

# **Analysis of Annual Members vs. Casual Riders Bike-Share Usage**

**Google Data Analytics Capstone Case Study**

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# Agenda

## 1.0 – Objective

- 1.1 – Brief summary of business problem
- 1.2 – Data used for analysis

## 2.0 – Findings + Takeaways

- 2.1 – Average ride length by user type per day
- 2.2 – Total rides by user type per day
- 2.3 – Total rides by user type per month
- 2.4 – Total of each rider type as a percentage

## 3.0 – Recommendations

- 3.1 – Next steps

## 4.0 – Questions

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# Objective

The primary business task for this case study is to analyze Cyclistic's (Divvy-Lyft) historical trip data to understand how annual members and casual riders use Cyclistic bikes differently. This analysis aims to provide insights into the behavior of these two customer segments and inform the development of a marketing strategy to convert casual riders into annual members.

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# **How Can We Convert Casual Riders to Annual Members?**

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# Data

**Source:** Cyclistic (Divvy-Lyft) historical trip data downloaded directly from the company's website.  
Organized by quarter, Q1-Q4.

**Period covered:** 1-Jan-2019 – 31-Dec-2019

**Each trip is anonymized and includes:**

- Trip start day and time
- Trip end day and time
- Start station
- End station
- User type (Member-Casual)

**Data Anomalies were cleaned as far as possible.**

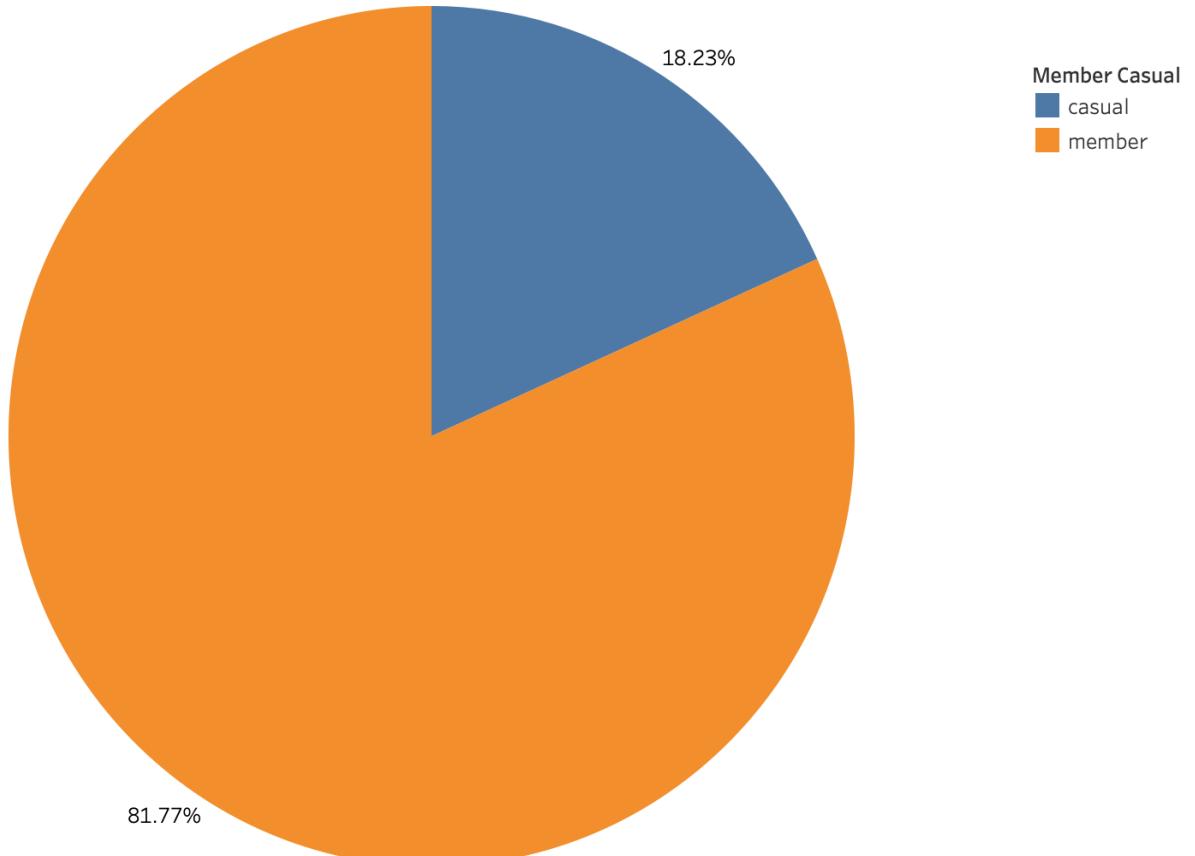
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# Number of Trips Overall

## Key takeaway:

*Annual members by far make the most trips.*

Number of trips made (by percentage) by user type



Member Casual (color) and % of Total Count of Total Trips (size).

# Number of Trips Overall

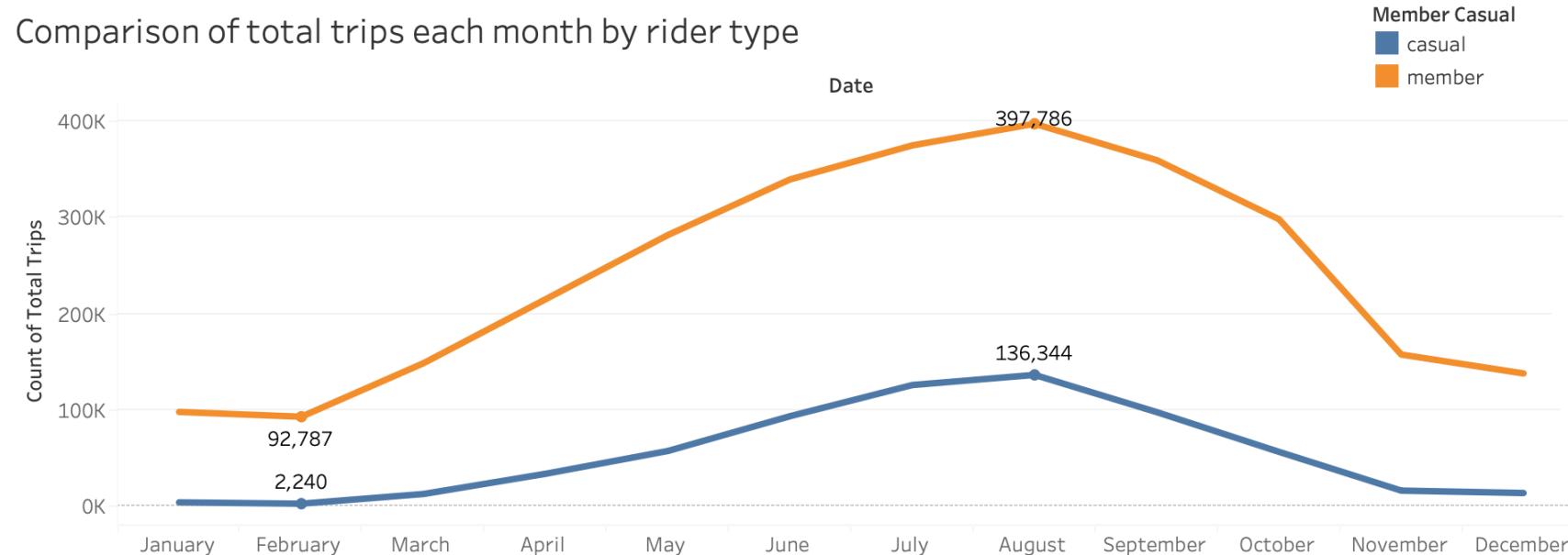
- Monthly totals by user type
- Daily totals by user type

## Key takeaway:

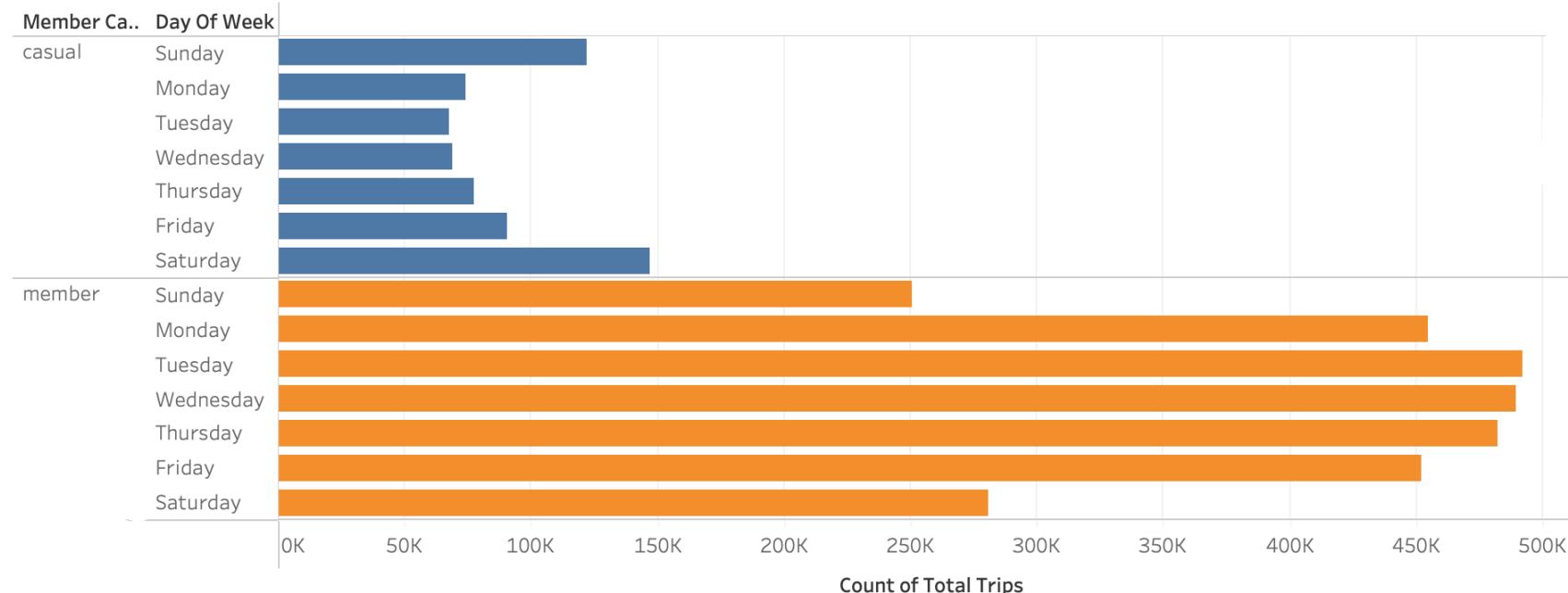
*Casual riders use Cyclistic primarily on the weekends (Saturday-Sunday)*

*Annual members use Cyclistic primarily on the weekdays (Monday-Friday)*

Comparison of total trips each month by rider type



Comparison of total trips per day by rider type



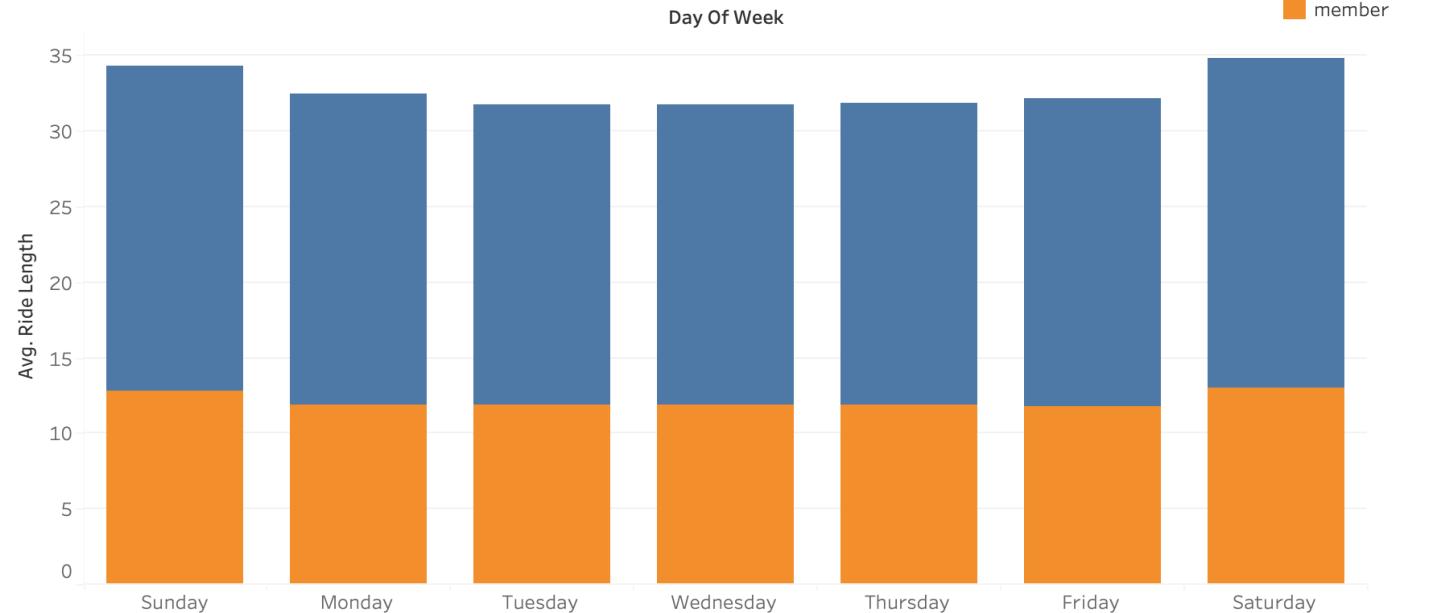
# Average Ride Length

- Daily averages by user type
- Monthly averages by user type

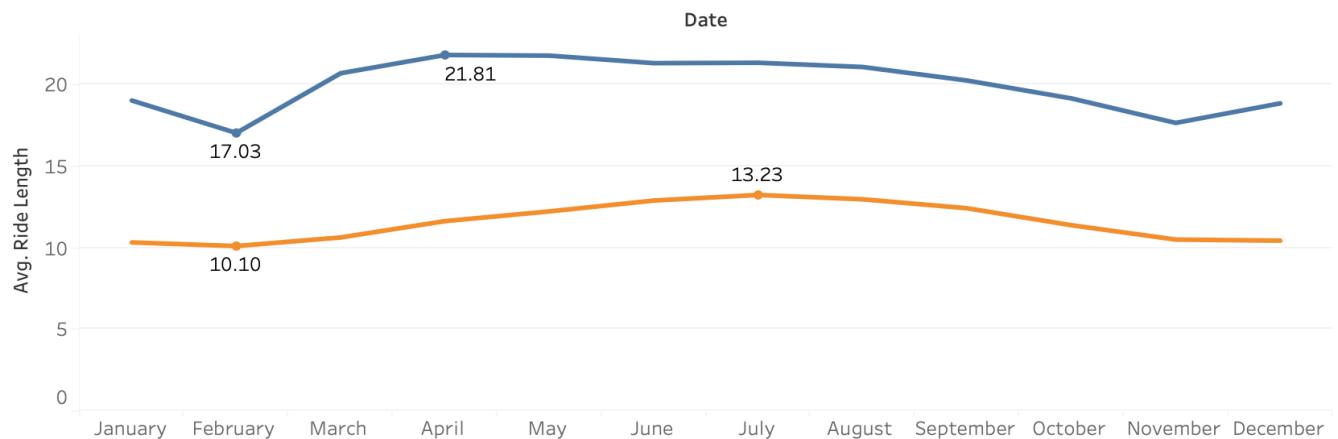
## Key takeaway:

Casual riders average ride length is roughly 8 minutes longer than annual members

Comparison of average ride length per day by rider type



Comparison of average ride length per month by rider type



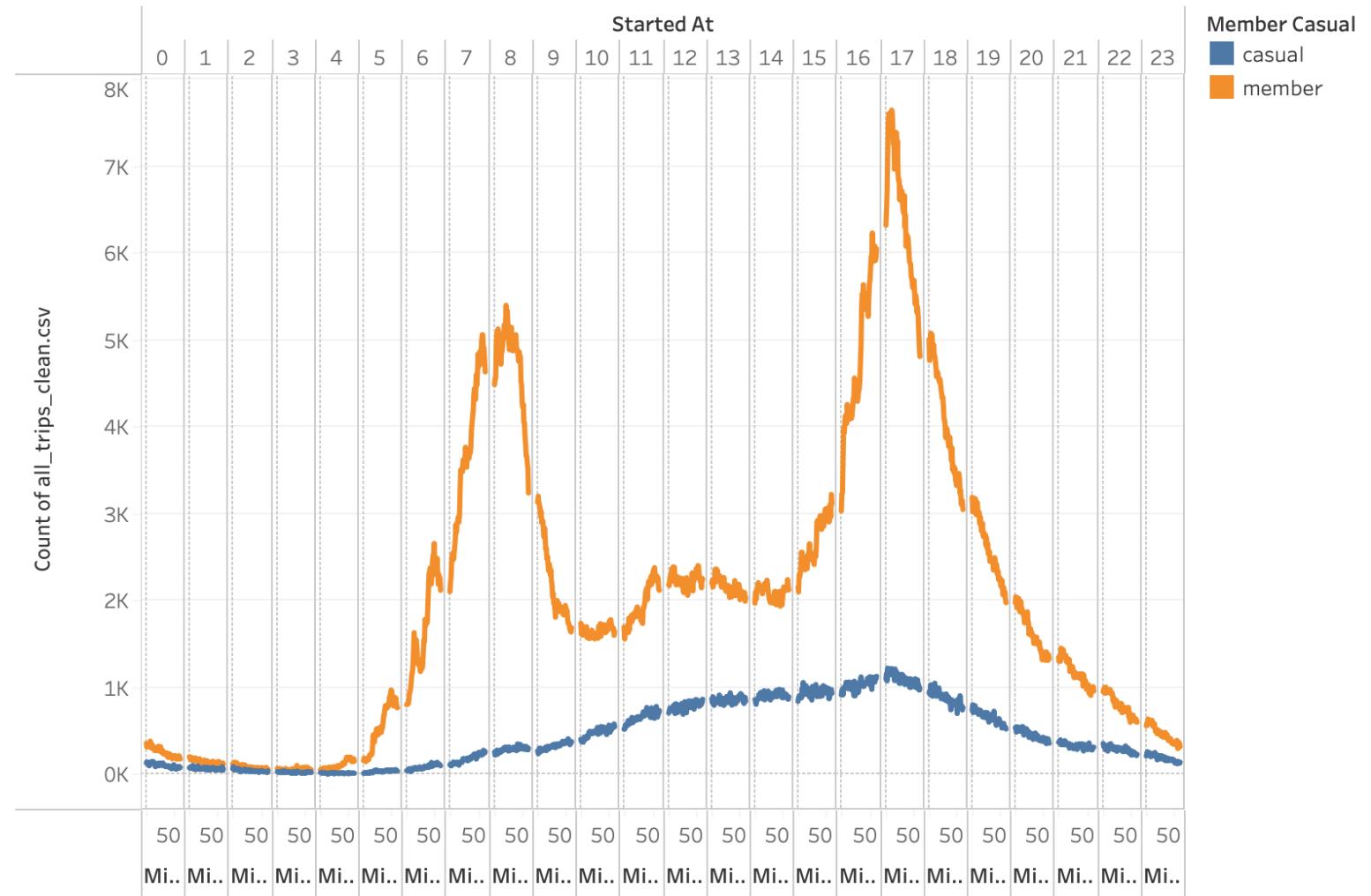
# Most Common Rental Periods

## Key takeaways:

*Annual members* primarily use the service going to and coming from work, with spikes between 7am-9am and 4pm-6pm.

*Casual riders* see a slow but gradual increase in rides over the course of the day with a small spike between 4pm-6pm.

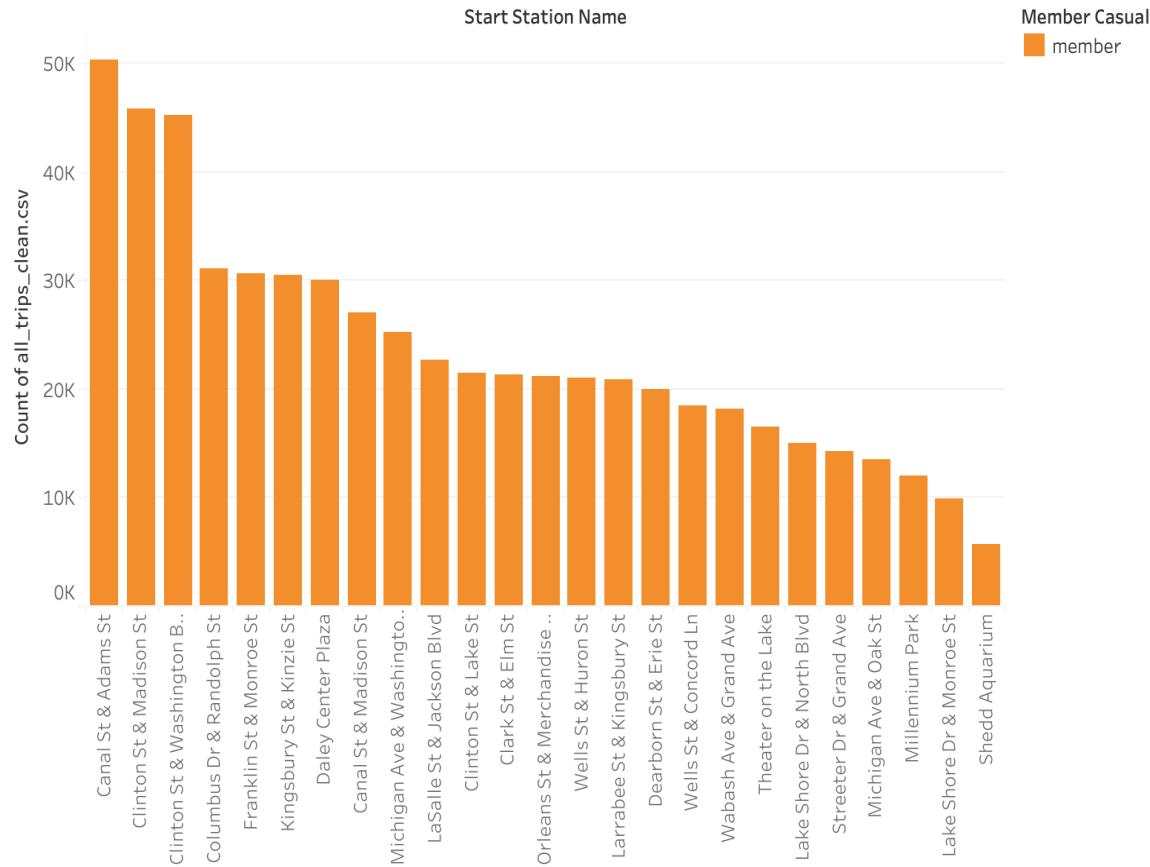
Comparison of members and casual riders 'start times' over 24 hours by minute



The trend of count of all\_trips\_clean.csv for Started At Minute broken down by Started At Hour. Color shows details about Member Casual. The view is filtered on Member Casual and Started At Hour. The Member Casual filter keeps casual and member. The Started At Hour filter has multiple members selected.

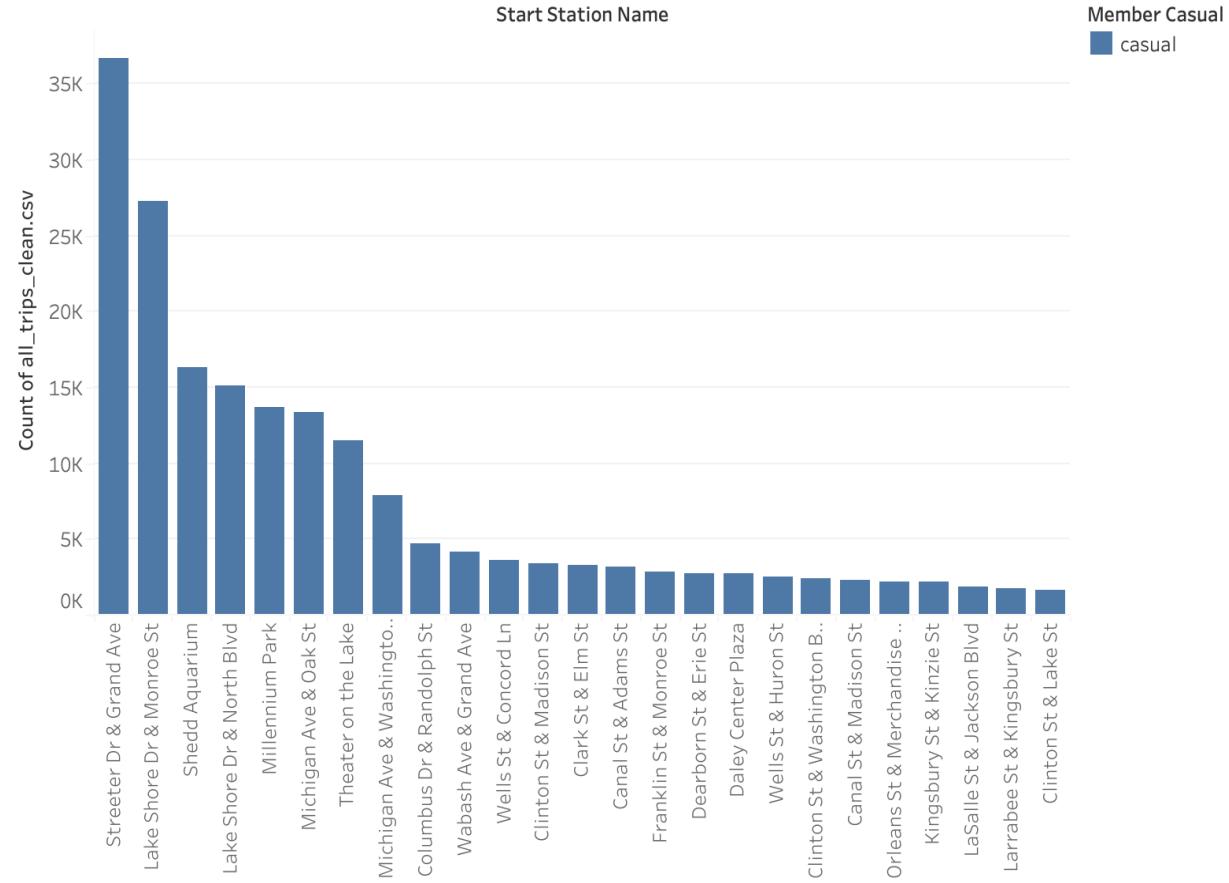
# Most Common Start Stations

Top 25 start stations annual members



Count of all\_trips\_clean.csv for each Start Station Name. Color shows details about Member Casual. Details are shown for Member Casual. The view is filtered on Start Station Name, Member Casual and count of all\_trips\_clean.csv. The Start Station Name filter keeps 25 of 640 members. The Member Casual filter keeps member. The count of all\_trips\_clean.csv filter includes values less than or equal to 50,336.

Top 25 start stations casual riders



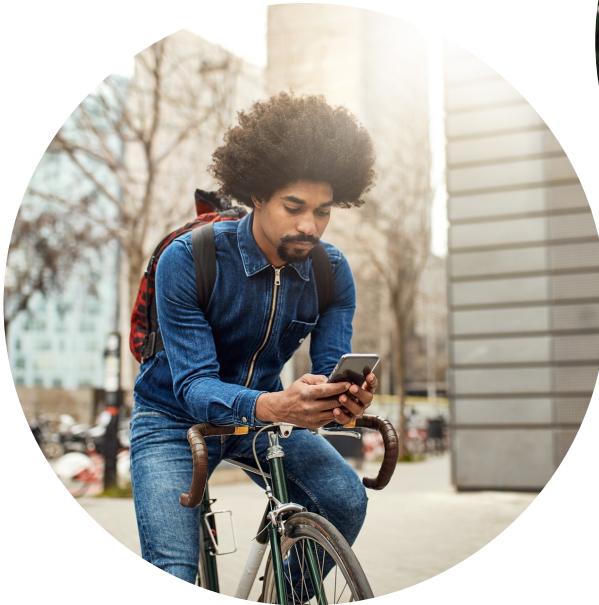
Count of all\_trips\_clean.csv for each Start Station Name. Color shows details about Member Casual. Details are shown for Member Casual. The view is filtered on Start Station Name, count of all\_trips\_clean.csv and Member Casual. The Start Station Name filter keeps 25 of 640 members. The count of all\_trips\_clean.csv filter includes values less than or equal to 53,563. The Member Casual filter keeps casual.

# Final Takeaways

- i. Casual riders mainly use the Streeter Dr. & Grand Ave station (36,709 trips) and the Lake Shore Dr & Monroe St. station (27,242 trips). With the top 5 most used stations falling very close in usership numbers, 11,508 on the low end up to 16,354 total trips.
- ii. Most casual riders make trips that last longer than 24 hours. However, there is a significant number that use Cyclistic similarly to annual members who predominately make shorter trips.
  - i. Annual members averaging at 10.10 at their lowest in February to a 13.23 peak in July
  - ii. Casual riders averaging 17.03 also in February to peaking at 21.81 in April.
- iii. The data suggests that casual riders use Cyclistic more on the weekend while annual members tend to use it for getting to and from work, giving them higher trip numbers during the weekdays and peak trip starts beginning at 7am ending at 8am and picking up again at 4pm ending at 6pm.
- iv. Priority should be aimed at converting those casual riders who use Cyclistic like annual members, first. Second, considering weekend trends with casual riders to help convert them annual membership.

# Next Steps

- i. Clarify anomalies in the existing data
  - i. Trip lengths (in minutes) less than or equal to 0
  - ii. Start or End station names were null
  - iii. Inconsistent station IDs
  - iv. Non-unique ride IDs
- ii. Gather more data for further analysis
  - i. Multiple years of data for comparison
  - ii. Riders' data (personal details, address) will facilitate more targeted marketing strategies
    - i. What is the typical age of a rider? How does this influence bike usage?
    - ii. When/how do non-typical age riders use Cyclistic?
  - iii. Rider usage data – asking the riders pertinent questions (via survey)
    - i. Why do they use Cyclistic? For work, leisure?
    - ii. Would membership options like 'weekday vs. weekend' help convert casual riders?



# Thank you

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