

# User type study

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## User type Study

- What are we talking about?
- *Total of rides, length of ride and start locations*
- Conclusion
- Appendix

What are we talking about?

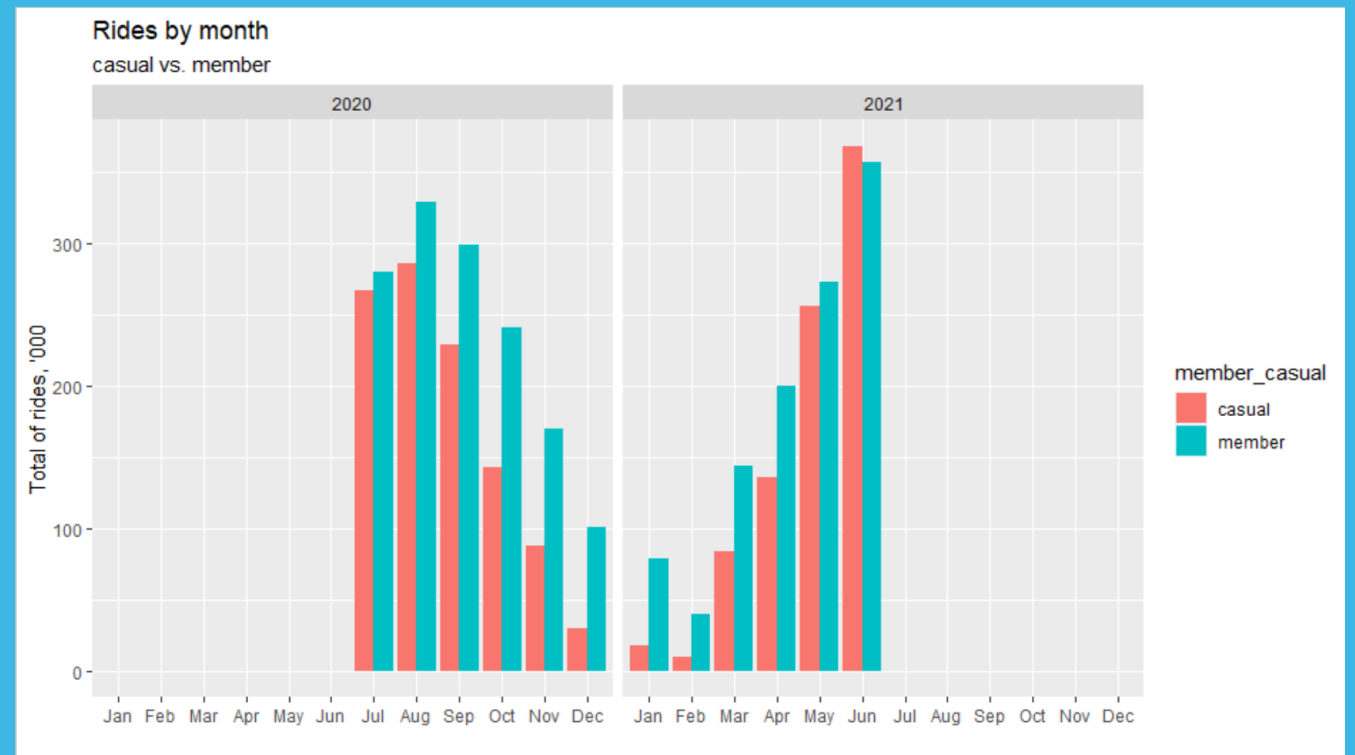
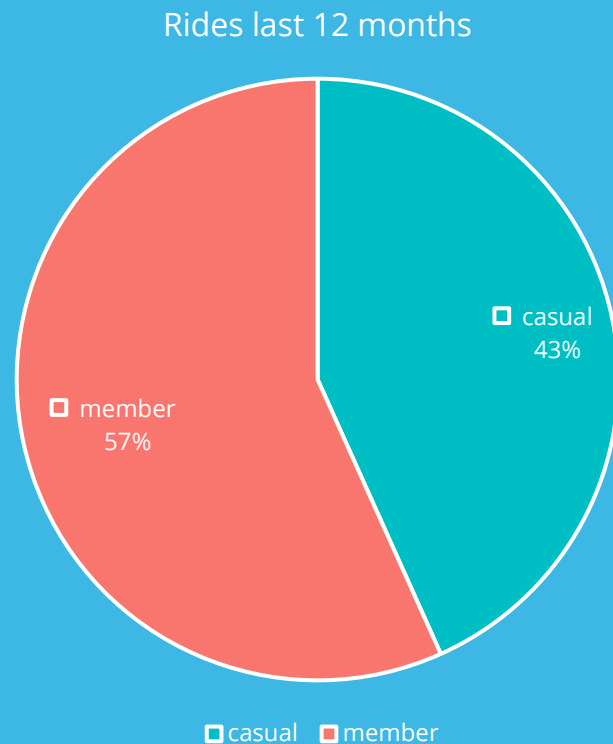
# Objective

Identify the difference between casual and member type of bike users, in terms of total of rides and length of ride, through the week and the year. We'll also quickly look at the most popular start locations by the two user type.

Total of rides

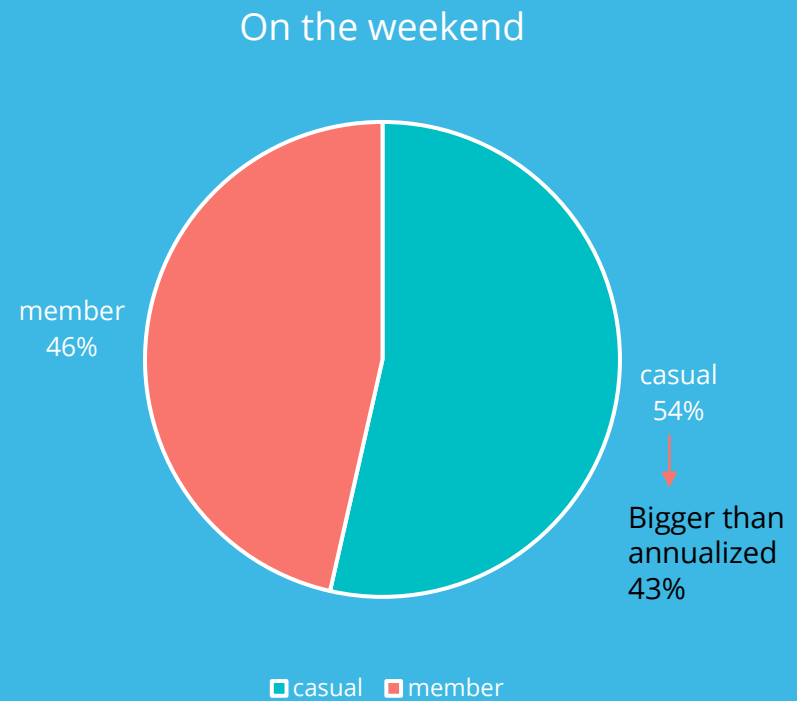
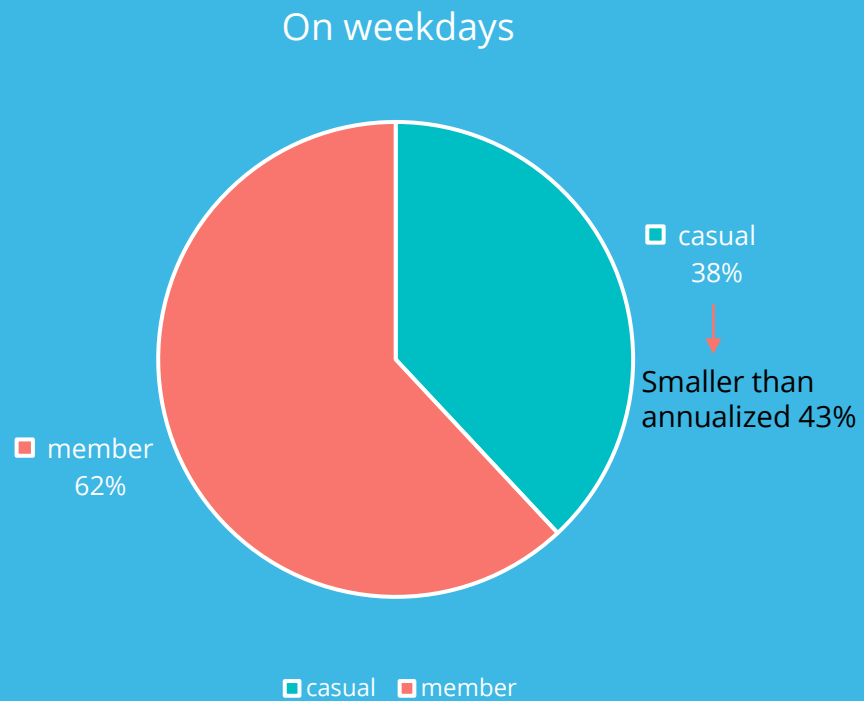
# Total rides last 12 months

Casual rides makes up 43% of the total



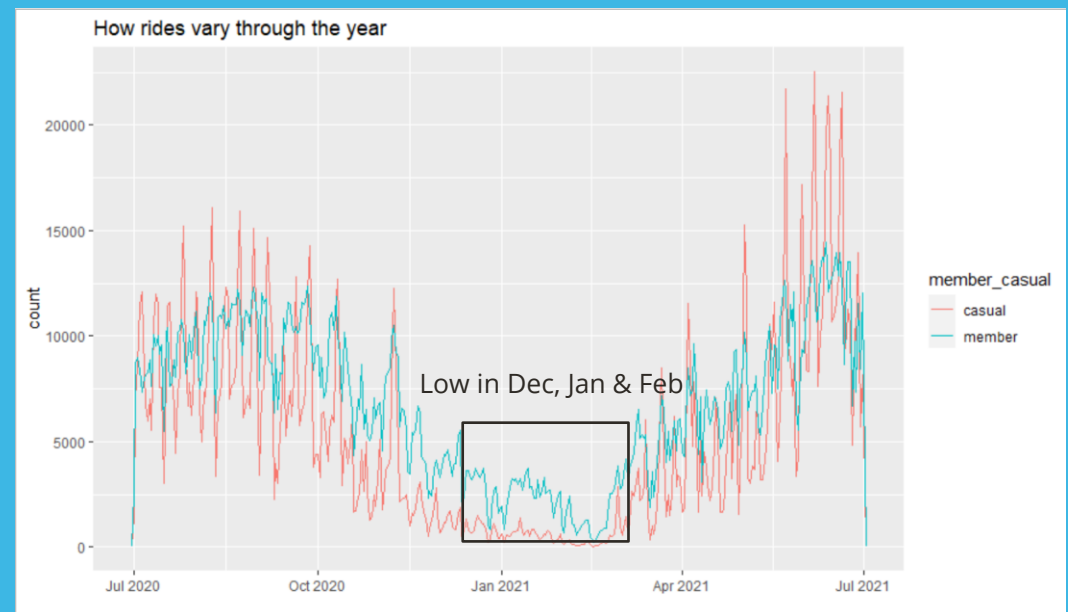
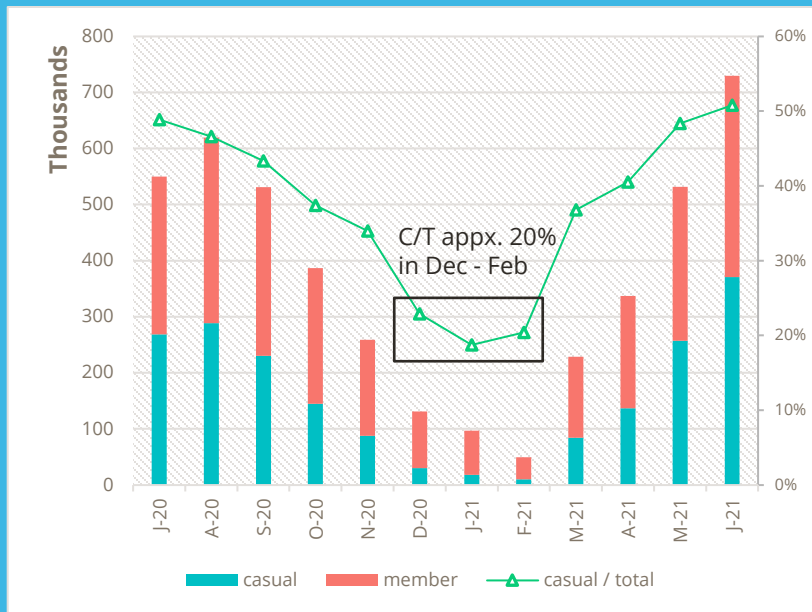
# By day of the week

## Casual rides overtook member rides on the weekend



# By the month

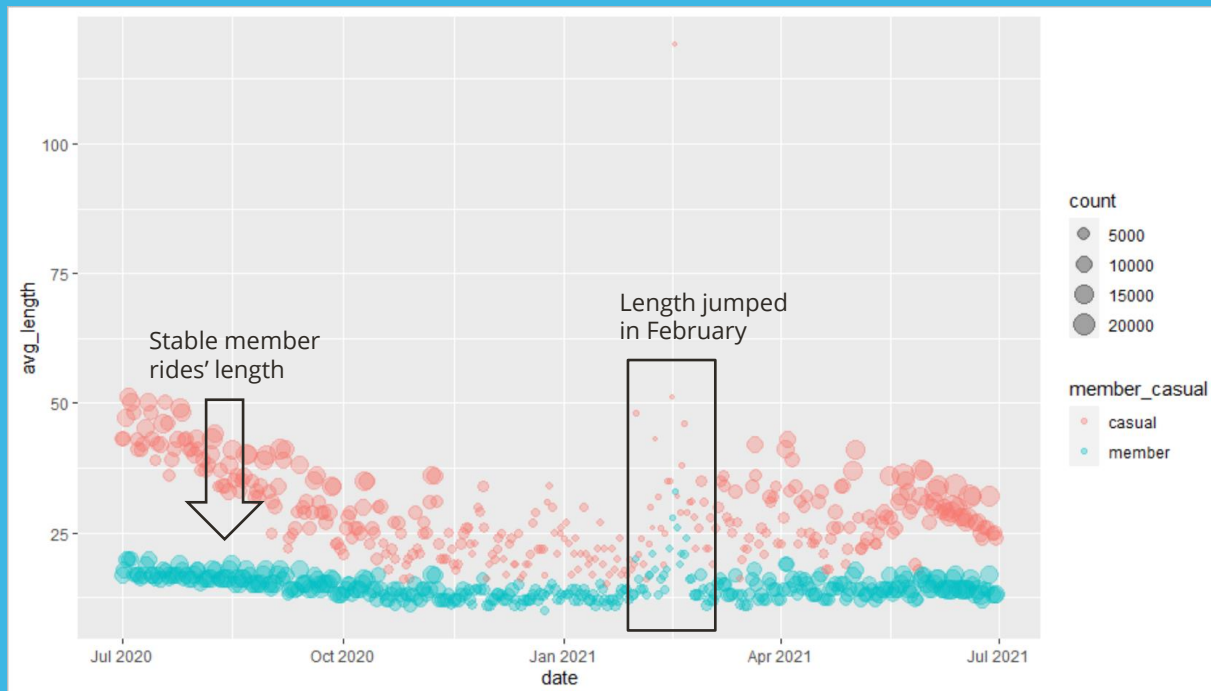
- Total rides shrink in the cold months.
- The ratio of *casual* to *total* rides falls to around 20% in the cold months, compared to the highs of above 45%.





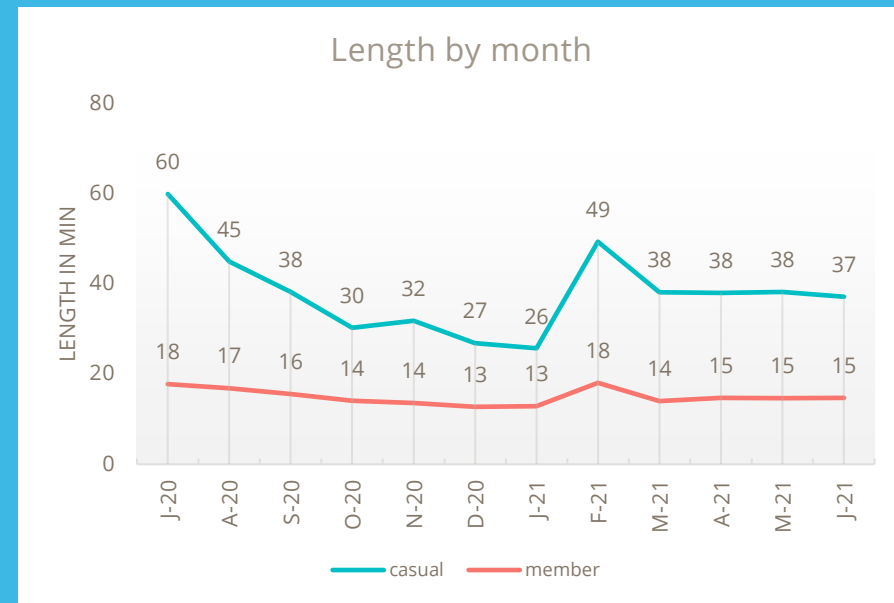
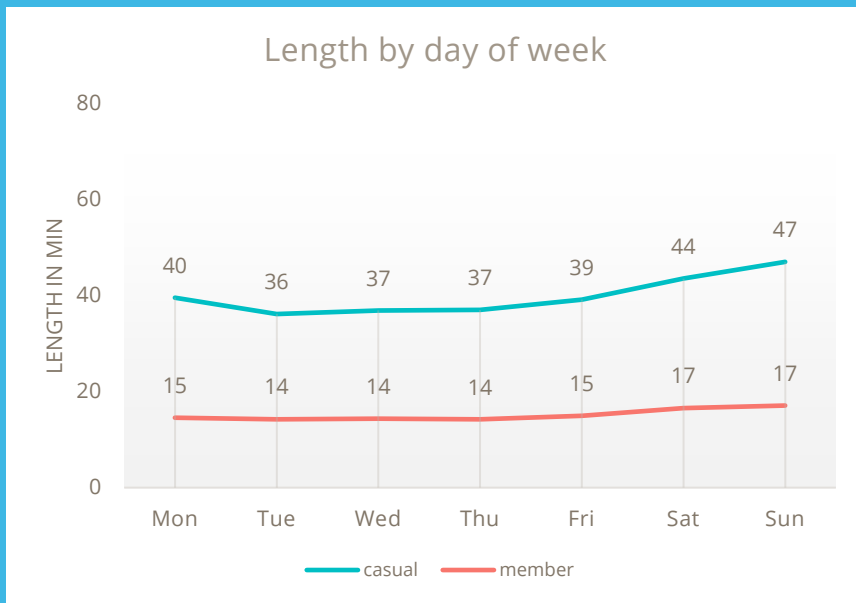
Length of ride

# Length of ride last 12 months



- Length of ride stays stable for member rides.
- Length of ride is longer in warmer months and jumped in Feb.

# Day of the week vs month

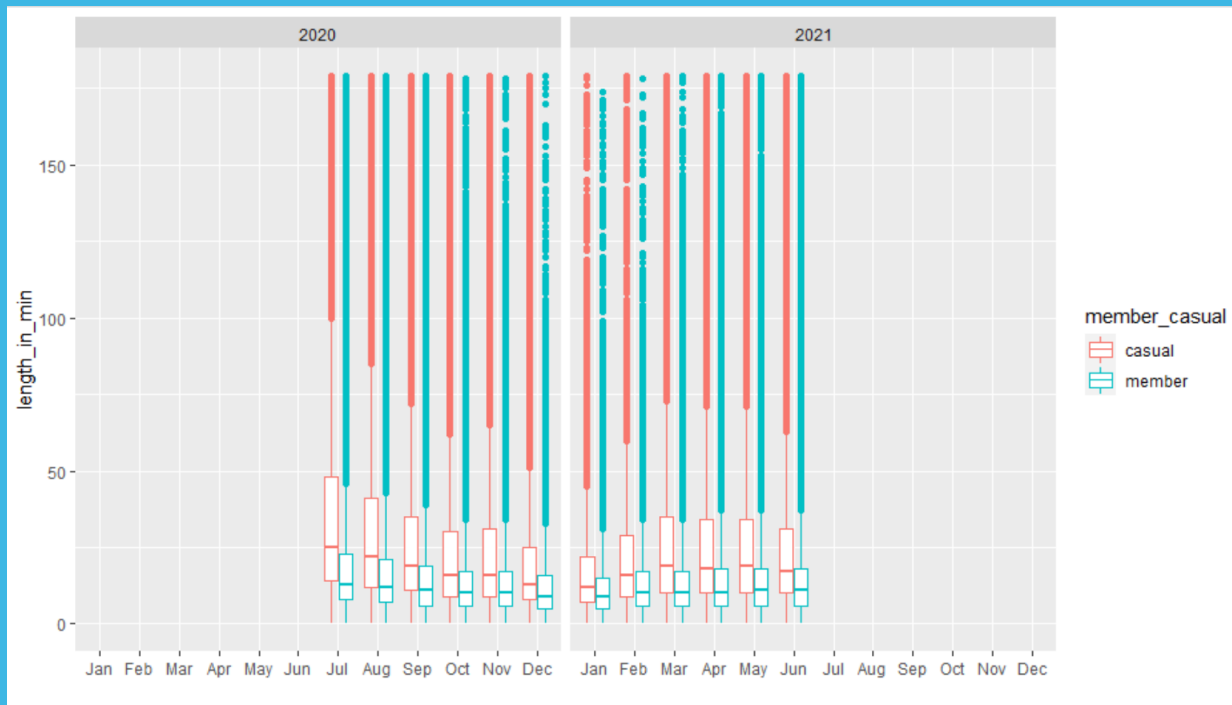


Through the year, length of casual ride is 40.91 min, whereas length of a member ride is 15.15 min<sup>1</sup>

1. The averages are based on the dataset including extreme rides of length < 10s and > 72h

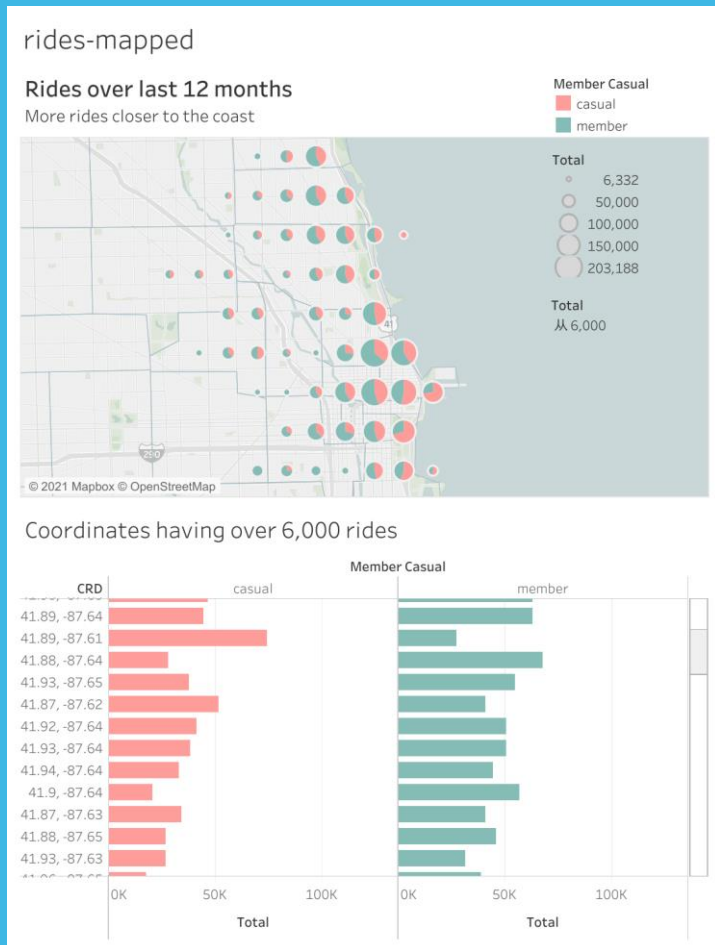
# Median length

- By median length, *casual* type is still longer than *member* type.
- Length of *casual* rides are more spread out than *member* type.



# Start locations

# By start location



- Most popular start locations are along the shore of Lake Michigan
- In four popular areas started more member rides<sup>1</sup>
- The *further* from shore, the *fewer* the rides
- The *inner* the location, the *smaller* the casual rides' share

1. The four areas are: [41.89, -87.62] near NBC Tower, [41.88, -87.62] in Butler Field, [41.89, -87.61] near Shoreline Sightseeing, [41.87, -87.62] near Arvey Field

# Conclusion

# Conclusion

- **Casual rides overtook member rides on the weekend, with a 42% increase on its weekday number.**

Promote membership on the evidence that if a rider uses Divvy's bike twice a week, the rider will save by switching to an annual plan.

For a ride of average length, it'll cost  $3.3 + (40.91 - 30) * 0.15 = 4.95$  USD. Making two rides per month will cost more than annual membership charge of 9 USD per month.

- **Casual rides shrank to 50% of total rides in colder months, than it was in other months.**

We can launch a winter promotion for casual type by offering a special price for the 30 min session. Through a good price strategy, we can improve results in cold months.

- **On average, length of casual rides is 2.6 times of member rides.**

We may consider extending the session from 30min to 45min for casual riders with either a smaller raise in charge to check if that encourages more casual ride.



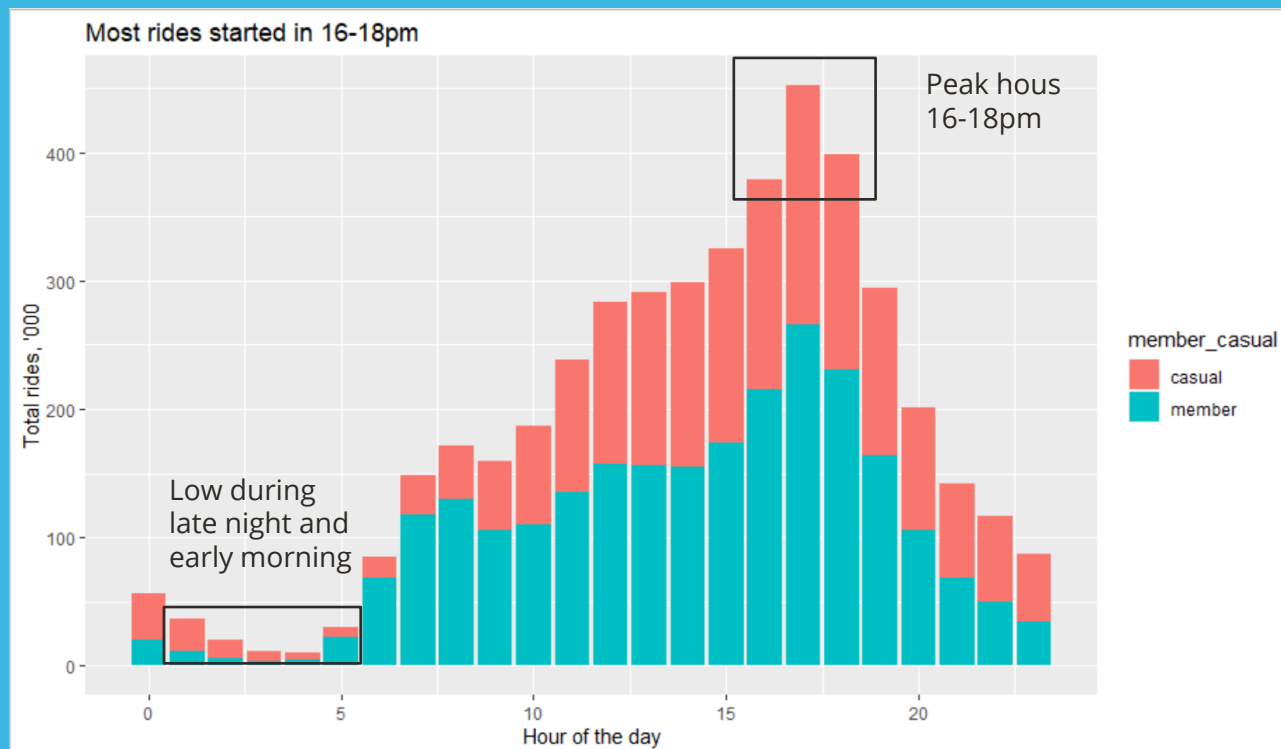
# Appendix

# Metadata

1. There are 4,460,151 distinct<sup>1</sup> observations in the joint table of trips data for past 12 months. With length of ride  $\leq 0$  filtered out, there are 4,449,799 observations remaining. The analysis is based on the observations with positive lengths.
2. NULLs occurred in start\_station\_name, start\_station\_id, end\_station\_name, end\_station\_id, end\_lat and end\_lng. They were not excluded from analysis as rides and length calculations are not affected by them.
3. Most stations (582 for start stations) have 2 matching station IDs. For example, 2112 W Peterson Ave has two IDs: 456, KA1504000155. Data suggests the change happened overnight on 2020-11-30.
4. With precision of Lat & Lng lowered to 2nd decimal place, 642 sets of unique coordinates where start\_station\_name is NULL can be matched with at least one station. These matches suggest the rides were made with bikes parked outside a station.

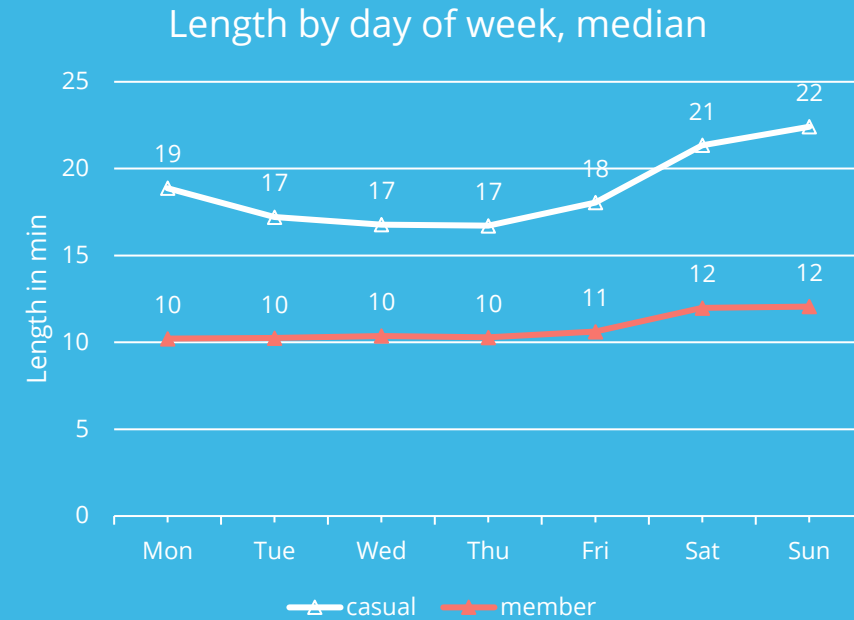
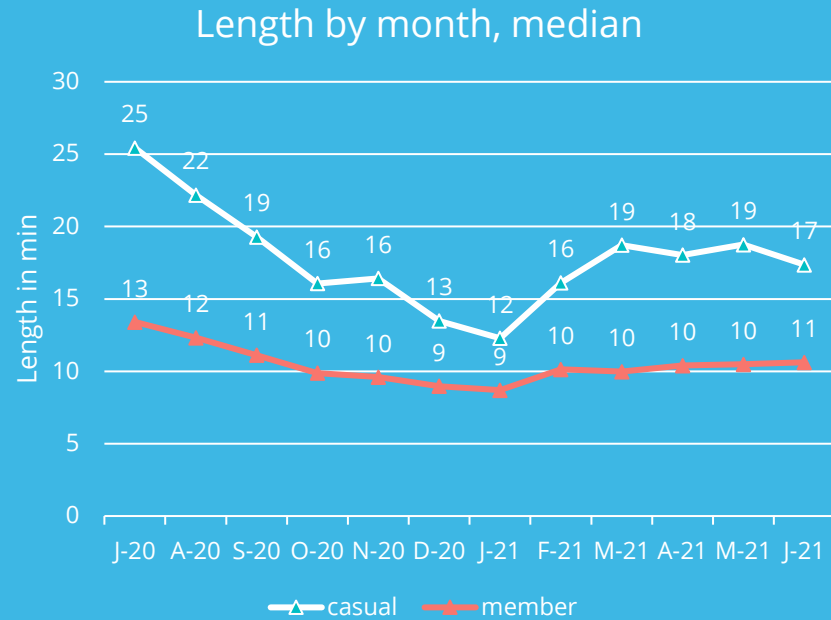
# Other findings

## 1. How rides change during 24h of a day



# Other findings

## 2. Median length of ride, by month



# Questions to further discuss

- Why length of ride jumped in both types in February 2021?
- What can be done on the finding that more rides are started from areas near the shore of Lake Michigan?