Google Data Analytics Professional Certificate Capstone Project
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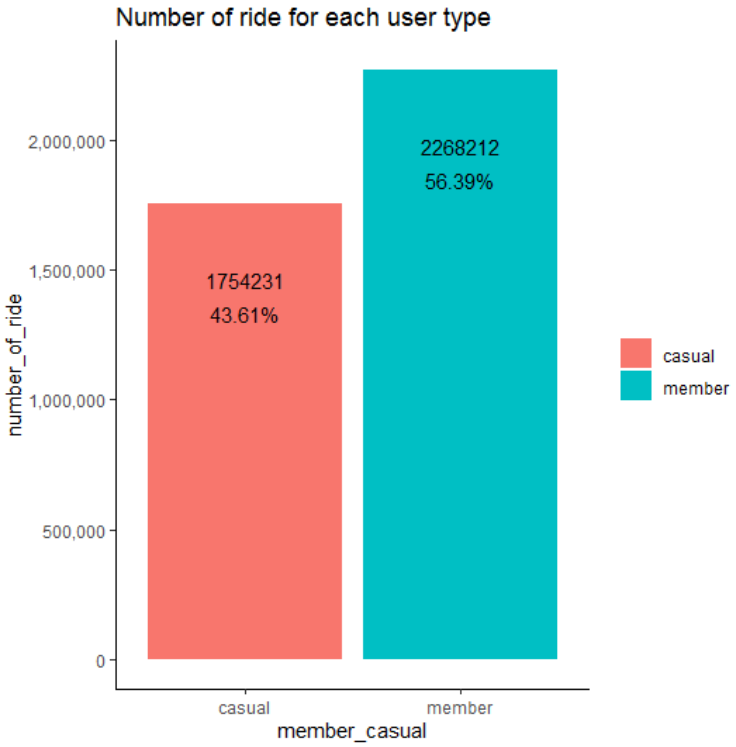
Data Share and Visualization

In this part, I will share those insight found from the data analysis. All graphs and plots are generated by using R library ggplot2.

* Overall analysis

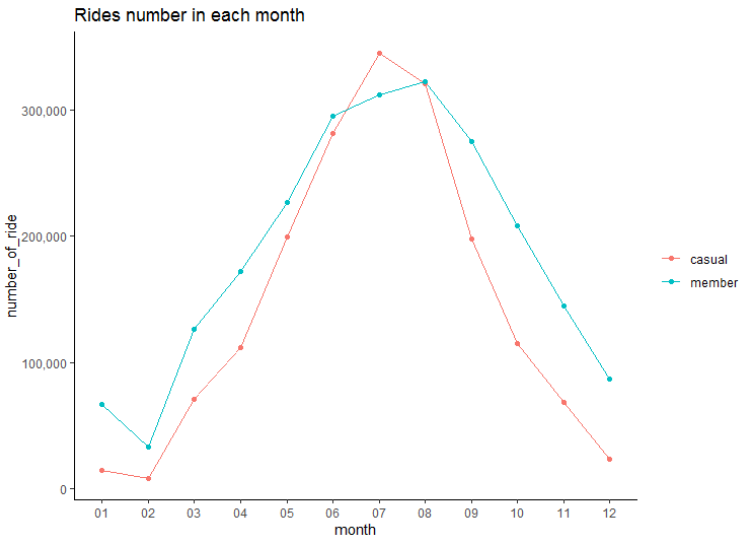


member_casual	number_of_ride	total_ride_min	mean_ride_min	min_ride_min	max_ride_min
casual	1754231	40036891	22.8	2	90
member	2268212	31141935	13.7	2	90

Insight and Interpretation:

In the last year, 56.39% of Cyclistic rides are members while 43.61% are casuals. Although the members have more numbers of ride, their average ride minutes (13.7 mins) is significantly lower than casuals (22.8 mins) by 50%. Casual users are spending more riding minutes in each rides. This results a smaller total rides minutes in member than casual by around 30%.

* Analysis by Month:

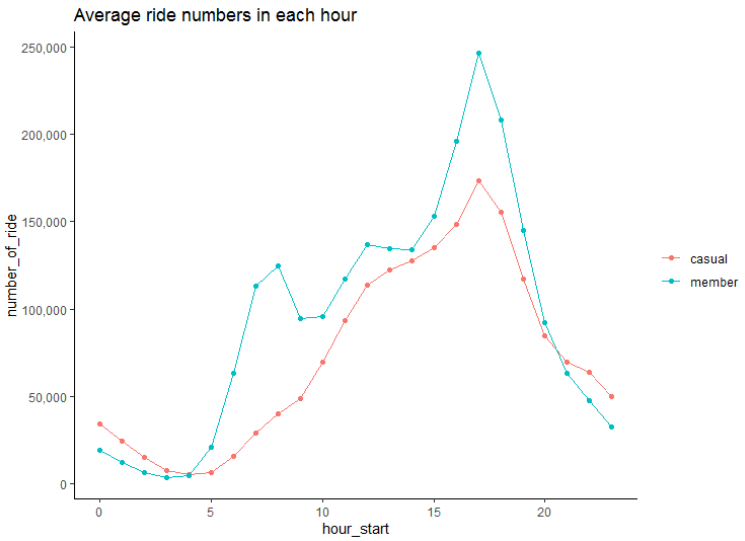


Insight and Interpretation:

A seasonal cyclic pattern of rides number is observed in both members and casuals. The rides number increase significantly from February and reaches the peak at July and August. Then the numbers drastically drop at the end of year.

After checking the average monthly temperature, a similar seasonal pattern is also observed. Therefore a possible explanation is: During the spring and summer time (Feb to Sep), the weather is warmer and suitable to ride. And during the winter time (Oct-Feb) time, it is too cold to ride outside and people tends to stop riding bike under such weather condition.

* Analysis by Hour

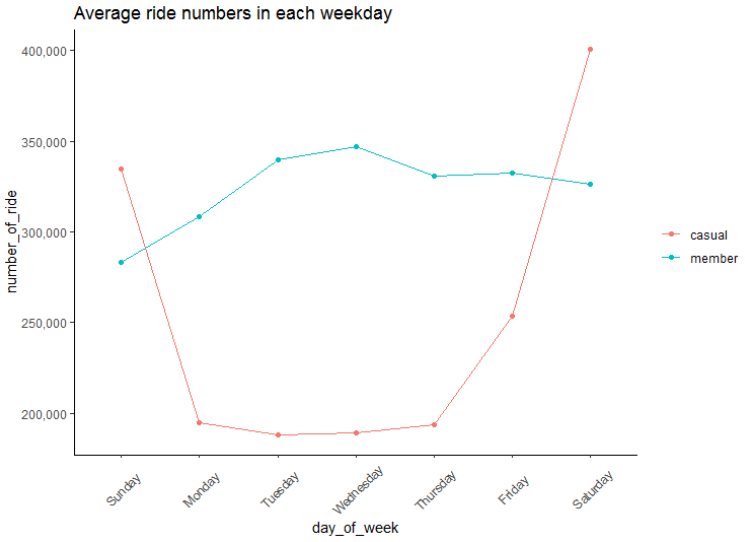


Insight and Interpretation:

For the ride number, a daily cycle of rides number are observed in both members and casuals. Both ride numbers are significantly bigger during daytime and they reach the peaks at afternoon

time. The numbers are then drastically drop when getting into evening and night time.
A possible explanation is: During the day time people are more likely to make a ride. They may use the bike to go to shops, schools or work. And during evening and night time, people are less likely to bike as they go to rest and sleep.

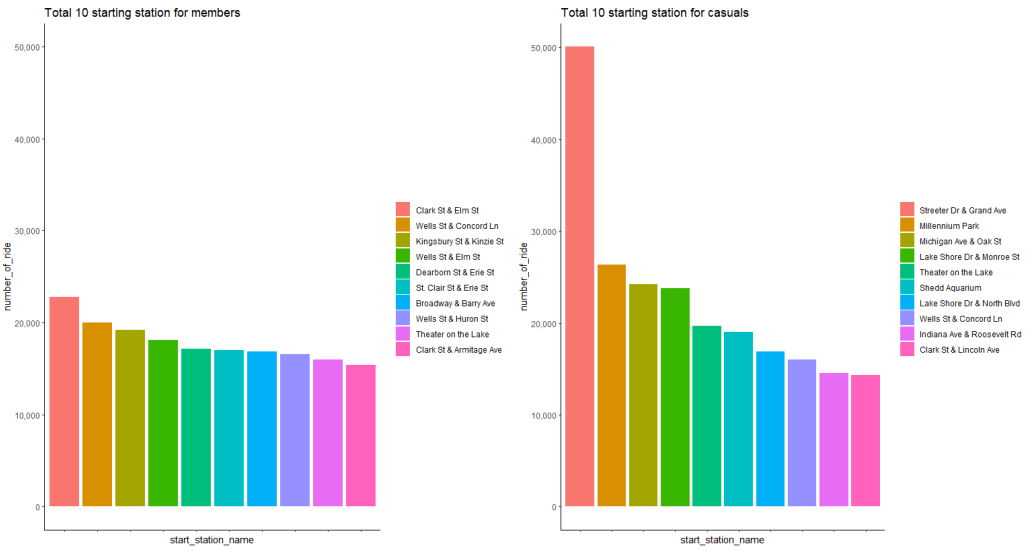
* Analysis by Weekday



Insight and Interpretation:

Members and casuals demonstrate a different pattern of ride number across a week. Members tends to have a steady and even distribution across a week. Casuals have a significant low rides on weekdays (Monday to Friday), but a shape increase of ride number during Saturday and Sunday. A possible explanation is: Members usually have a regular biking practice and they have incorporated biking in their daily live. They may biking for work, school or regular exercise etc. On the other hand, casuals have no such habit and they only take rides when they are in holiday. (Saturday and Sunday)

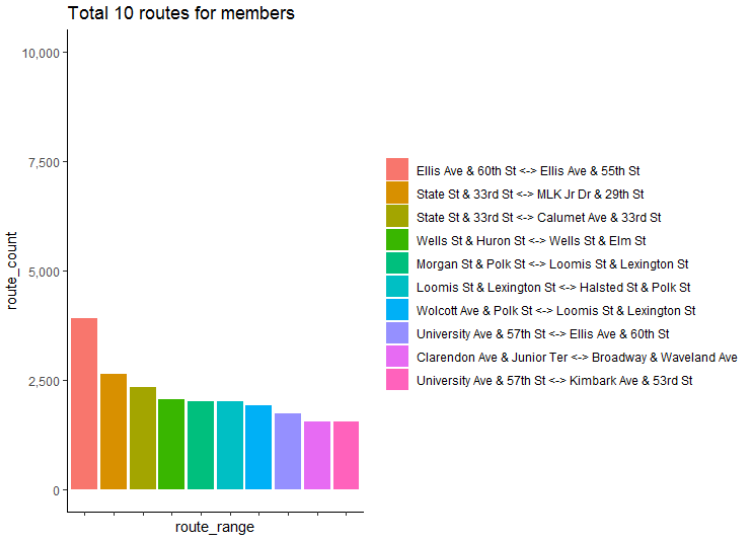
* Analysis by starting location

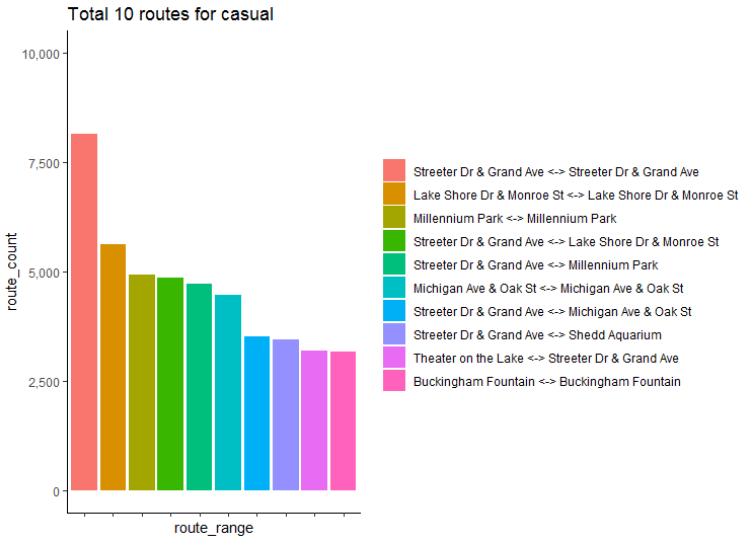


Insight and Interpretation:

For members, their top 10 start locations are quite similar in ride numbers (around 20000 rides each). For casuals, “Streeter Dr & Grand Ave” are their top leading start location and it has a significant large number of biking compared to other locations. From the results, we can observe that members and casuals have different segment or preference in their travel location. This may due to the difference of habits or daily live.

* Analysis by Route





Insight and Interpretation:

These are the top 10 routes for members and casual. They represent different bike travel pattern or location segment between members and casuals.

For members, locations like “Ellis Ave & 60 St”, “Ellis Ave & 60 St”, “State St & 33 St”, “Loomis St & Lexington St” etc. are appeared in the lists for more than one time.

For casuals, locations like “Streeter Dr & Grand Ave”, “Lake Shore Dr & Monroe St”, “Michigan

Ave & Oak St" and "Millennium Park" are appeared in the lists for more than one time. Beside, most of the location are the travel hotspot or landmarks of the city. And the top 3 casual routes have the same starting and ending location. One of the possible interpretation is that casuals may just take a sightseeing or in these area during their tours.

Conclusion and Recommendation

Based on the above analysis, it can be concluded that the members and casuals, in some field, perform in different way. Some recommendation to Marketing and Operation teams to consider:

1. As I don't have any data related to income or revenue, it can only be assumed that every ride generate revenue according to ride minutes. From the analysis result, casuals have a larger total rides and average ride minutes than members. Therefore, casuals group are an important group of people to the company.
2. Special promotion in particular period:
   (a) The number of riding in winter months is significant lower than others. To prevent an excess supply of bike, marketing team can offer a seasonal discount or promotion, or operation team can perform annual repair or maintenance during that period.
   (b) For casuals, the number of casual riding in weekdays is significant lower than member. To attract more biking, a weekday promotion may be a possible way to improve the bikes ride numbers.
3. Focus adverting in particular area or location: From the starting station and route analysis, there are significant different in biking location between members and casuals. In order to attract more casuals to become members, a focus and concentrated advertisement should be perform in those area for higher efficiency.
4. Based on the above recommendation, a series of special membership packages, e.g. seasonal-pass, weekend-pass can be offered. Those packages can be used to further segment or differentiate the customers. I hope those will attract more people to join our biking membership and increase Cyclistic revenue.

Possible further follow-ups

1. Revised pricing or segment strategy, there may be ways to add new segment to improve revenue.
2. Data checking or verification, find out the reason of missing or error data in record field.
3. Detailed analysis in multi-variable factors.

This is the end my data analysis for Cyclistic company. Thanks for reading till the end and Feel free to comment.