Cyclistic FY 2024 Findings about Annual Members

by Henry Vandiver

Recommendations

Weather-based Riding Improvements, including:

Heated Seats

It allows for a generally warmer experience in winter months, especially while using pedal assist, where less body heat would be generated. This may result in increased casual ridership in cold weather, where it is lowest.

Fans and Mirrors

Mirrors improve safety, as bike lanes can be directly next to car travel, while fans help with high temperatures, increasing member ridership when temperatures are high.

General Riding Improvements, including:

Bike Numbering Plate

Numbering bikes improves tracking, and allows us to test more improvements in an easier way.

18" x 18" x 18" Insulated Carrying Case

It allows for greater utility, potentially increasing trip count per member, and for an easier mount of the numbering plate.

Service Improvements, including:

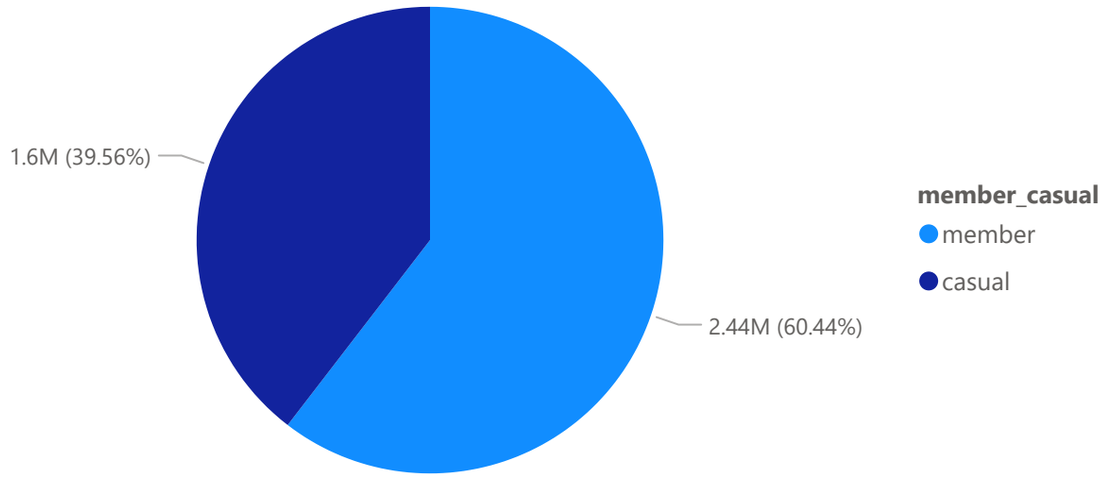
Creation of Monthly Lake Weekend Pass

This new pass type allows casual riders who are more hesitant to buy a annual membership an easier way to get into the service. It will be effective only for stations east of Clark St, and only useable on Friday, Saturday, and Sunday.

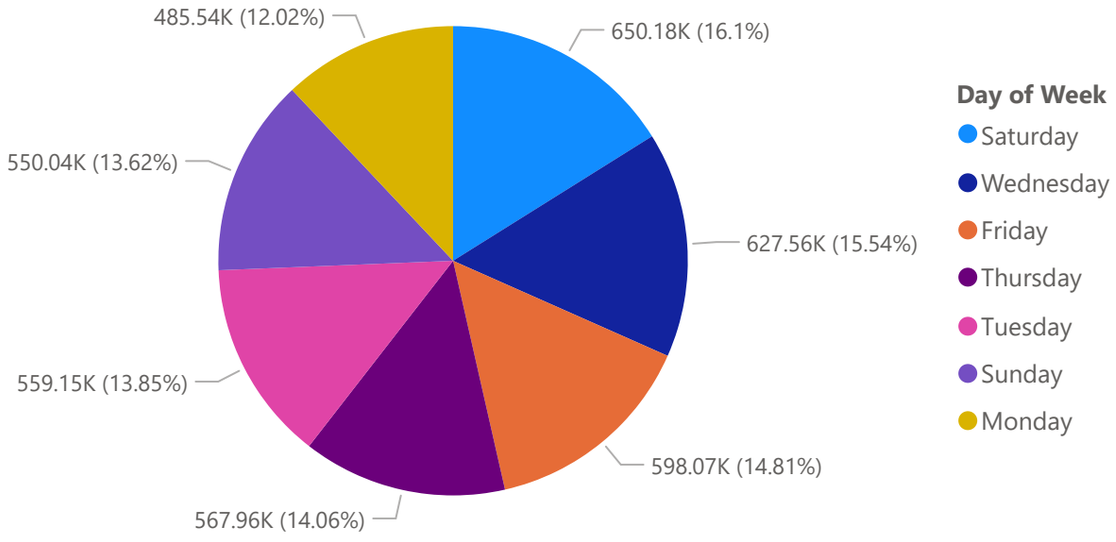
Analysis

Warm Weather Ride Data

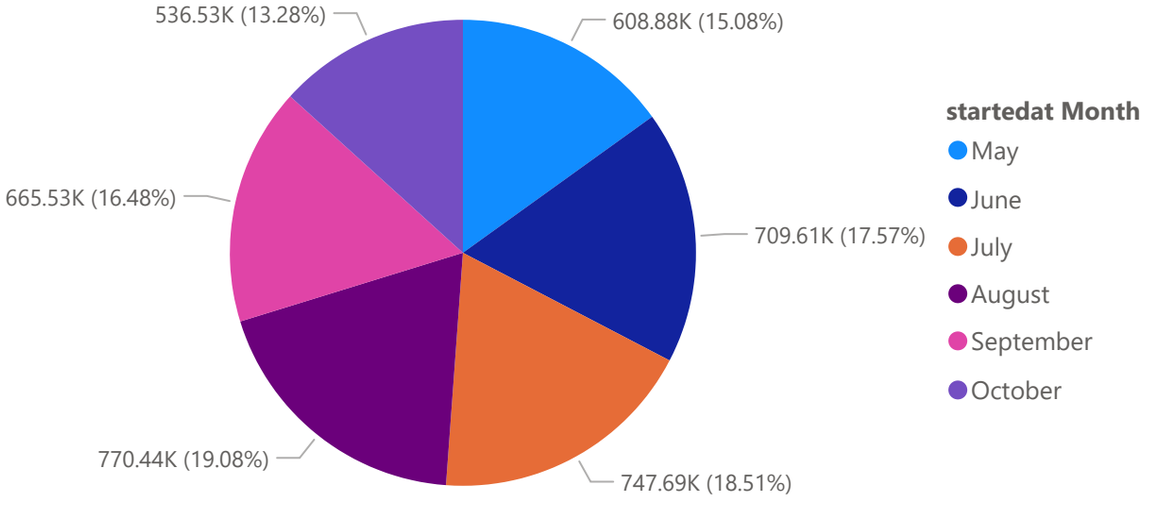
Ride Count by Membership Status



Ride Count by Day of Week



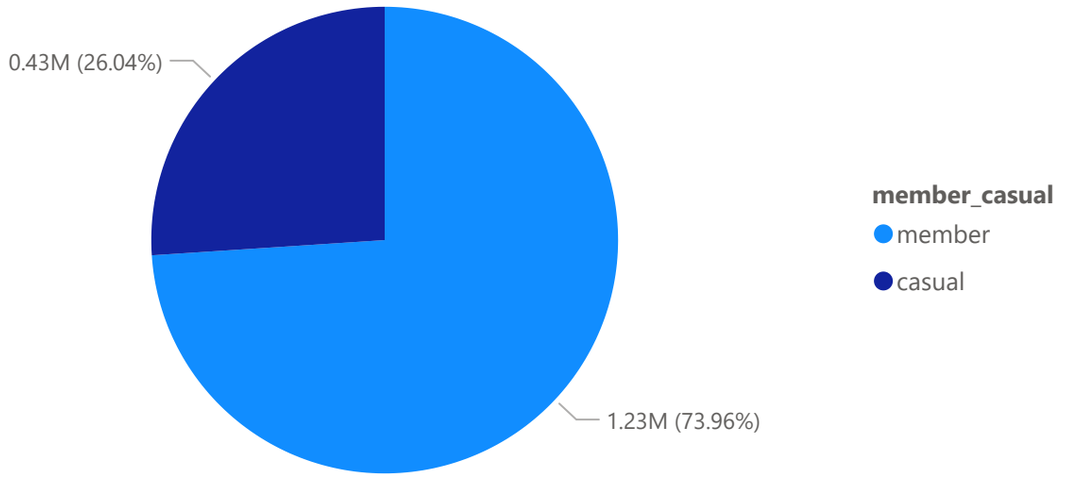
Ride Count by Month



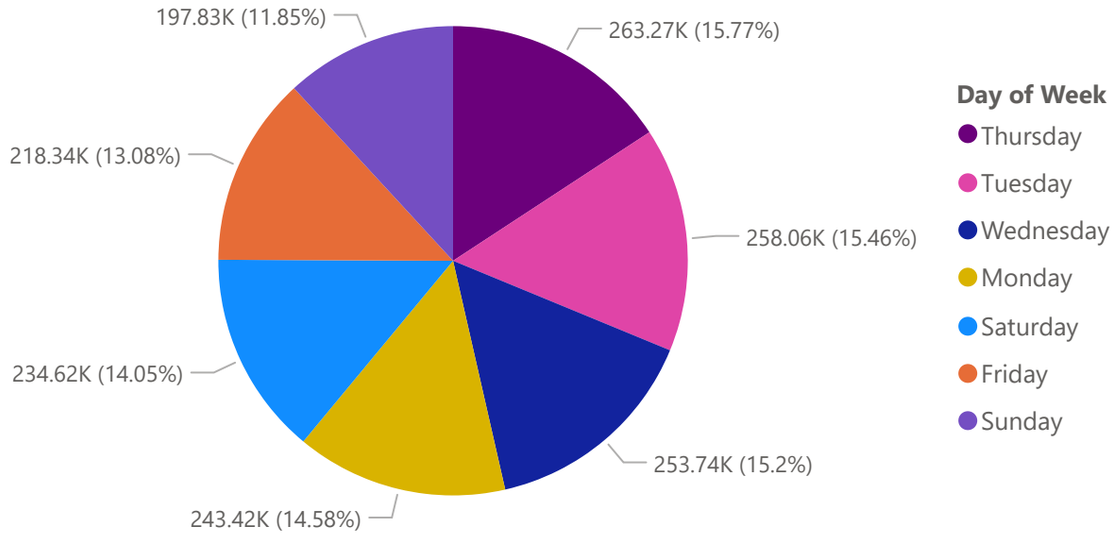
In the two warm-weather quarters, Q1 (8/23-10/23) and Q4 (5/24 - 7/24), ridership was over 500,000 in each month, and totaled over 4 million. Annual Members consistently used our service over 350,000 times a month, and rode mostly on Tuesdays, Wednesdays, and Thursdays. Casual Members, however mostly used our bikes in June, July, and August, and most of their rides were on weekends.

Cold Weather Rider Data

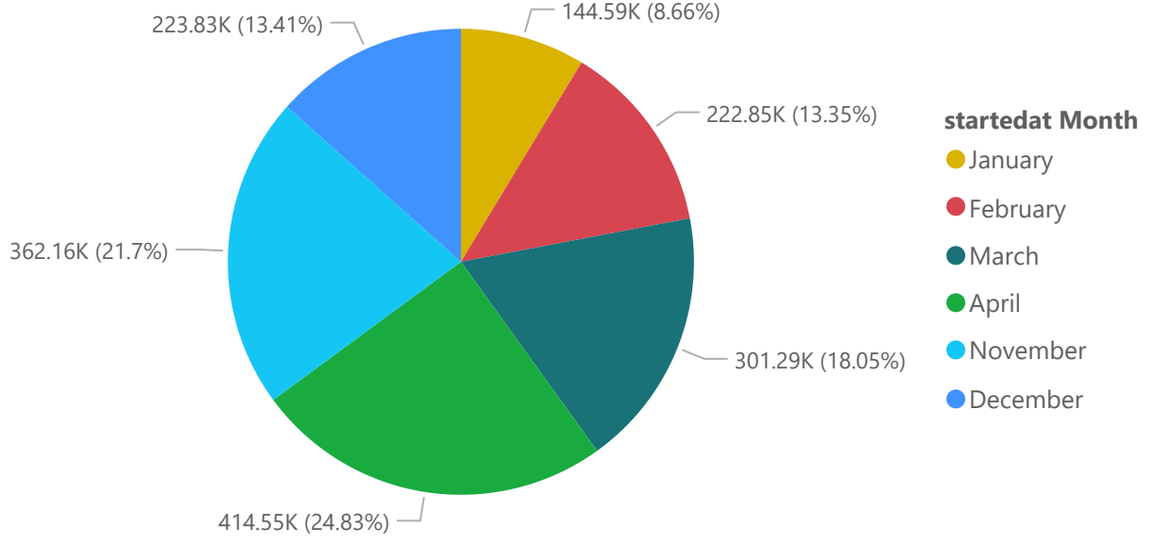
Ride Count by Membership Status



Ride Count by Day of Week



Ride Count by Month



However, in the two cold-weather quarters, Q2 (11/23-1/24) and Q4 (2/24 - 4/24), ridership was over 350,000 in only November and April, and totaled less than 1.7 million. Annual Members consisted of nearly 74% of our ridership in these months, and therefore the three midweek days were our top three days of the week. Casual Members only rode 24,353 times in January, our worst performing month, and the three weekend days are our lowest performing days in these months.

Ride Duration and Locations

Casual riders tend to ride for a longer time, around 21.5 minutes on average, compared to members, who average around 12.5 minutes. For both groups, there is significant variance in ride times, with standard deviations over double of the average. In terms of locations, casual riders start their rides more often in a box bounded by I-55, Western Ave, and Peterson Ave, with the biggest stations right on Lake Michigan. Members, however tend to started rides slightly further out, though they tend to start no further than Pulaski Rd and 35th St. For both groups, there is significant activity near the University of Chicago, as well. This creates an opportunity for location based passes, as casual riders may not want access to the full network, like annual members would.

Sum of Total Seconds

5.35bn

Average of Total Seconds

936.56

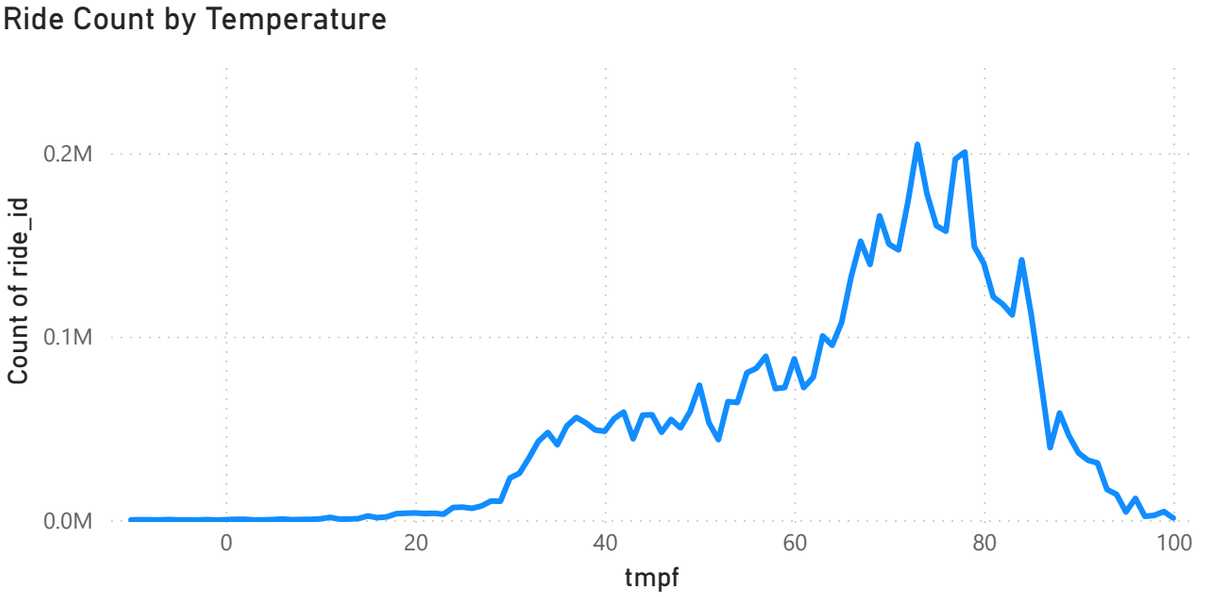
Standard deviation of Total...

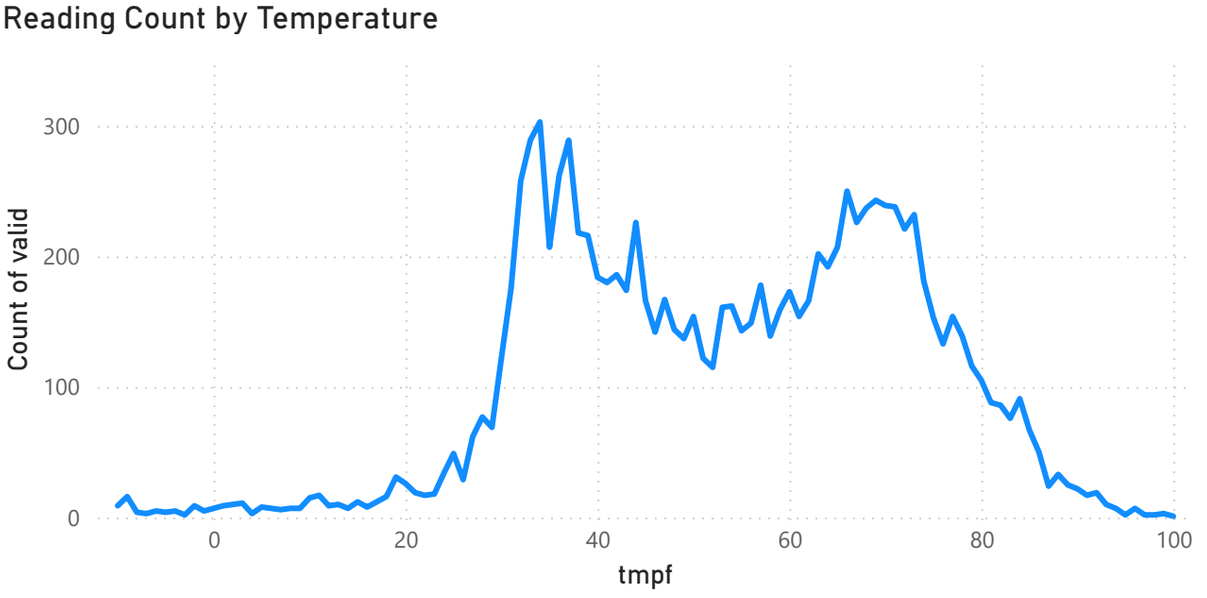
2.24K

Ride Count by Start Location

Bike Rides by Temperature

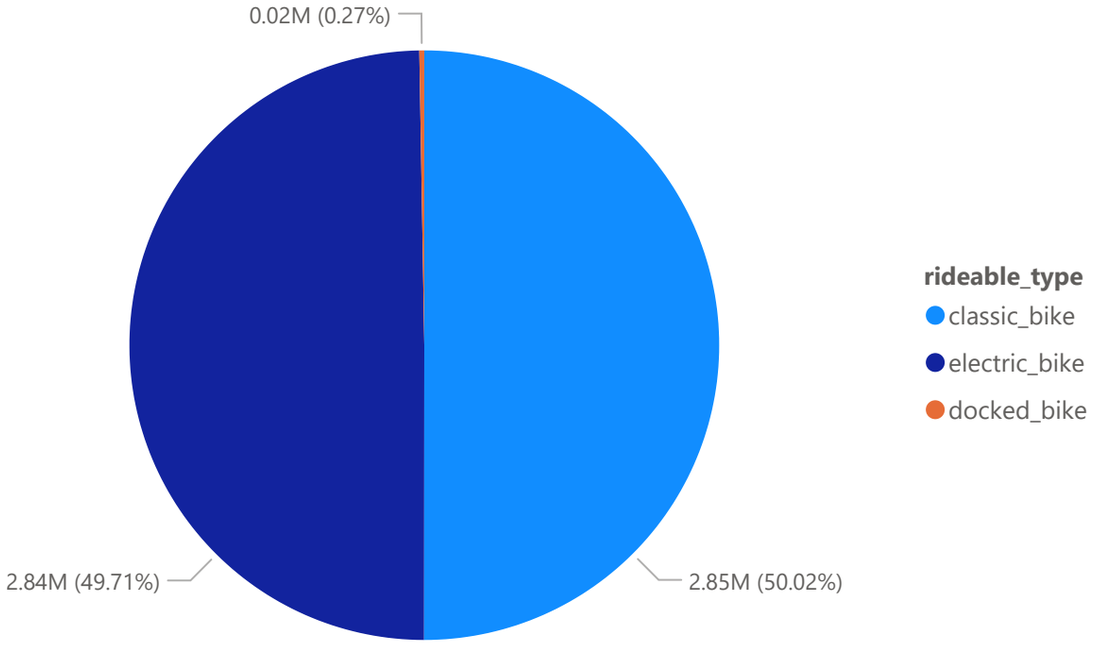
According to the graphs to the side, our bikes reach their greatest usage potential at conditions of 75 degrees Fahrenheit or higher, as measured at O'Hare airport. Usage is slightly lower than this when the temperature is a few degrees lower, as the readings cover all day. Members are more willing to ride in colder temperatures, while casual riders tend to be scared off by the colder weather. This creates an opportunity, as improving the quality of cold weather rides may increase user numbers.



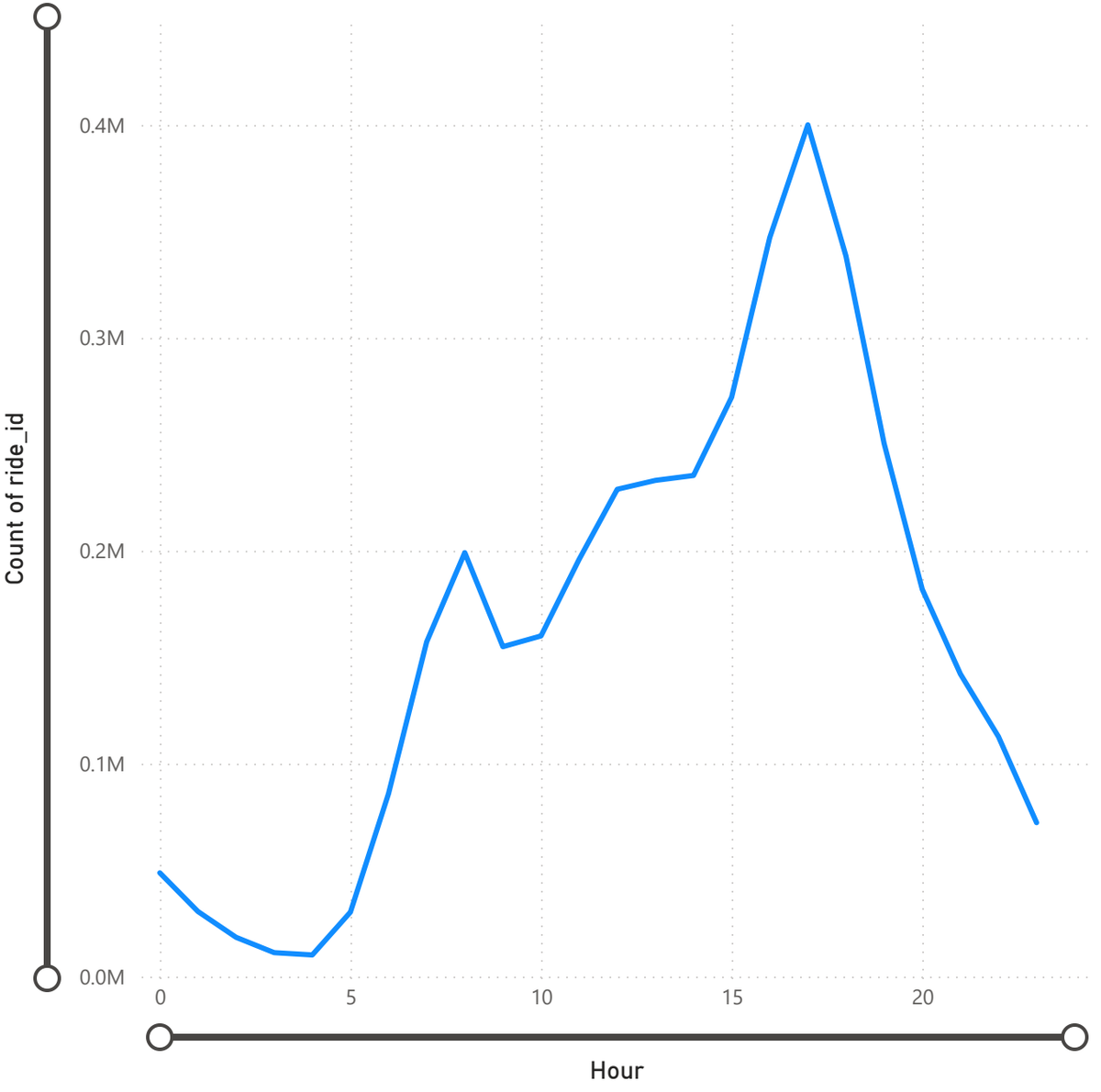


Electric Bike Usage and Bike Usage By Time

Ride Count by Type of Bike



Ride Count by Hour



Shockingly, classic bikes are more attractive, especially in the winter months, than the electric models. There seems to be no preference between members and non-members. However, as we do not number our bikes, or, at least include the numbers in our ride data, it is inconclusive whether per bike consumers have a preference either way. As electric bikes tend to cost more, it is important if we have a large composition in our fleet to have them properly equipped for riders to choose these bikes to improve efficiency. In terms of bike use timing, they tend to align with car rush hours, with peaks at 6:00-10:00 and 15:00-19:00 on weekdays, and 10:00-15:00 on weekends, though on those days, large demand continues until the sun sets, with a small kick at 22:00 during baseball season (Apr-Sep).

Methodology

First, I took the data assigned, and cleaned it in Microsoft Excel. Afterwards, I imported the cleaned data into Microsoft Power BI to start visualizing. I gathered additional data where necessary, like with Iowa Environmental Mesonet, to find better connections within the data. I used these sets of data to create new columns and visualizations to find patterns in the data that connected with the question of, "How do annual members and casual members use Cyclistic bikes differently?" I then used this analysis to develop recommendations for the company for potential implementation.

Data Used and Acknowledgements

- Data provided from Google Data Analyst Certificate
- ASOS and METAR data from station ORD, located at O'Hare International Airport, provided by Iowa Environmental Mesonet
- 2023 and 2024 results from Baseball Reference and Retrosheet for the Chicago Cubs and Chicago White Sox, as well as 2023 results from Pro Football Reference for the Chicago Bears
- An additional thank you to Google for creating this Certificate, and allowing me to develop new skills like the ones that helped with this presentation, as well as Coursera for allowing me to discover the many skills I could learn to better myself and my career.

Thank you for your time.