Analysis Report

Background:

Cyclistic is the bike-share company located in Chicago which provides different kinds of bikes, including regular bicycles, tricycles and also bikes for disabilities. The company offers currently three options on its pricing plans: single-ride passes, full-day passes, and annual memberships. The first two are considered casual riders, whereas the last are Cyclistic members.

Purpose:

The marketing director of Cyclistic believes that maximizing the number of annual memberships will also maximize the company's profit, and rather than targeting the new customers, he aims to attract the casual riders to become annual members. My goal is to help him identify the differences between casual riders and members and make recommendations to attract casual riders to subscribe our annual plan.

Key Questions:

- How do casual riders differentiate itself from members?
- What to do to attract more casual riders join our memberships?

Limitations:

In the data set, there are no user ids for the privacy reason, so it's impossible to track a single user to know his/her behavior.

Method:

1. Data cleaning

1. Fill missing values: if there are missing values, try to fill them if possible. In this project there are two scenarios that I have to fill missing values. First, empty GPS positions, I filled them by searching for same station names and ids in the dataset. Second, empty station names and ids, I filled them by searching for the same GPS positions in the dataset.

2. Data validation: verify every column of dataset to check that if there are in the correct format, if not correct them. In this project there are only the two scenarios needed to be fixed, which is when the two stations have different ids but at same location based on GPS positions and when the two stations have same ids but with different GPS positions.

2. Data exploration

Explore and familiar with data by trying new features. In this step, I visualize data to look for interesting insights that I have never thought about. After exploration, I aim the datetime as an important area to dive into.

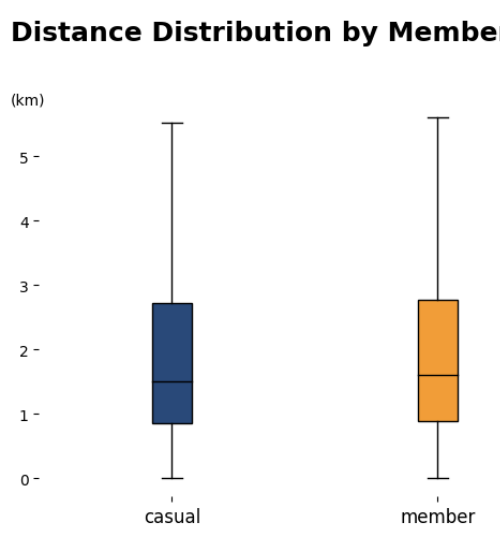
3. Data analysis

Analyze data and look for the differences between casual riders and members.

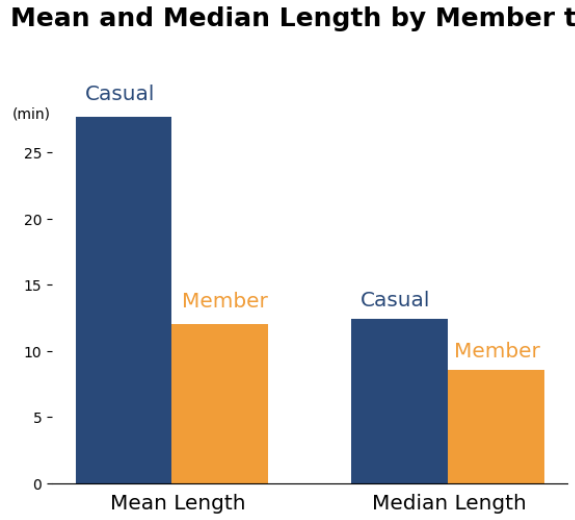
Result:

Part 1

- **Ride distance**: No big difference between the two.



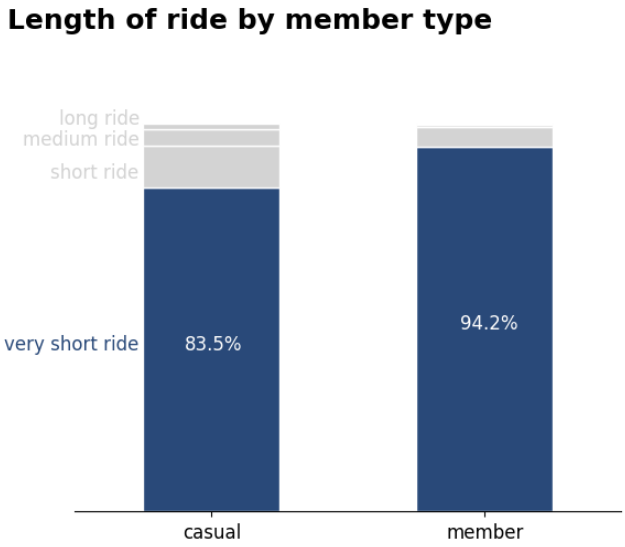
- **Ride length**: Casual riders tend to ride for a longer time than members.

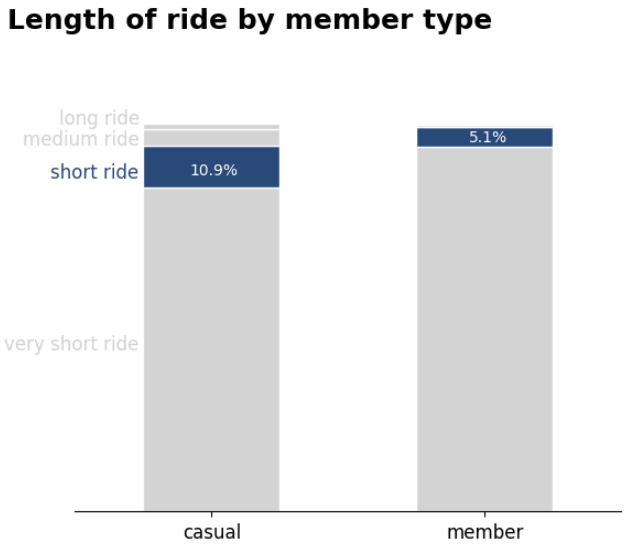


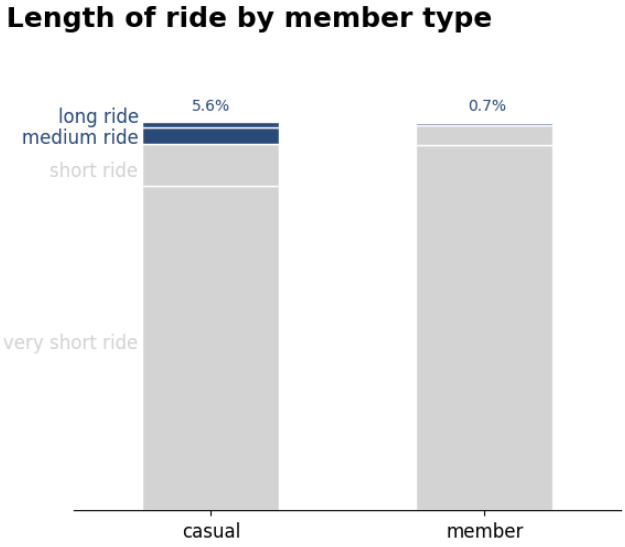
- **Ride length group**: I set ride time as four groups:

    1. Very short ride: 0-30 minutes
    2. Short ride: 30-60 minutes
    3. Medium ride: 60-120 minutes
    4. Long ride: over 120 minutes

    We can see that both members and casual riders tend to have a very short ride, but more percentages of casual riders will spend more time on bike riding. For medium and long rides, only 0.7% of members belong to this group, in contrast to 5.4% of casual riders.





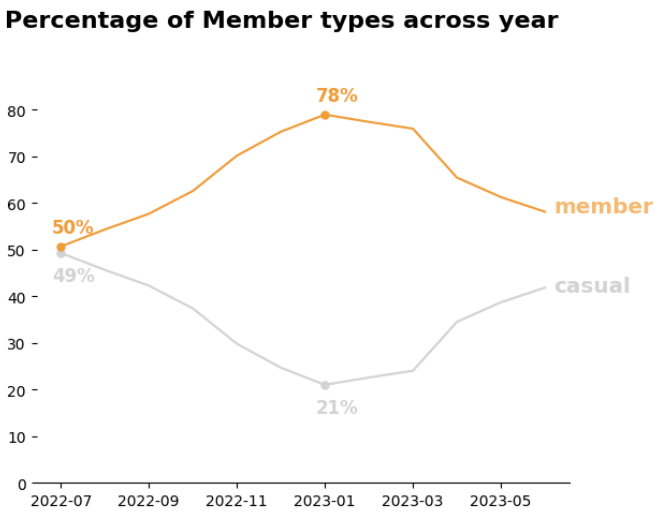


Part 1 conclusion

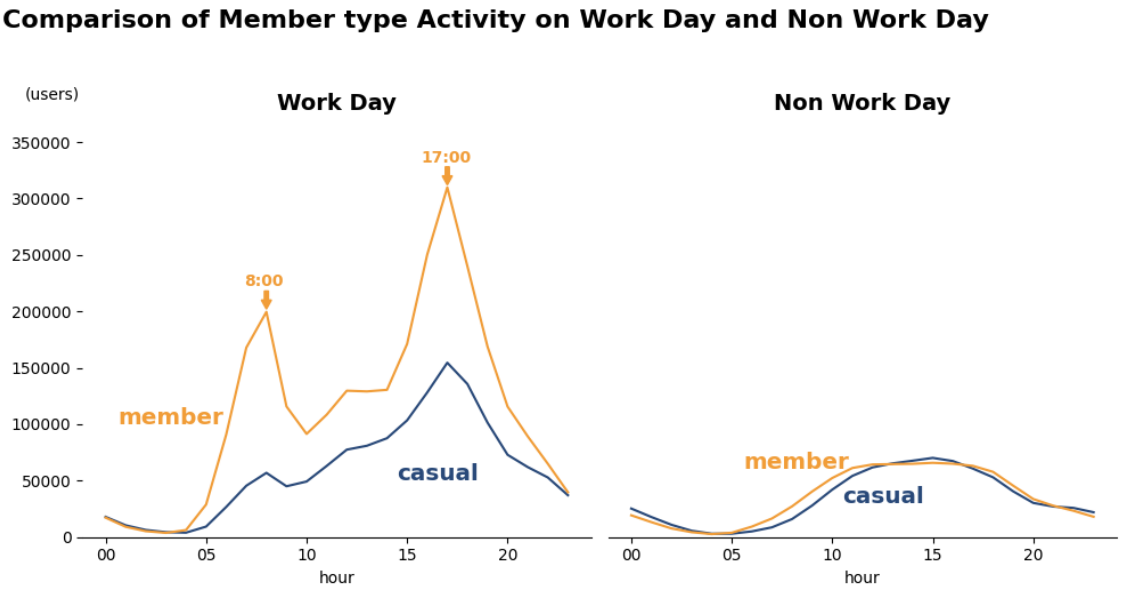
Members tend to ride more time-efficiently, although they ride the same distance as casual riders, they spend relatively less time. Maybe because members use bikes to commute or other things than just for leisure.

Part 2

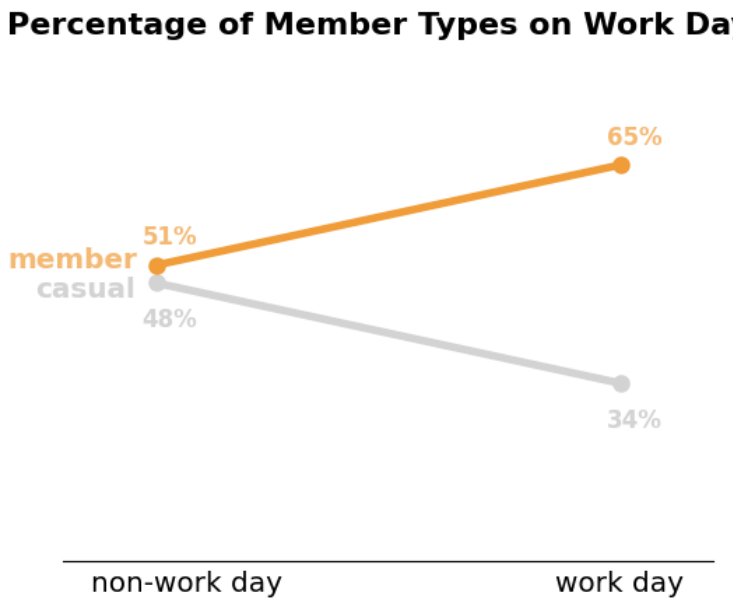
- **monthly comparison of members and casual-riders (Year)**: In summer time, there are almost same number of members and casual riders. The number of casual riders drops heavily when the weather is getting colder. In January, 78% of bike riders are members compared to 21% of casual riders.



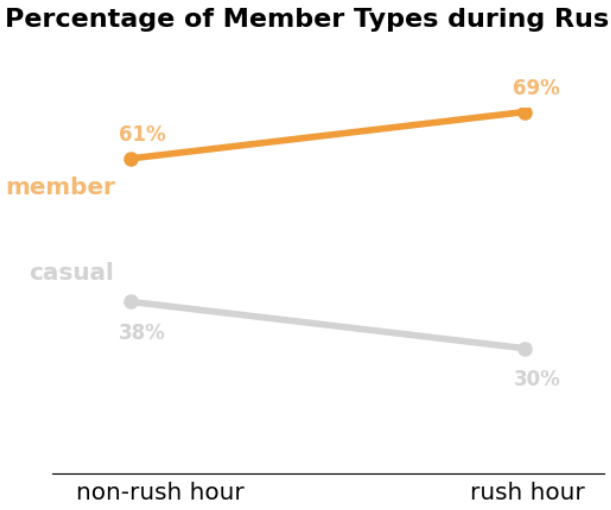
- **comparison of member type activity on work day and non-work day**: On work days, members have two peaks, 8:00 and 17:00 respectively, but members and casual riders are almost the same on non-work days.



- **work day**: On work days, the proportion of members sharply increases from 51% to 65%.



- **rush hour:** During rush hour, the proportion of members clearly increases from 57% to 68%.



Part 2 conclusion

- In winter, the number of casual riders sharply decreases.
- On work days and during rush hour the percentages of members increase suggests that members may use bikes to commute.

Final conclusion

Member:

- More members use bikes on week day and during rush hour
- Members ride bike faster and more purposefully
- Almost all members ride for very short length

Casual riders:

- The proportion of casual riders increases on weekend
- Casual riders tend to ride bike leisurely
- Some of casual riders will ride bike for a longer time

Recommendation:

Make a different membership plan for casual riders, namely create a summer weekend plan from May to September in target of those who use the bike service for leisure.