Riding Chicago: Cyclistic Case Study

Date: 30/04/2024
Creator: Ryan Stoia

Overview: How can we convert casual Cyclistic users to annual members?

Task: How do annual members and casual members use Cyclistic bikes differently?

Data is provided to the public by Divvy at https://divvybikes.com/system-data under this license. This analysis uses data from Apr 2023 - Mar 2024.

Data Processing and Limitations

Limitations:

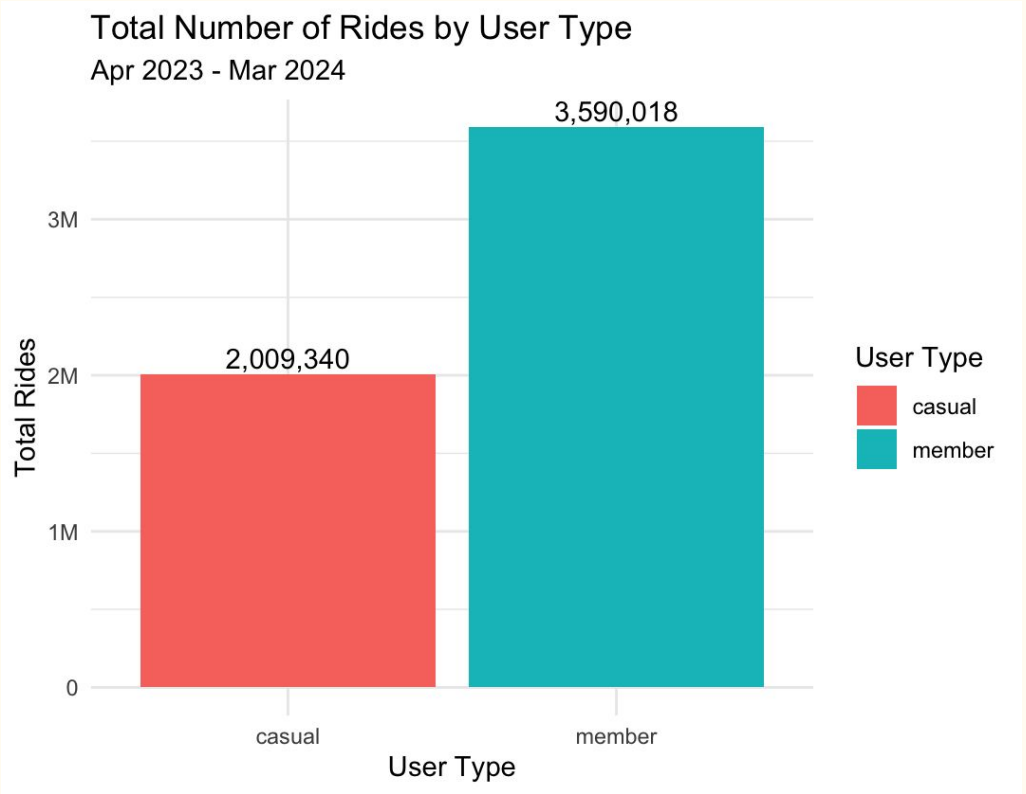
- Contains ride data only, no inferences can be made about specific user behavior
- Can’t tell if casual users paid for a single ride or day pass
- Lots of missing location data
- Some rides with more than 24h duration

Processing:

- Downloaded and imported data to Rstudio desktop
- Merged 12 months into a single table, removed empty rows
- Added columns necessary for analysis: hour, day, month, duration, cost
- Filtered out rides with no geodata and durations less than 1 minute
- For round trip analysis, filtered out rides with no start/end station
- Created hypothetical cost comparison
- Changed some station location names that couldn’t be found in leaflet geocoder

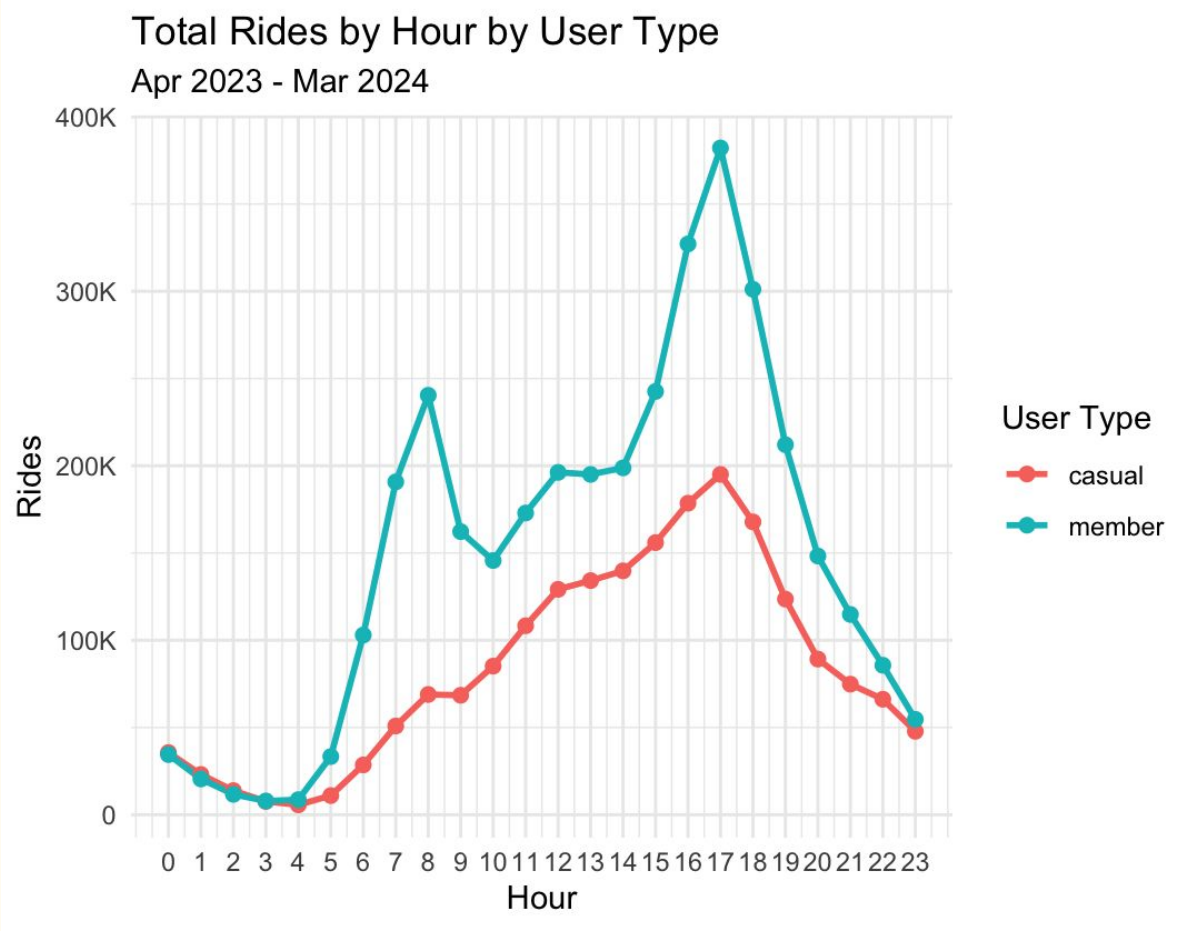
Riding Habits: Business or Pleasure?

More rides were taken by members than by casual users

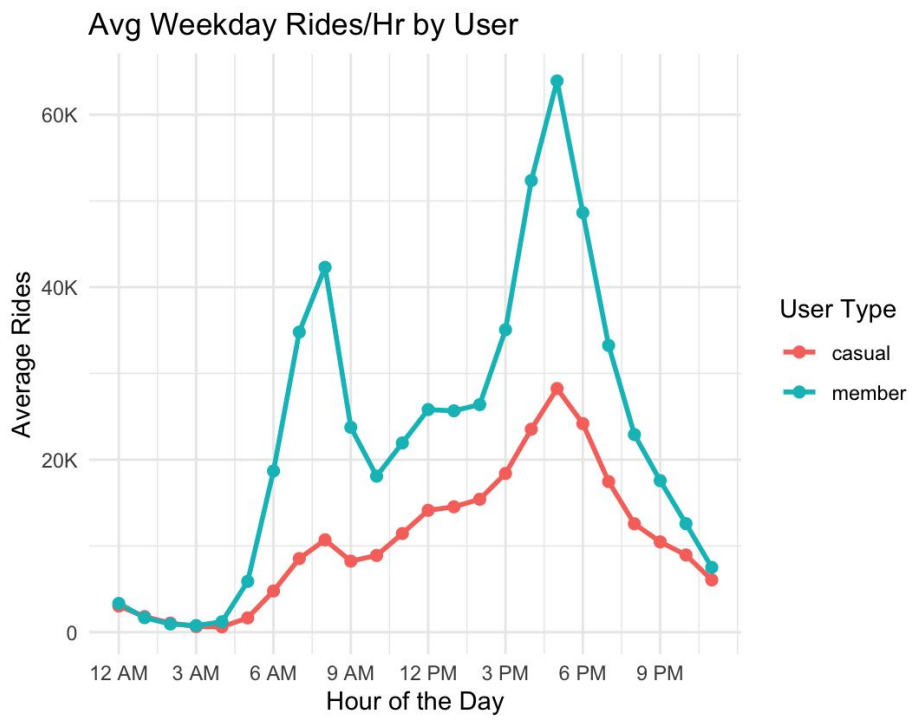


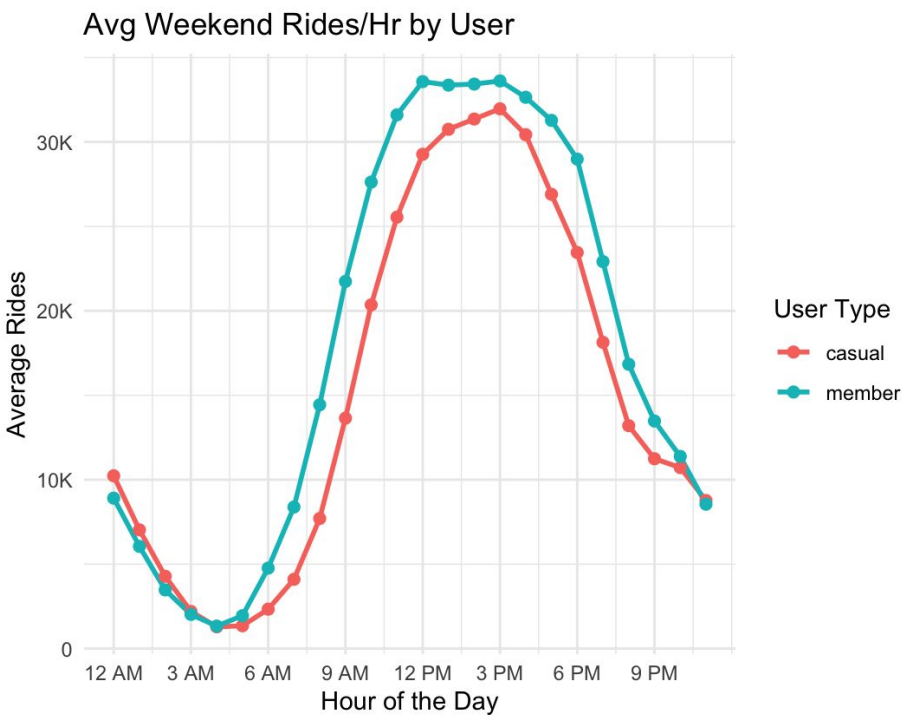
Commuters

Member rides spike in the morning and afternoon, suggesting they are riding for daily commute



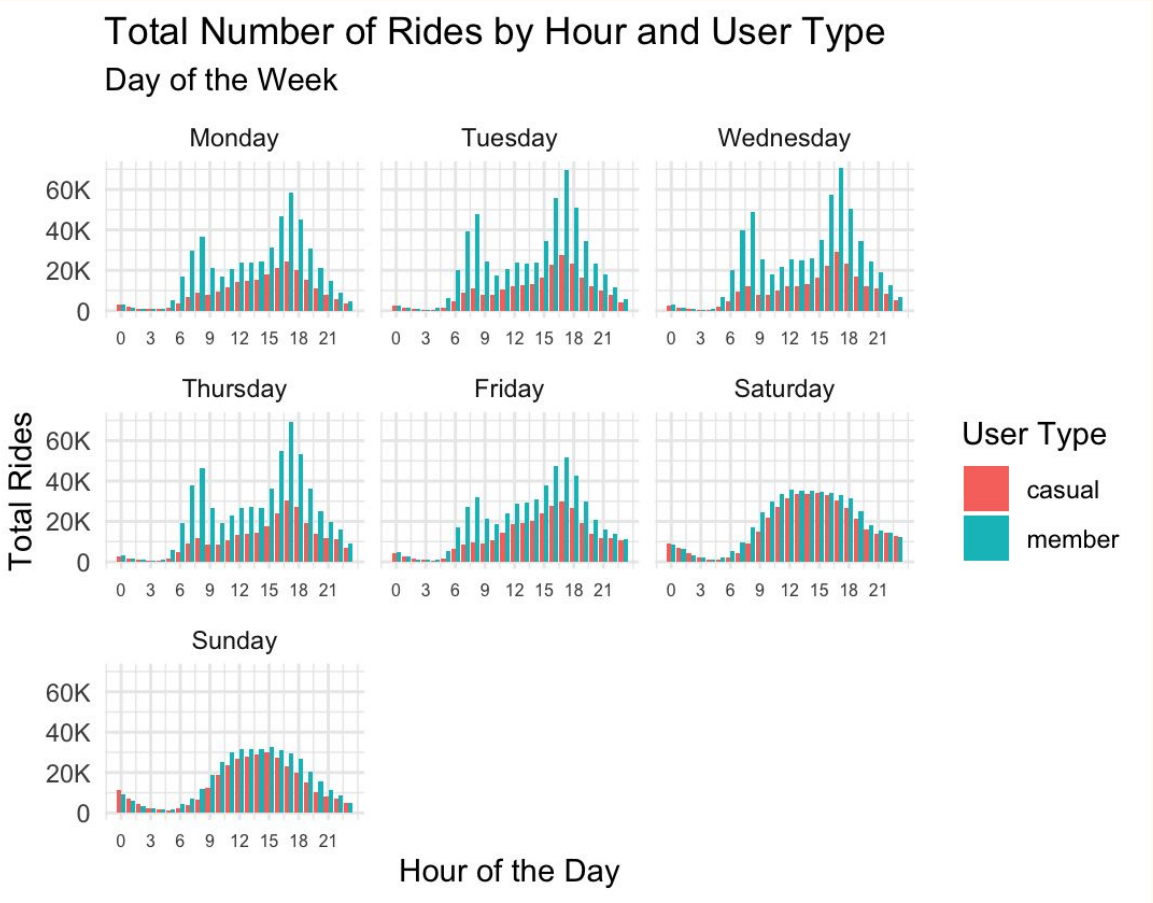
Members are weekday commuters





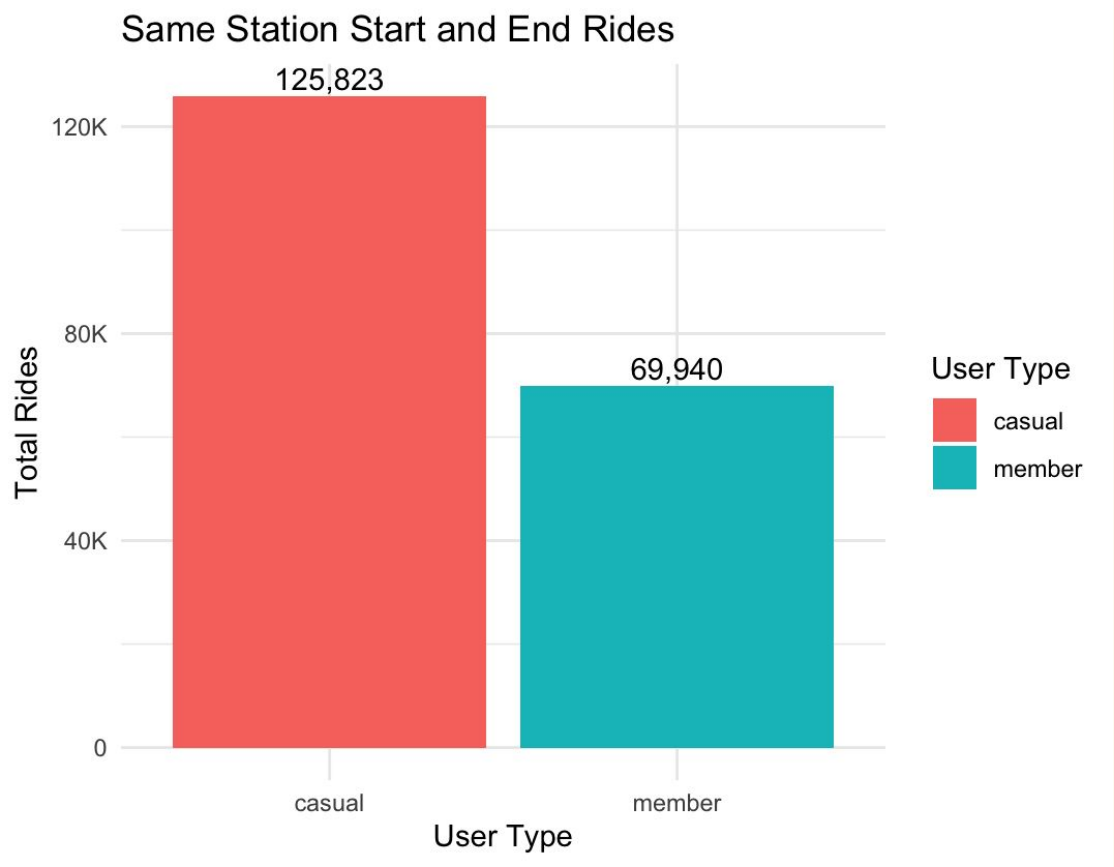
Casual Weekends

Casual rides nearly equal member rides on the weekends



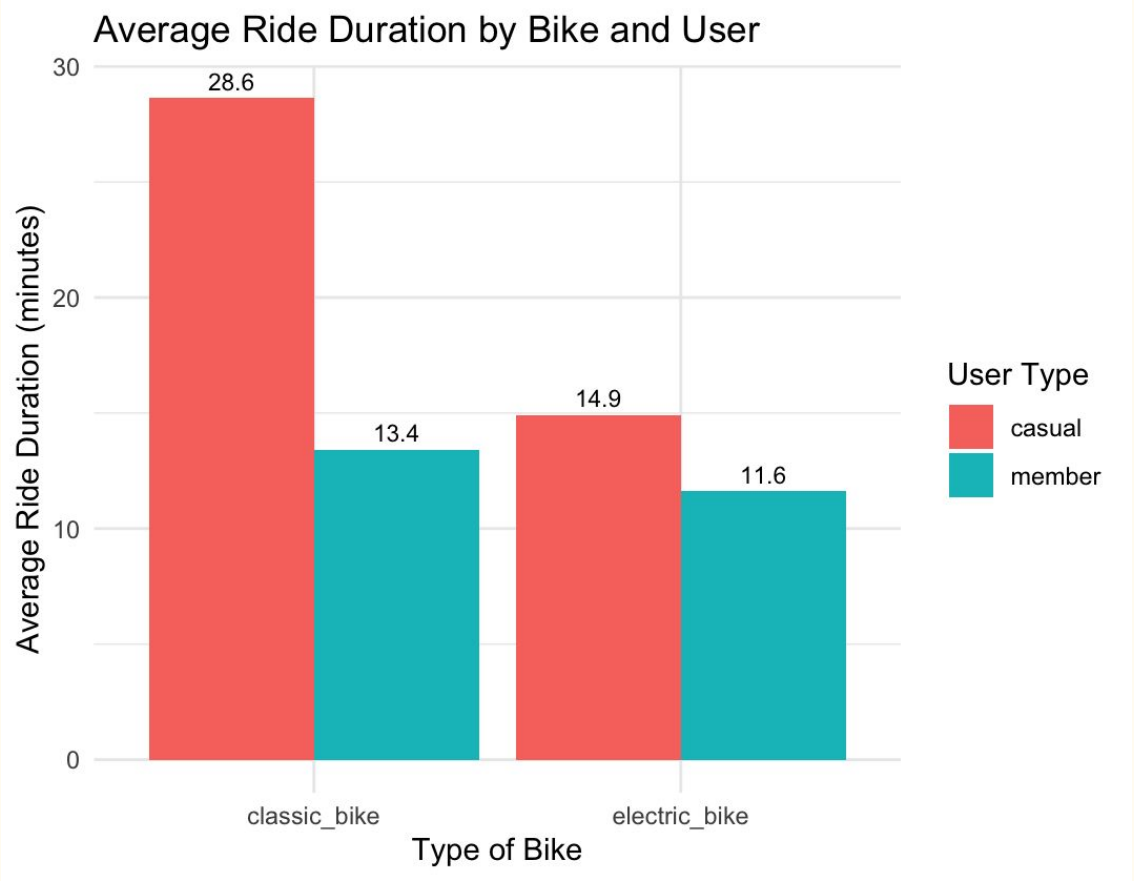
Casual round trips

Casual riders are much more likely to end their ride where it started



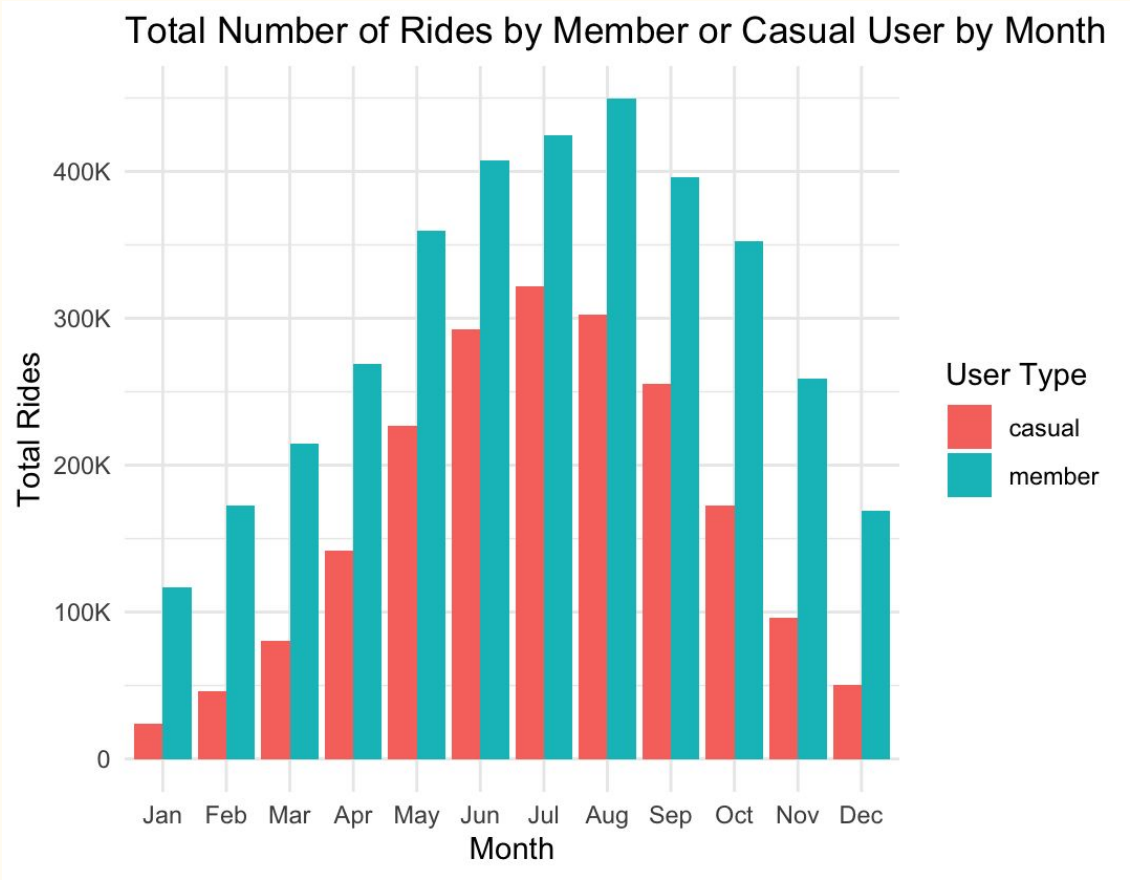
See the sights

Casual riders take much longer rides than members on both classic and e-bikes



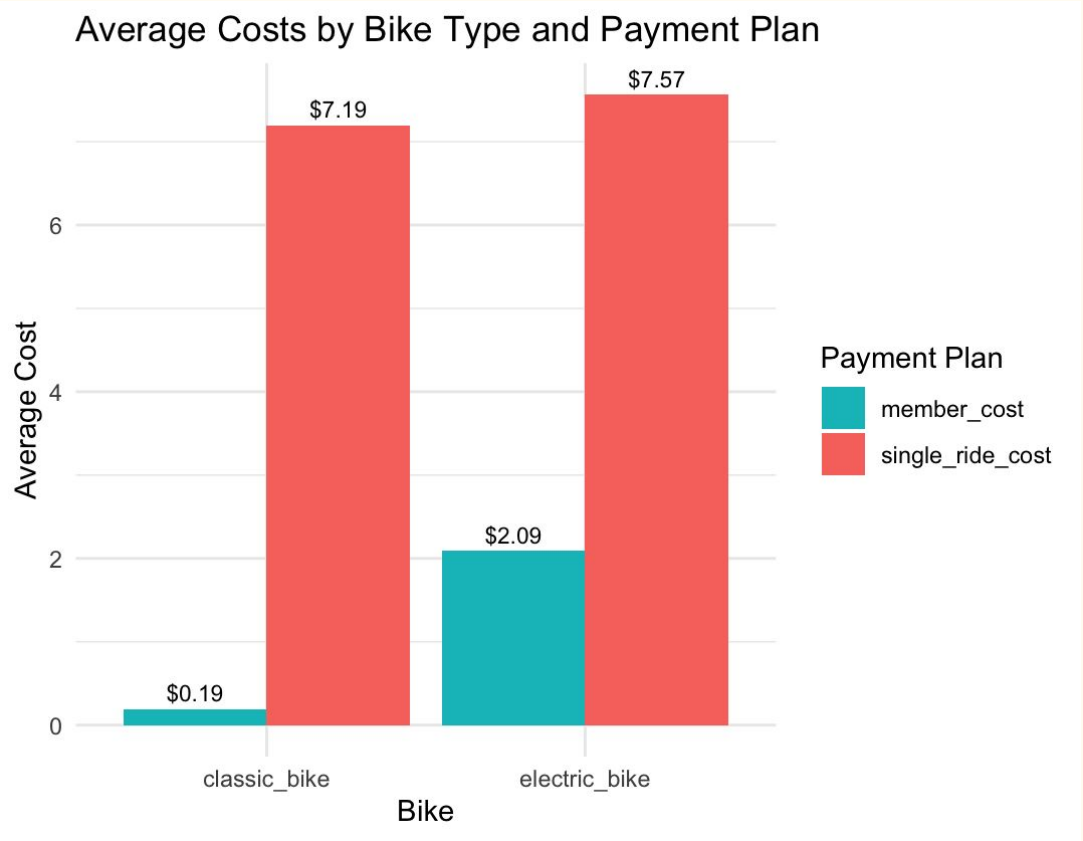
Fair Weather Rides

Casual members ride much less during the cold Chicago winters



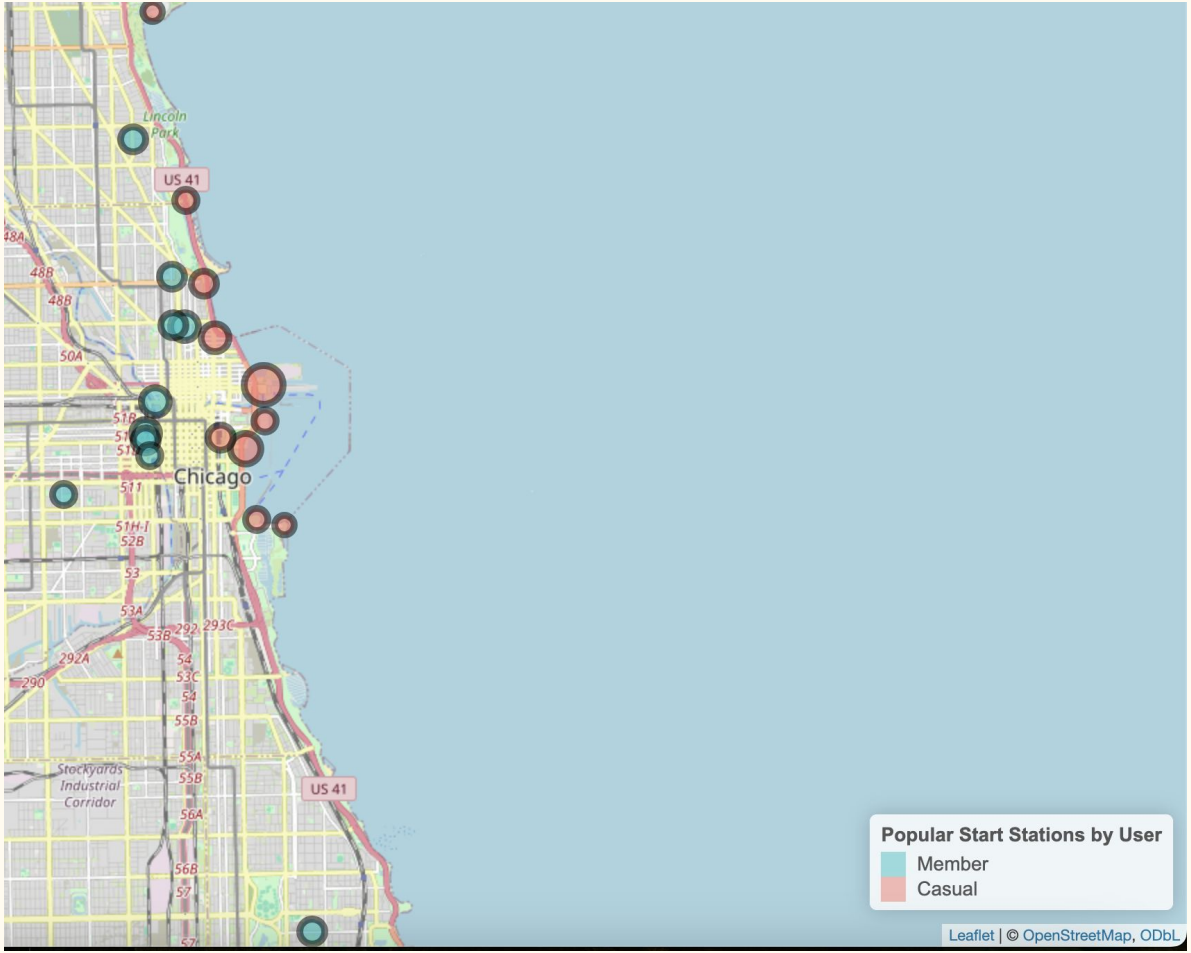
Casual Costs

Cost comparison as if every casual ride were charged based on single ride, does not take into account annual member fee



Beach Riding

The top 10 most popular start stations for casual users were typical tourist spots



Conclusions:

Casual users ride more at the weekends, ride for longer, take round trips, ride during the summer, and ride more in the afternoon.

Members ride more during the week, use bikes as a commute vehicle, ride all year round, take less round trips, and ride during peak morning/afternoon commute times

Recommendations

This is a case study for Google Data Analytics which asked for recommendations for an internal marketing department to shape a social media campaign:

1. Target ads to non members showing benefits of membership (comparative costs) during afternoon hours, between 3-6pm.
2. Target ads at popular casual user ride start locations
3. Include anonymized rider_id that can be used to provide better analysis and personalized ads based on ride activity

Convert the Casuals:

1. Consider peak hour surge pricing for casual riders
2. Offer discounts to new memberships during peak casual season (May - Sep)
3. Track rider expenditures and send in-app personalized comparisons between casual use cost YTD and projected cost with membership
4. Offer monthly passes with pricing between day pass and annual membership that could then be converted to yearly membership
5. Set up a physical presence at big Chicago festivals to show the benefits of bike-share membership during high-traffic situations

More information:

Github repo for this analysis:
https://github.com/vajraccedika/fuzzy-chainsaw/tree/main/cyclistic_case_study

Divvy landing page: https://divvybikes.com/how-it-works

Email: rstoia81@gmail.com