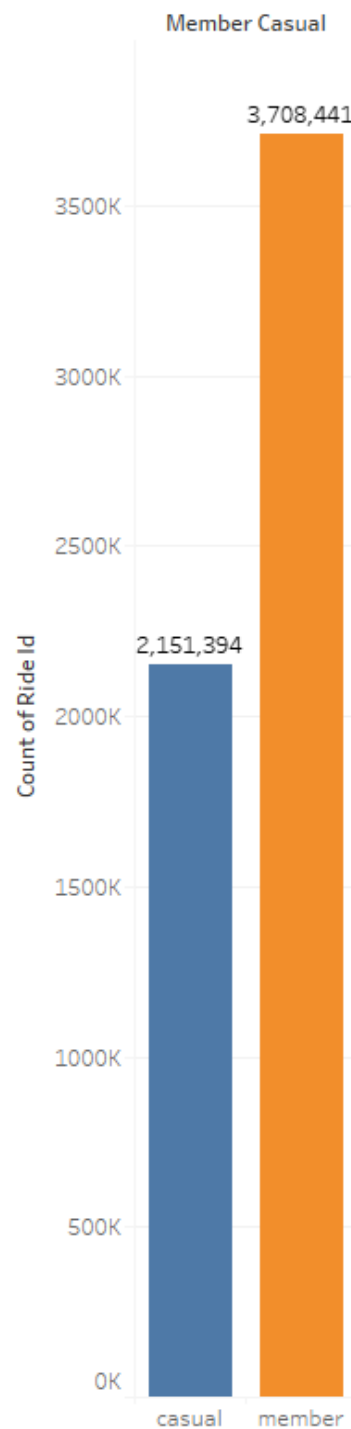
Cleaning Steps:

- Combined 12 monthly CSV files into a single dataset using R.
- Created new calculated columns: `ride_duration` (trip duration in minutes), `day_of_week` (day name), and `month` (month name).
- Removed unnecessary columns that were not relevant for analysis (such as station IDs, station names, latitude, and longitude coordinates).
- Removed rows with missing or blank values in important fields.
- Filtered out records where ride duration was negative or zero.
- Exported the fully cleaned dataset for further analysis and visualization.

Analysis & Key Questions

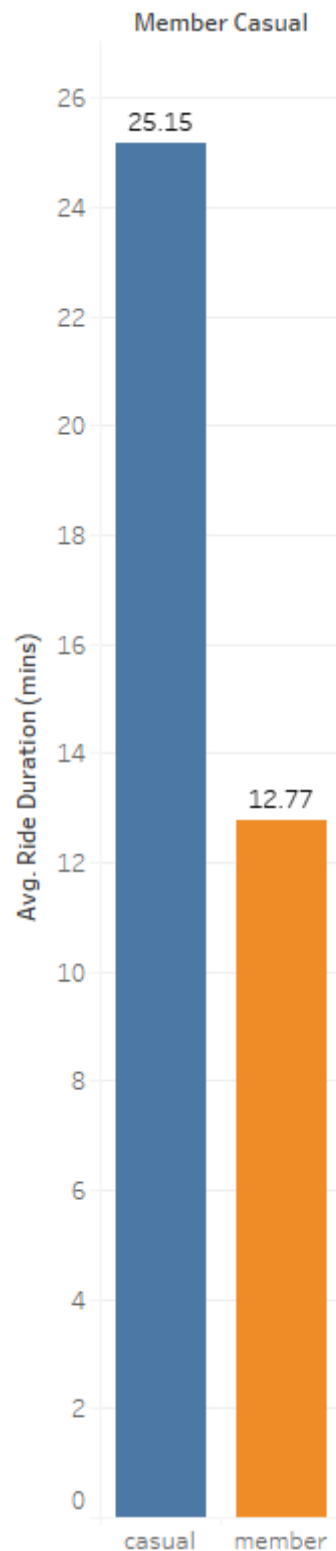
1. What is the total number of rides by user type?

The majority of rides were completed by members (around 63% of total rides), while casual riders accounted for 37%, showing that members are the primary users of Cyclistic's service.



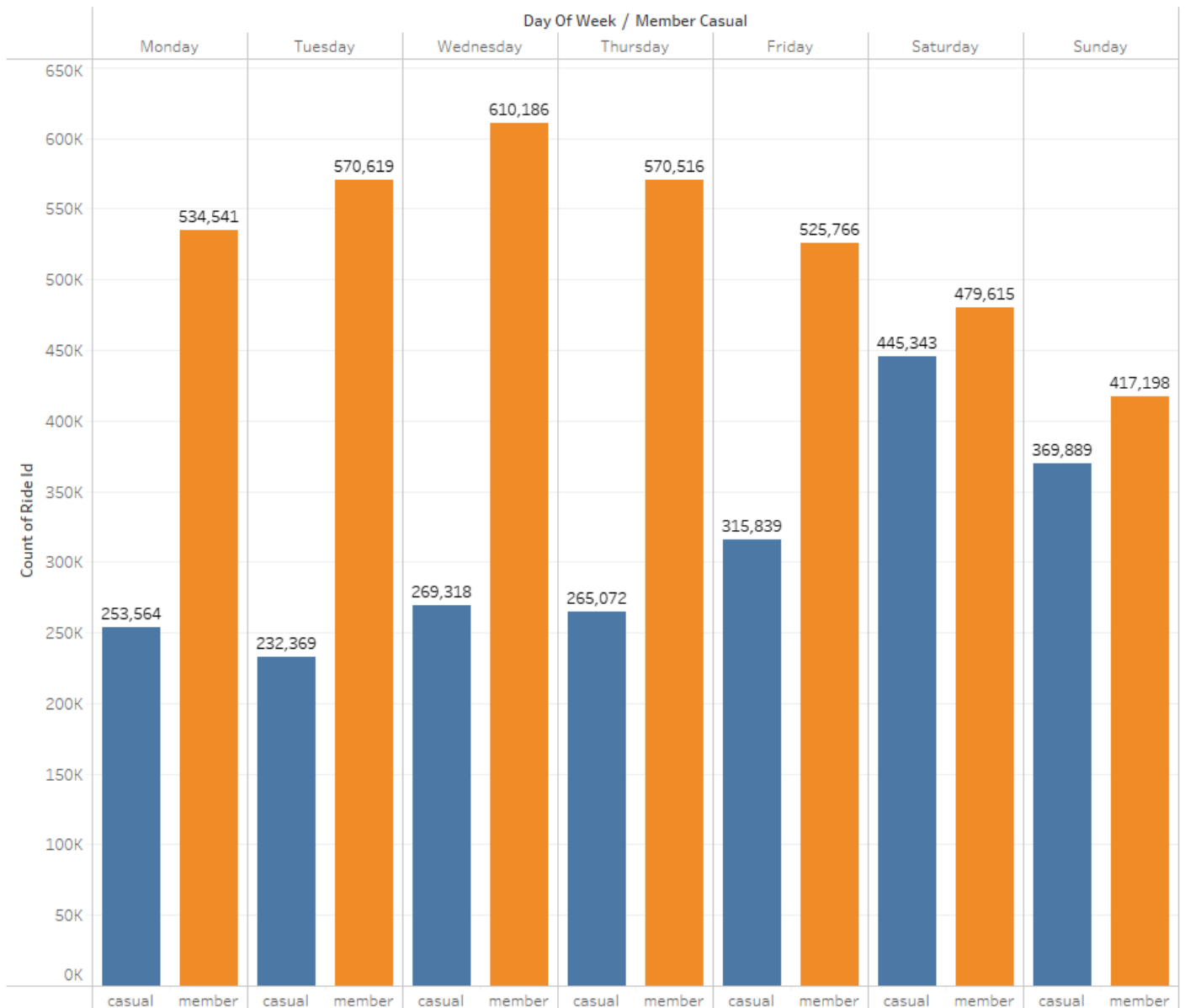
2. What is the average ride duration by user type?

Casual riders have longer average ride durations (around 25 minutes), while members ride for shorter trips (around 13 minutes), suggesting recreational use by casual riders and commuting behavior by members.



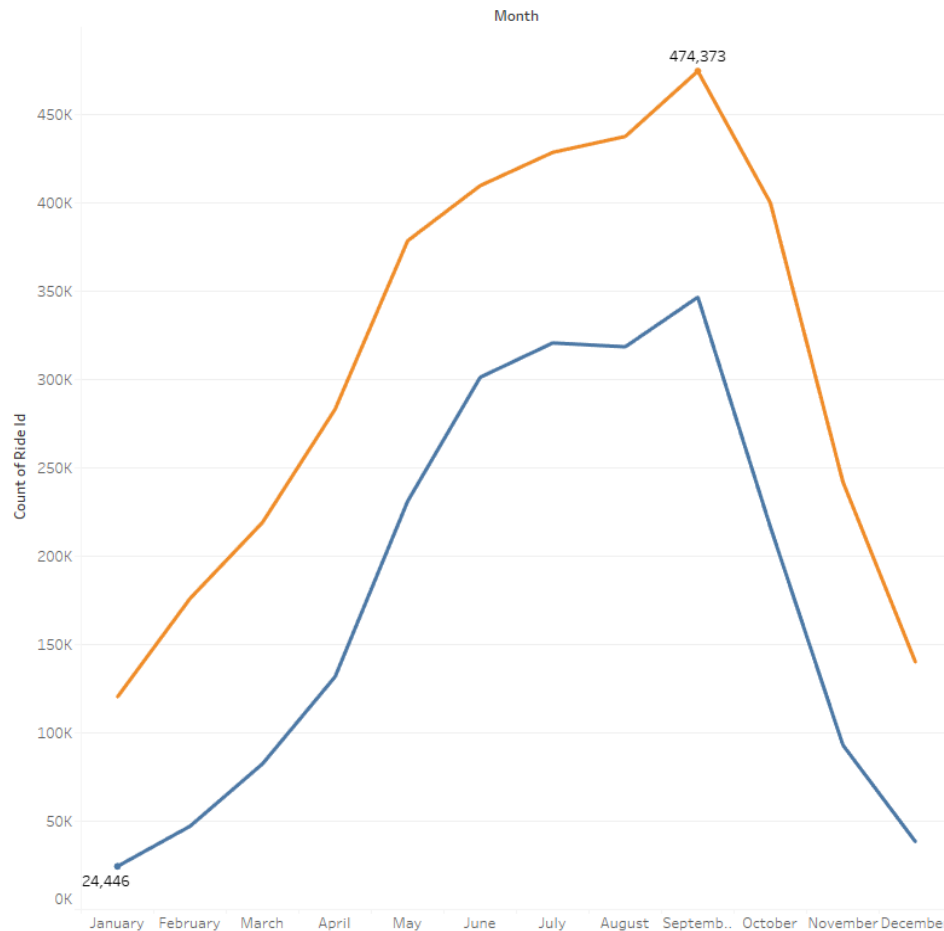
3. What are the ride patterns by day of the week?

Members ride consistently throughout the weekdays, while casual riders have higher activity on weekends, suggesting casual riders mainly use the service for weekend leisure.



4. What are the trends across months?

Casual rides peak during the summer months, while member rides remain steady throughout the year with a slight increase in late summer.



5. Which bike types are preferred by each user type?

Both members and casual riders prefer electric bikes over classic bikes. The preference for electric bikes is slightly stronger among casual riders, while members show almost balanced usage between electric and classic bikes. Electric scooter usage remains very limited for both user types.

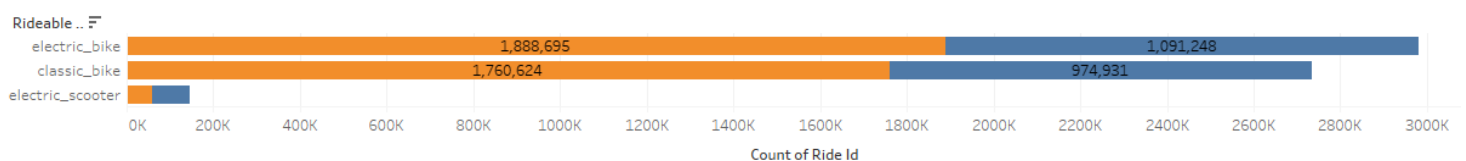
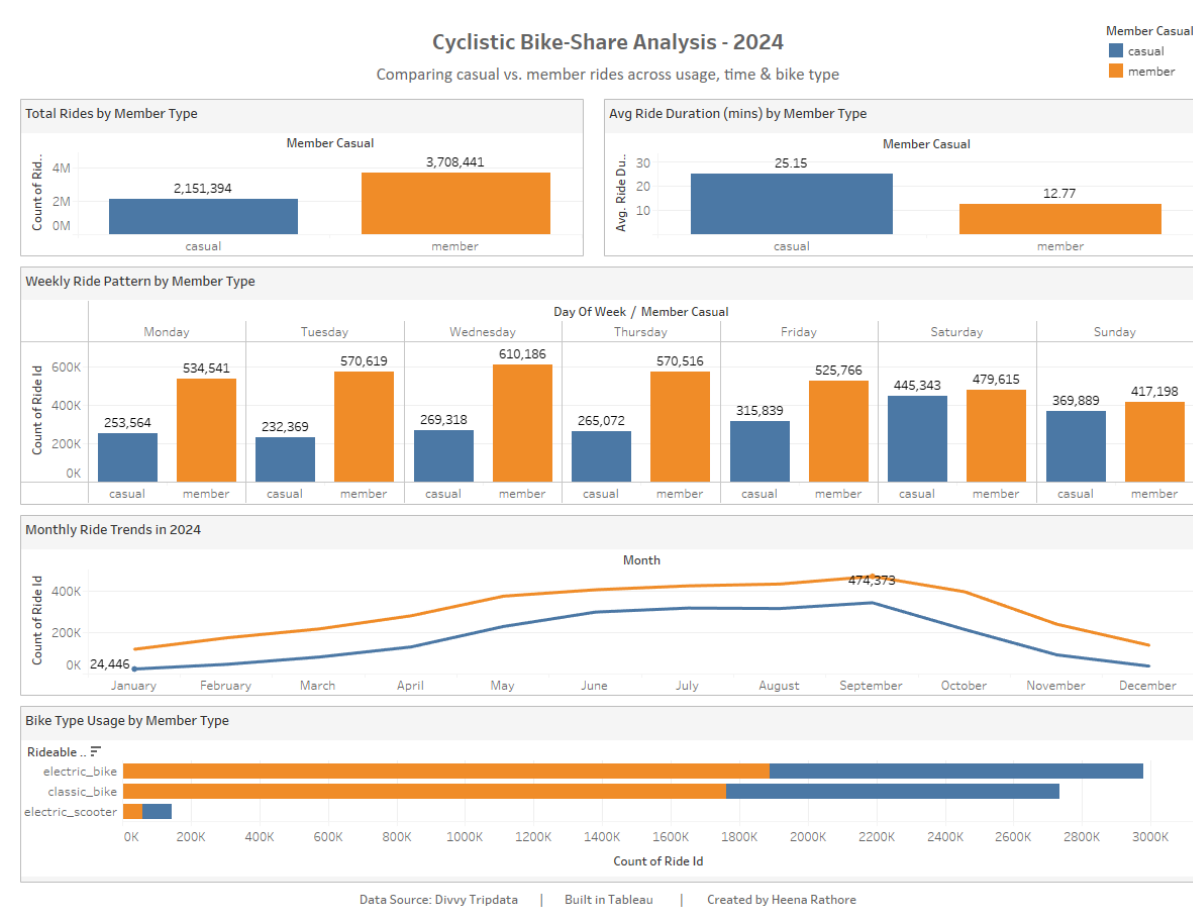


Tableau Dashboard



Dashboard Summary:

The dashboard displays ride patterns by user type, showing key differences across weekdays, months, bike types, and ride durations. Members ride consistently throughout the year, while casual riders show strong peaks during weekends and summer months. Electric bikes are preferred by both groups, with member riders showing a slightly stronger preference.

Key Insights & Recommendations

Key Insights:

- Casual riders have longer rides but mostly on weekends.
- Members ride more consistently on weekdays.
- Summer months see peak casual usage.
- Both user types prefer electric bikes over classic bikes.
- Scooter usage is minimal for both groups.

Recommendations:

- Offer weekend ride packages to attract casual users.
- Promote electric bike subscriptions.
- Offer weekday commuting promotions targeting casual users.
- Seasonal discounts to convert casual riders into members.
- Promote membership perks for electric bike access.

These insights can help Cyclistic design targeted marketing strategies to convert casual users into loyal annual members.

Conclusion & Attribution

Conclusion:

This project demonstrates my ability to clean and analyze large datasets using R, build insightful dashboards in Tableau, and deliver actionable business insights. It also showcases my full end-to-end data analysis process — from data cleaning, preparation, exploration, visualization, to generating business recommendations.

Attribution:

Data Source: Divvy Tripdata (Chicago Open Data Portal)
Report by Heena Rathore | June 2025

This case study is part of my data analytics portfolio and demonstrates my readiness for data-driven problem solving in real-world business scenarios.