How do annual members and casual riders use Cyclistic bikes differently?

by Mariana Mytiliños

GOOGLE DATA ANALYTICS PROFESSIONAL CERTIFICATE
CAPSTONE PROJECT

Index

Introduction	3
Member vs Casual rides by day of the week	3
Member vs Casual rides by month	4
Members vs Casual riders bike type selection	7
Members vs Casual riders location	11
In conclusion	16
Going forward	**17**

Introduction

For our bike share business, maximizing the number of annual members holds the key for future growth. With this goal in mind, a data analysis project has been carried out to provide an answer to the question: How do annual members and casual riders use Cyclistic bikes differently?

The analyzed data consisted of the past 12 months, April 2020 to March 2021, of available Cyclistic historical bike trip data, which was subjected to data cleaning steps outlined in the data cleaning log.

Through Tableau visualizations, we have identified certain riding patterns and formulated an answer to the main question.

Member vs Casual rides by day of the week

As shown by the results of the analysis of Cyclistic rides in the past year, members have a nearly even distribution of their rides between the different days of the week, and tend to ride less on Sundays.

When it comes to casual riders, they tend to ride more on weekends, especially Saturdays.

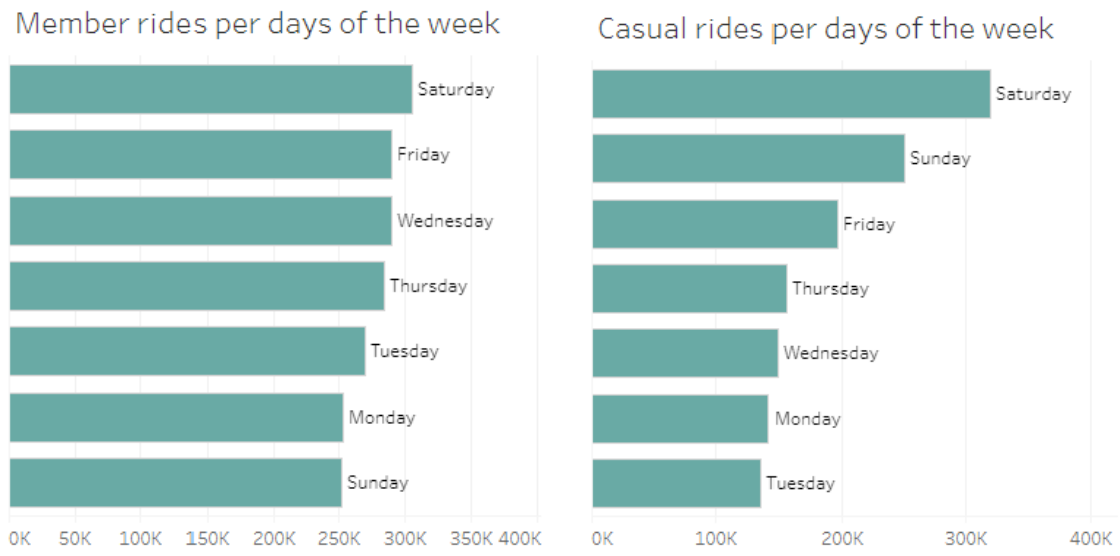


Figure 1: Member and casual rides per day of the week. Source: Tableau Online.

On the other hand, the maximum average ride length by day of the week is on Tuesdays, followed by Sunday and Saturday, both for members and casual riders.

We can see that the casual riders have about triple of the average ride length on Mondays, Thursdays, Fridays, Saturdays and Sundays, more than double on Wednesdays and about 25% more on Tuesdays. Given these metrics, we can observe that the casual riders ride longer distances than members.

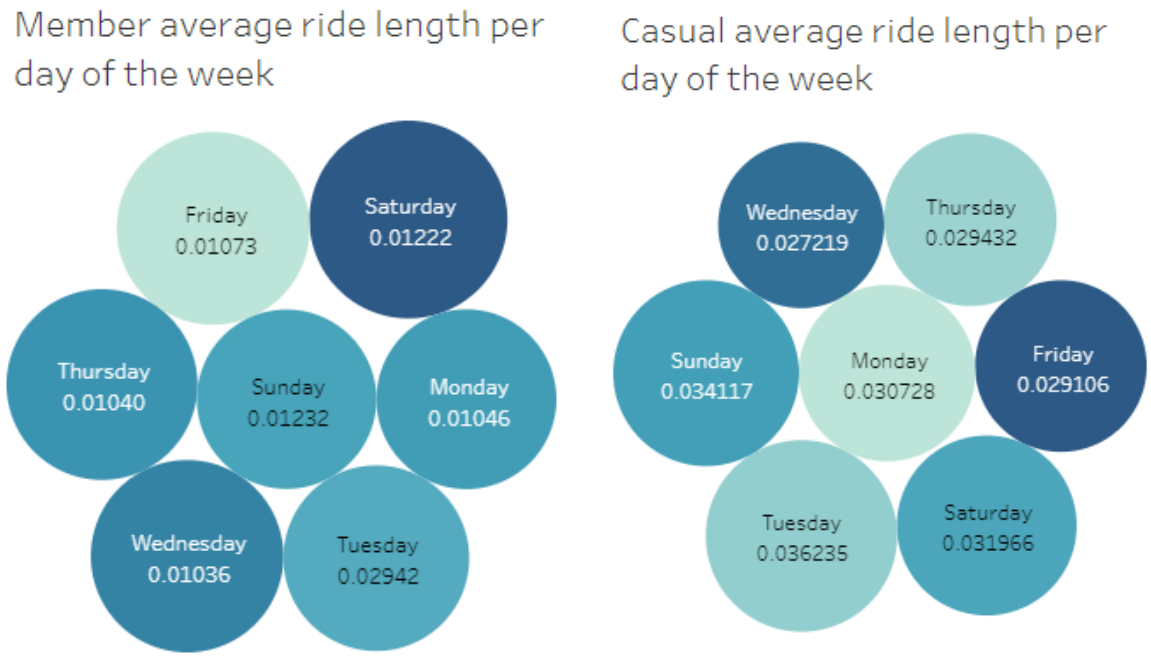


Figure 2: Member and casual average ride length per day of the week. Source: Tableau Online.

Member vs Casual rides by month

As shown in the visuals, the month to month distribution of the frequency of rides for spring and summer months is similar between members and casual riders, having its lowest point on April, rising through May and June, having its peak points in August and July and declining in September, which shows that the summer months have the biggest frequency of rides.

The average ride length for members has a slight and constant decline from April through September, while the average casual ride length shows a considerable peak in April and decreases for May and June, slightly rises in July and decreases again for August and September. This means that, even though summer months have a higher amount of bike trips than spring months, there is a longer average ride length in spring months, both for members and casual riders.

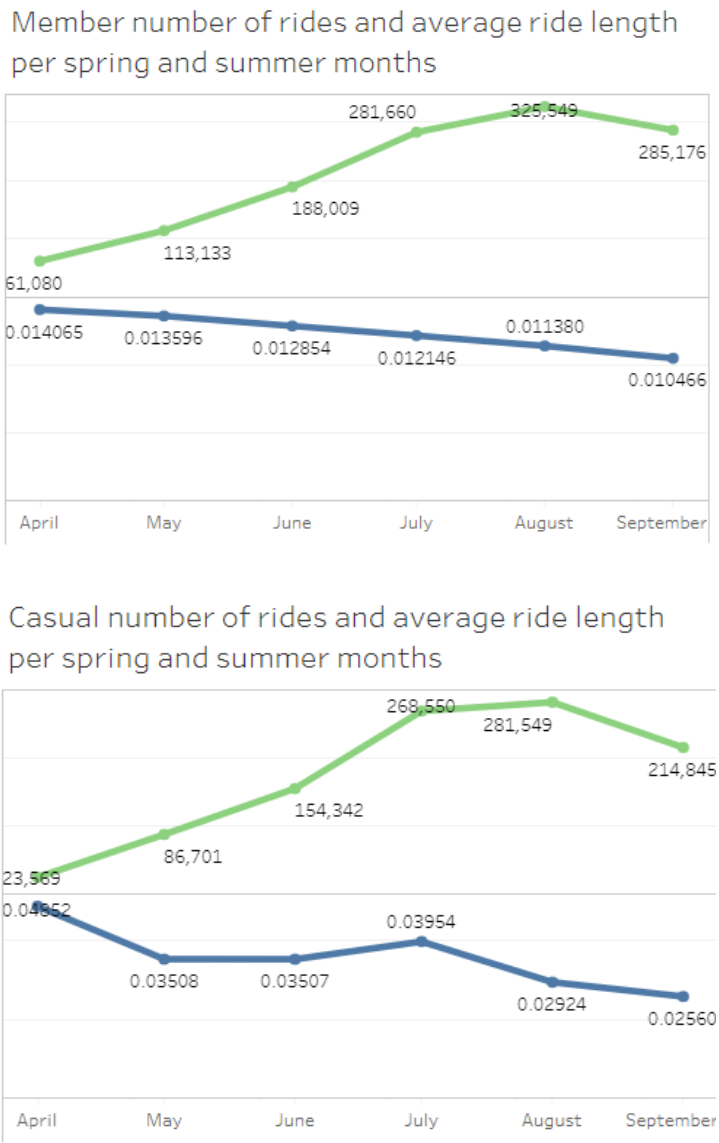
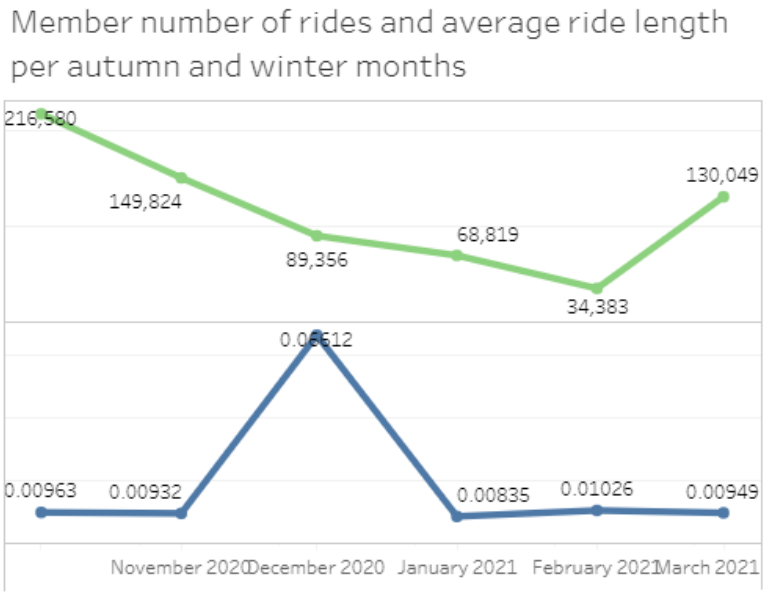


Figure 3: Member and casual number of rides and average ride length per spring and summer months. Source: Tableau Online.

The month to month distribution of the frequency of rides for autumn and winter months is also similar between members and casual riders, having its highest point in October, dropping until February and rising through March, which clearly shows that the winter months have the lowest frequency of rides both for members and casual riders.

The average ride length for members and casual riders is low in October and November, and shows a considerable peak in December, with an abrupt decline in January. In February and March, the average ride length stays consistent for members, while the average casual ride length rises in February and slightly declines in March.

With that said, we can observe that, even though most autumn and winter months tend to have lower average ride lengths than spring and summer months, the peak in December is the biggest average ride length in the year.



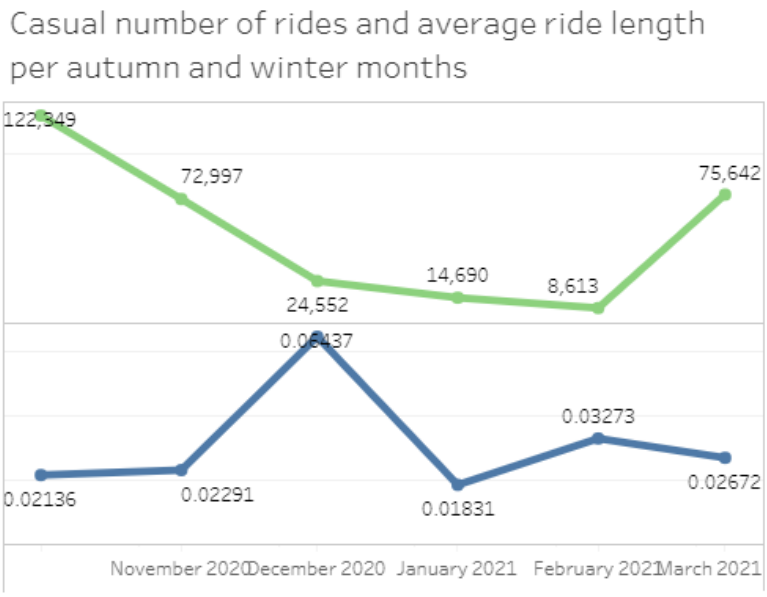


Figure 4: Member and casual number of rides and average ride length per autumn and winter months. Source: Tableau Online.

Members vs Casual riders bike type selection

Another aspect for comparison between member and casual riders are their bike type preferences. These preferences are generally a point in common between them, since they show similar bike selection patterns over time.

We can observe that, from April through June, both members and casual riders only ride docked bikes. In July, electric bikes start almost imperceptibly entering the scene, and the electric bike rides increase in August and September. However, riders still use docked bikes the most.

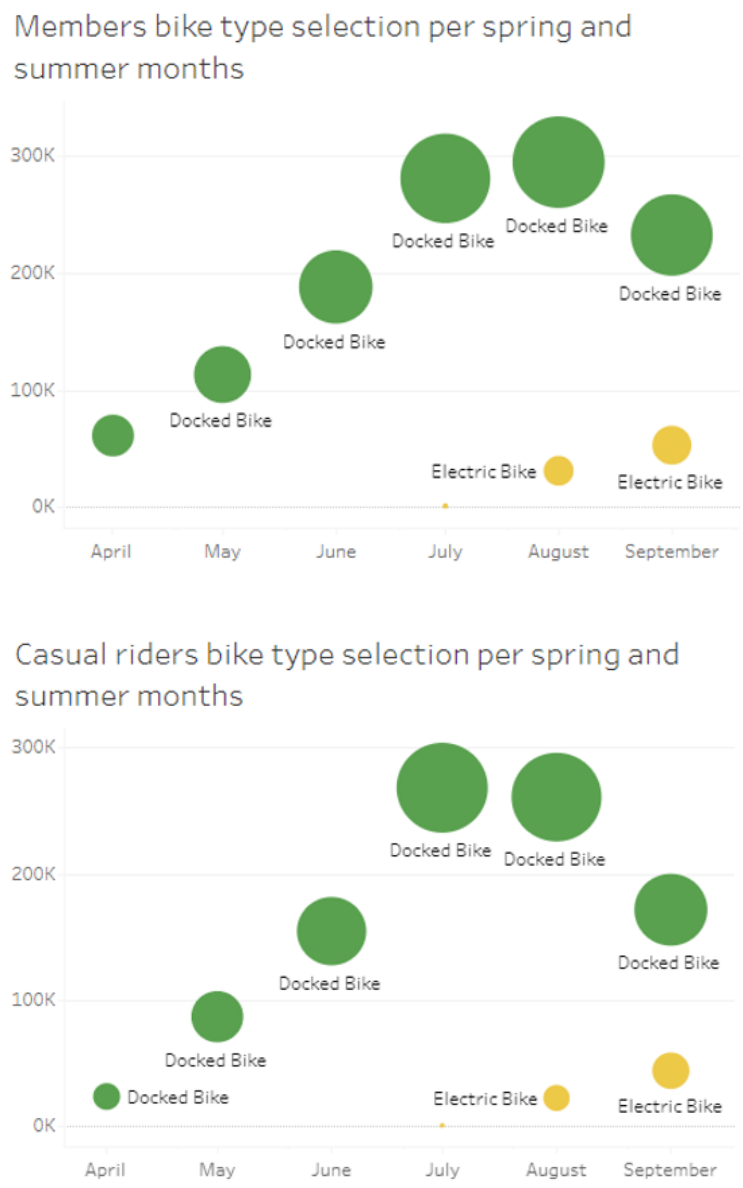


Figure 5: Member and casual bike type selection per spring and summer months. Source: Tableau Online.

On the other hand, the bike type selection for autumn and winter months appears to be more diverse. The docked bike continues to be the most selected in October and November, followed more closely by the rise in electric bike rides. Nevertheless, from December through March, a different bike type appears and takes the lead: the classic bike.

For members, we can observe that, in December and January, the classic bike progressively takes the spot that the docked bike used to have, being no docked bike rides by members in February or March. For casual riders, the docked bike takes the third place between December and February as there is a higher use of classic and electric bikes, in that respective order. Nevertheless, docked bike selection slightly surpasses electric bike selection in March.

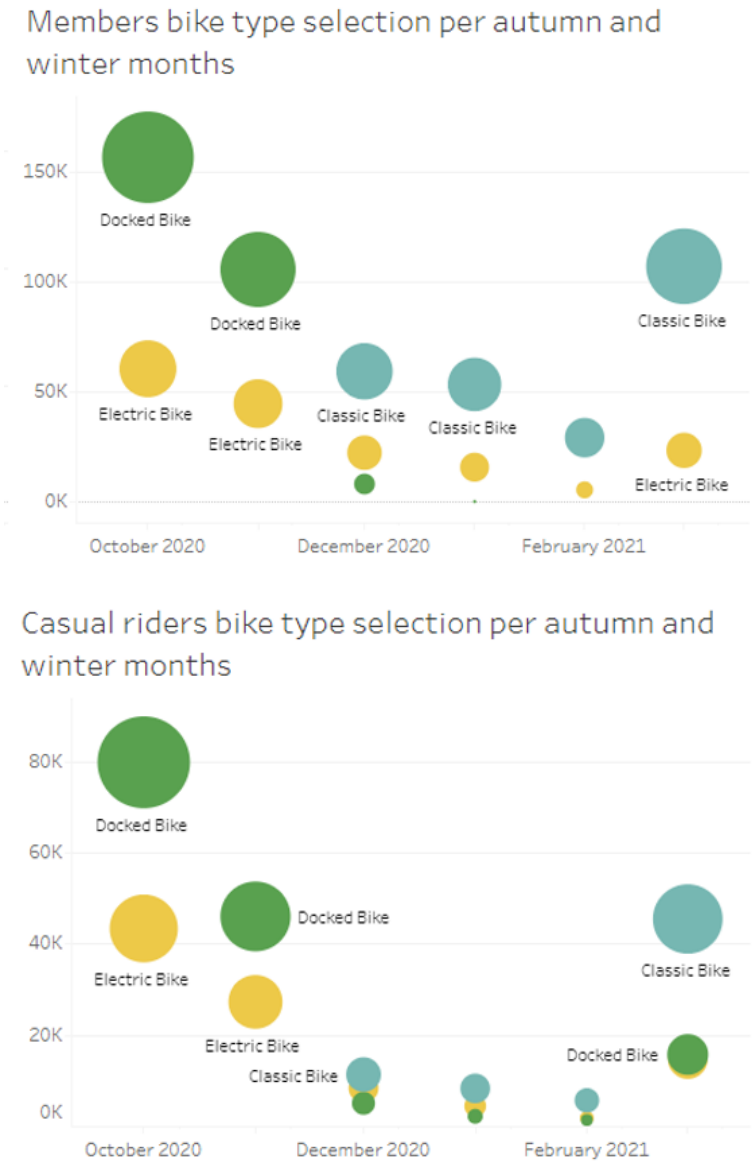


Figure 6: Member and casual bike type selection per autumn and winter months. Source: Tableau Online.

If we drill down to observe the bike type selection by day of the week for spring and summer months, we can see that both members and casual riders use docked bikes more than electric bikes any day of the week. We can also observe that members have a higher amount of weekday rides for spring and summer months, but casual riders have a higher amount of weekend rides.

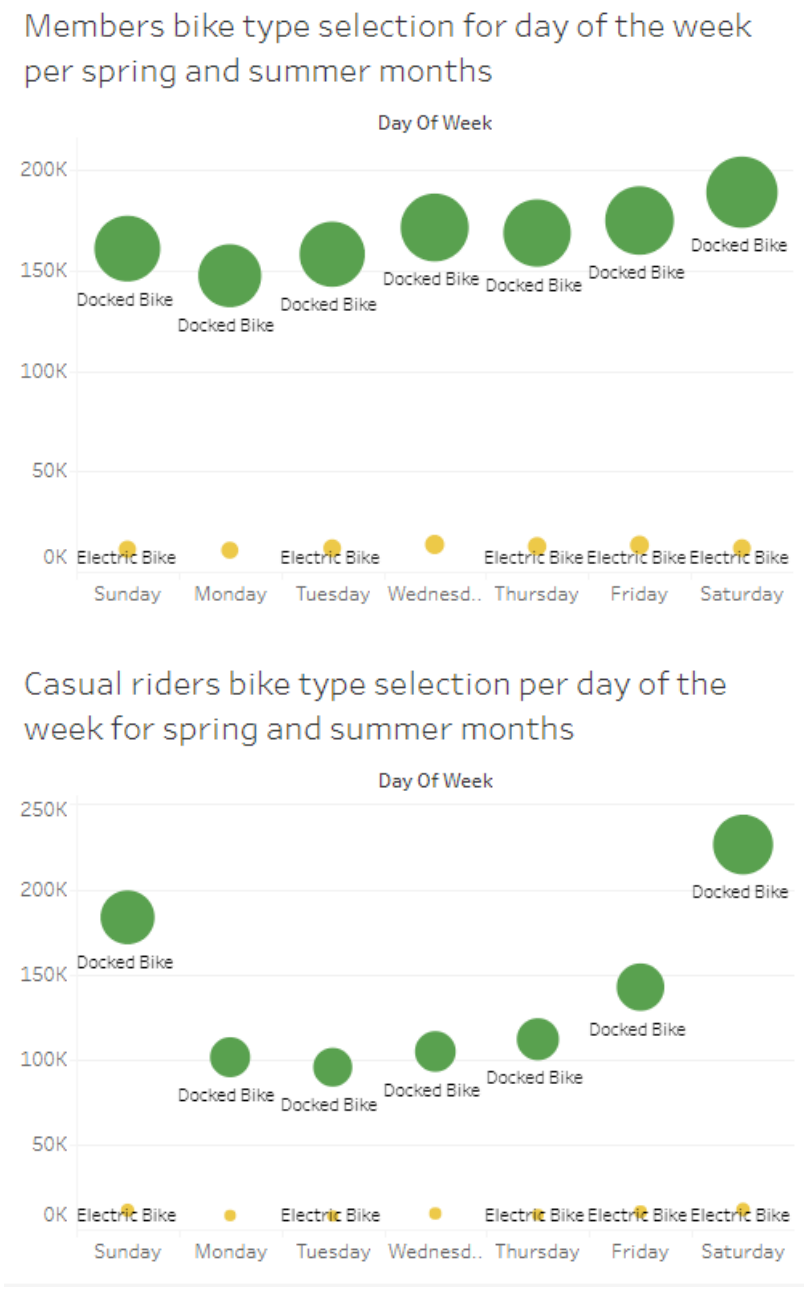


Figure 7: Member and casual bike type selection per day of the week for spring and summer months. Source: Tableau Online.

For autumn and winter months, as seen in Figure 6, classic bikes are the most selected option for members on Sundays, Mondays and Tuesdays, and the second most selected in the remaining days after docked bikes. On the other hand, classic bikes get the third place in casual riders' bike type selection for each of the days, being docked bikes the most selected, followed by electric bikes. We can also see that members have a considerably higher amount of rides for autumn and winter months.

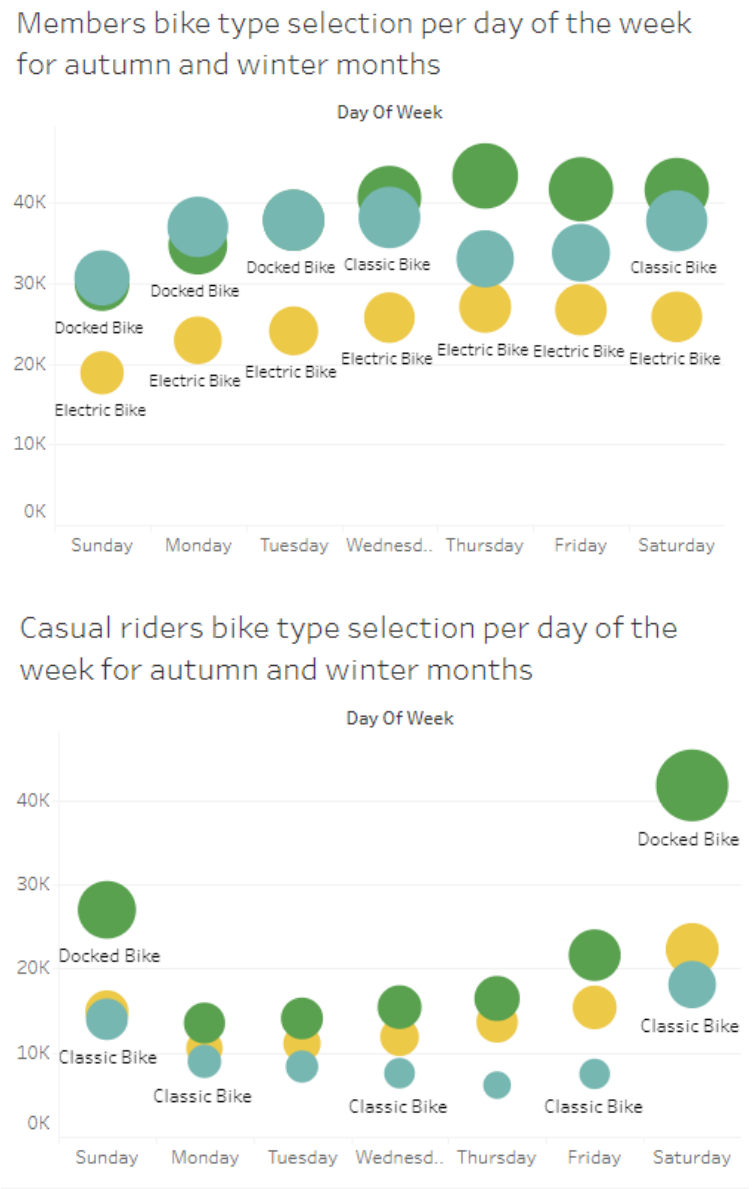
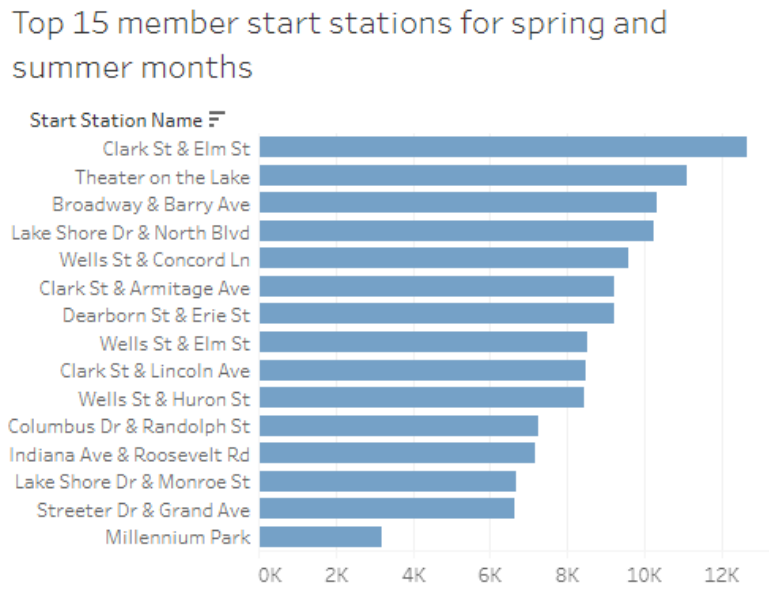


Figure 8: Member and casual bike type selection per day of the week for autumn and winter months. Source: Tableau Online.

Members vs Casual riders location

When it comes to spotting patterns and differences between members and casual riders, identifying the main stations where casual riders start their rides may be useful in order to geographically focus marketing campaigns and initiatives.

For spring and summer months, members and casual riders share the same top 15 start stations, but in a different order. The 3 most frequented start stations by casual riders are Streeter Dr & Grand Ave, followed by Lake Shore Dr & Monroe St and Millenium Park, which are at the bottom of the top 15 start stations for members.



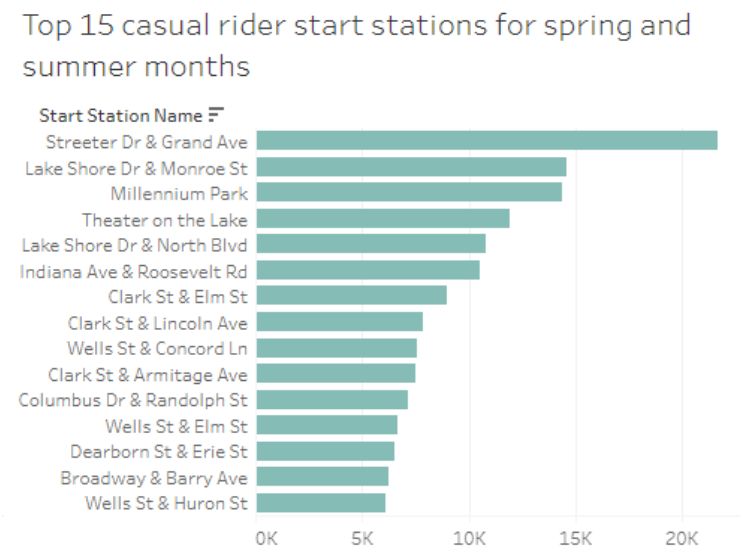
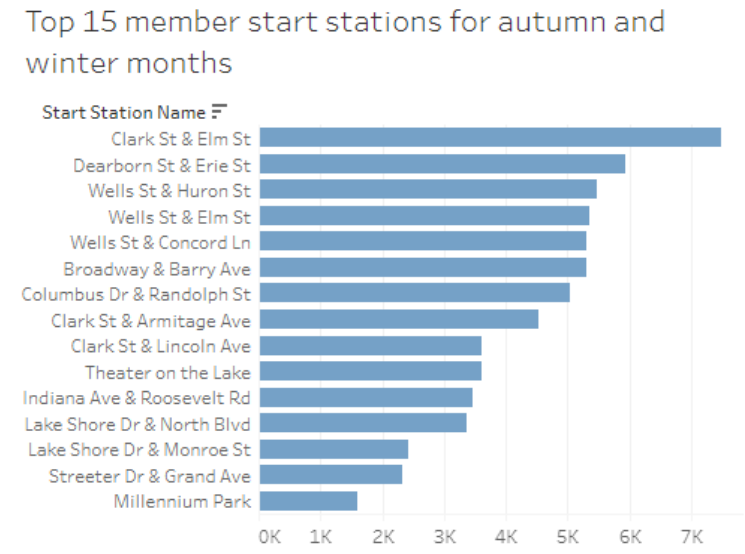


Figure 9: Member and casual top 15 start stations for spring and summer months. Source: Tableau Online.

In autumn and winter months, members and casual riders also share the same top 15 start stations in a different order. The 3 most frequented start stations by casual riders are their same 3 most frequented start stations in spring and summer months, just in a different order: Lake Shore Dr & Monroe St, followed by Millenium Park and Streeter Dr & Grand Ave, which are again at the bottom of the top 15 start stations for members.



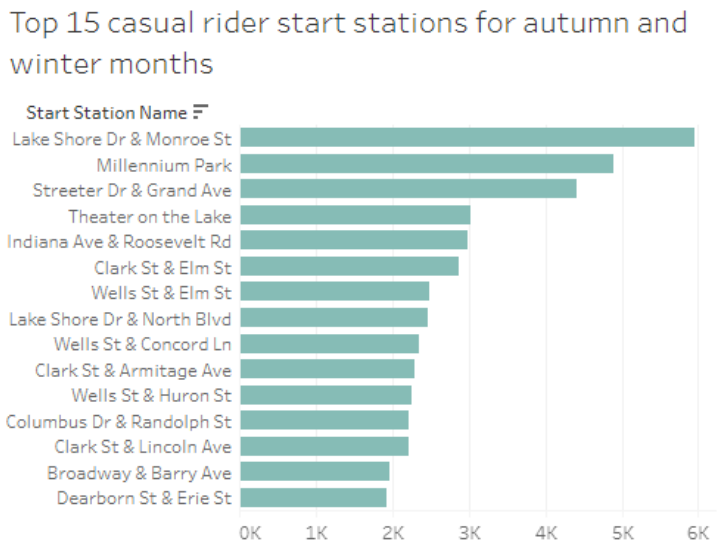
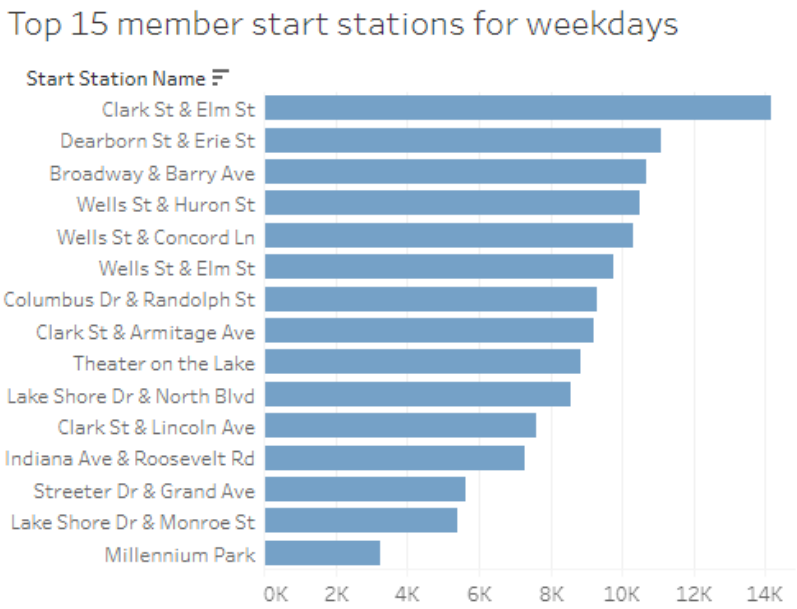


Figure 10: Member and casual top 15 start stations for autumn and winter months. Source: Tableau Online.

When analyzed by days of the week, members and casual riders share the same top 15 start stations on weekdays and weekends, but in a different order. The 3 most frequented start stations by casual riders on weekdays and weekends are the same ones as in spring and summer months: Streeter Dr & Grand Ave, followed by Lake Shore Dr & Monroe St and Millenium Park.



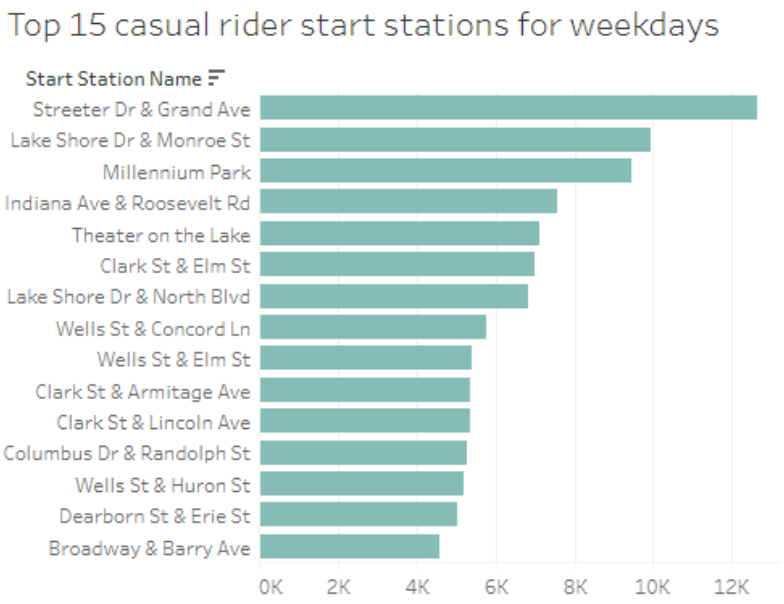
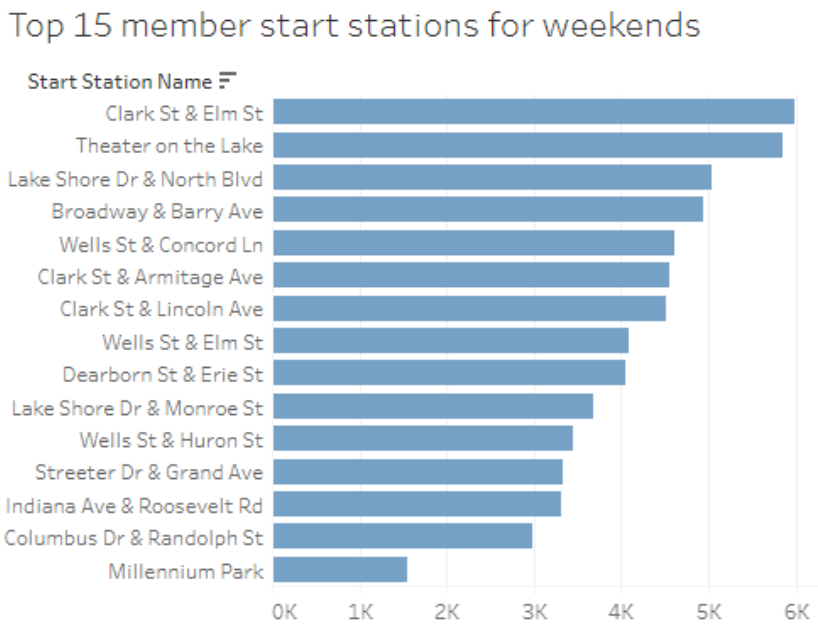


Figure 11: Member and casual top 15 start stations for weekdays. Source: Tableau Online.



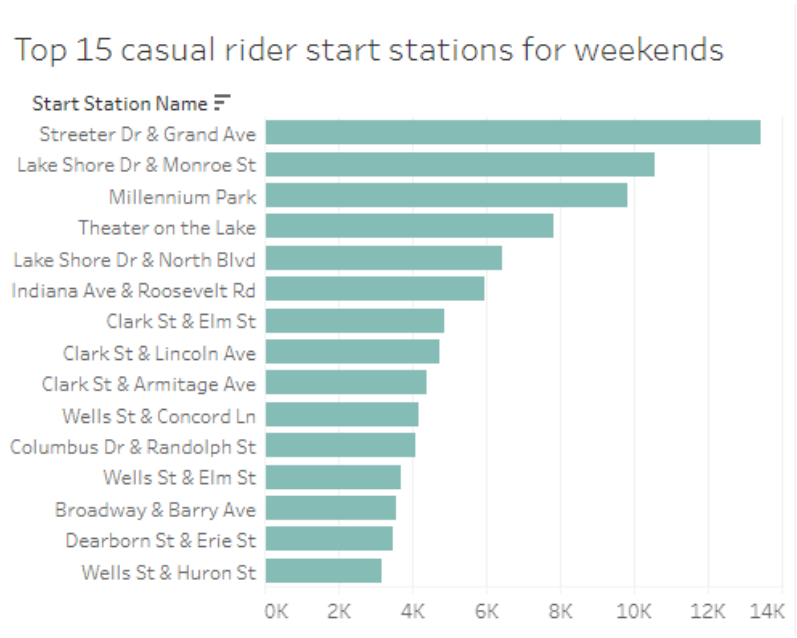


Figure 12: Member and casual top 15 start stations for weekends. Source: Tableau Online.

In conclusion

The following are the key common characteristics and differences spotted between members and casual riders as a result of the analysis.

Common characteristics

- Members and casual riders have a similar distribution of their amount of rides through the different months of the year.
- Both members and casual riders share a peak average ride length in December, which is considerably higher in comparison to the average ride length of the other months.
- Members and casual riders have a very similar bike selection pattern in spring and summer months.
- Members and casual riders have the same top 15 start stations for all months and also for weekdays and weekends.

How do annual members and casual riders use Cyclistic bikes differently?

- Members ride from about 2 to 4 times more than casual riders in autumn and winter months, and also have a higher number of rides in spring and summer months.
- Members have a close distribution of rides between all days of the week, while casual riders tend to ride more on weekends.
- Casual riders have longer average ride lengths than members, for every day of the week and every month (with the close exception of December).
- In autumn and winter months, members display a higher selection of classic bikes, while casual riders have a proportionately higher selection of electric bikes.
- The top 3 most frequented start stations for casual riders tend to be at the bottom of the top 15 most frequented start stations for members.

Going forward

Considering the previously stated insights, here are some ideas and suggestions for developing a marketing strategy in order to help convert more casual riders into members:

Targeting advertising campaigns, actions and promotions: This would consist of doing advertising campaigns, actions or promotions on Sundays, as it is the second most frequented day by casual riders and least frequented day by members, and in the most frequented stations by casual riders.

Cyclistic marathons: Another suggestion would be to host Cyclistic marathons on Sundays, since it is also the day with the highest average ride length by casual riders. The winner could receive the prize of a free Cyclistic membership for a year, and a giveaway of Cyclistic membership discounts for the first months could take place as well. There could be advertising signs and brochures handed out to marathon participants, which outline the benefits of becoming a Cyclistic member.

Cyclistic winter holiday campaigns: Since there is a drop in casual riders in autumn and winter months, another idea to attract casual riders and help convert them into members would be to host a Cyclistic Christmas marathon or New Year's challenge, in order to encourage casual riders to adopt bike sharing as their primary means of transportation as a New Year's resolution. These campaigns could take place on weekends at the top 3 start stations for casual riders.

Cyclistic app: This idea consists of launching a Cyclistic app (for members only) that tracks each user's rides and ride length, and awards points and badges when certain goals are met. Since casual riders tend to ride longer distances, they may be attracted by the possibility of tracking and being rewarded points for their progress. A 7-day trial could be offered to casual riders, in hopes that they like the app and become members in order to continue using it.

Enhancing the fleet of electric bikes: Given that casual riders show a higher preference for electric bikes, another idea would be to increment the fleet of electric bikes, and maybe consider offering bikes that are powered by renewable energy.