Case Study: How does a bike-share navigate speedy success?

Dong luanjie 25 June 2024

Background:

As a junior data analyst working on the marketing analyst team at Cyclistic, a bike-share company in Chicago, the director of marketing believes the company's future success depends on maximizing the number of annual memberships. Therefore, my team wants to **understand how casual riders and annual members use Cyclistic bikes differently.**

From these insights, my team will design a new marketing strategy to convert casual riders into annual members. But first, Cyclistic executives must approve my recommendations, so they must be **backed up with compelling data insights and professional data visualizations.**

Business Task:

Gain insights into how annual members and casual riders use Cyclistic bikes **differently to inform a new marketing strategy** aimed at **converting casual riders into annual members.**

Data Source:

12 Months of Historical Cyclistic Trip Data:

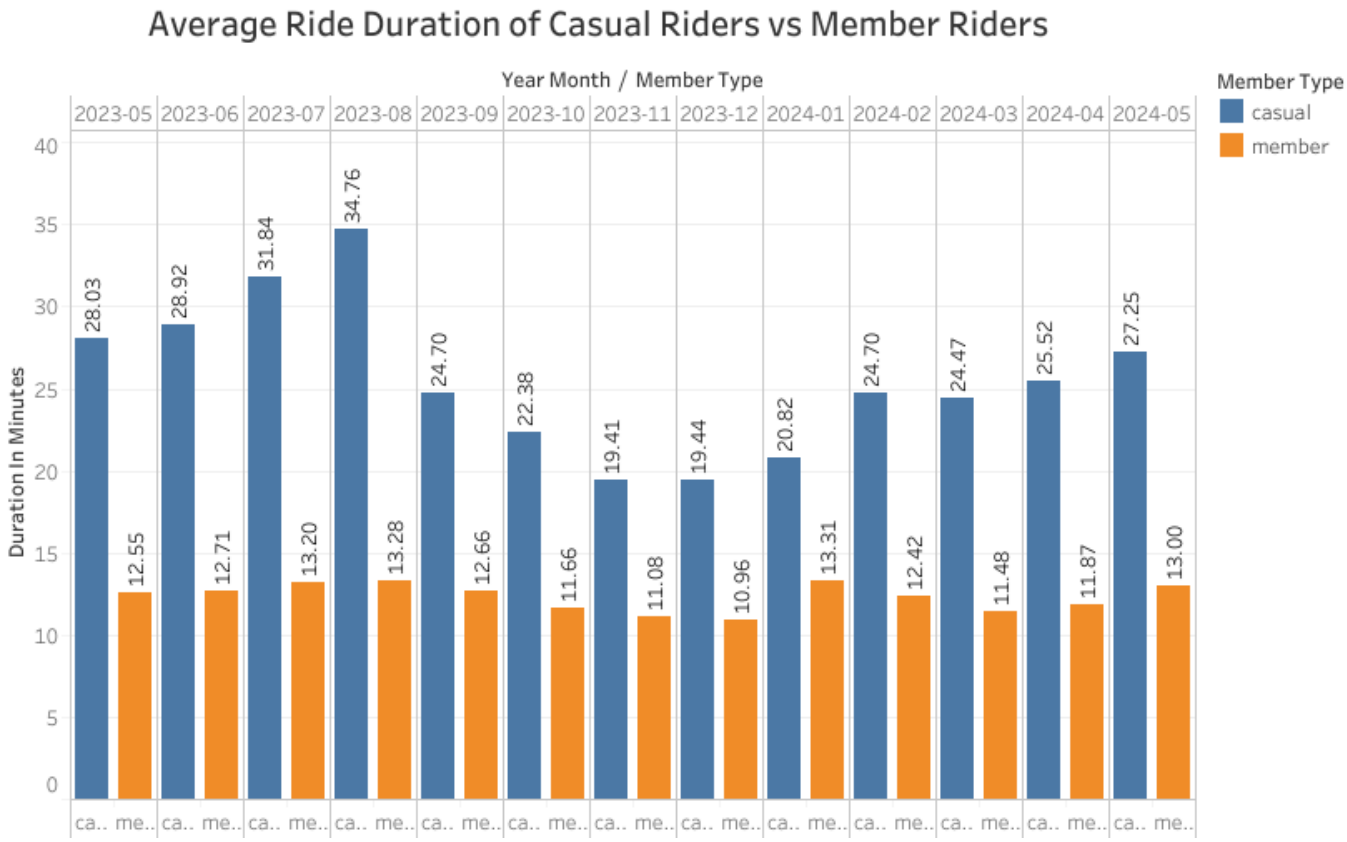
- **Period Covered:** May 2023 to May 2024
- **Fields Included:** Ride ID, ride type, start/end times, station names/IDs, coordinates (latitude and longitude), and member type (annual member or casual rider).

Documentation of data cleaning and manipulation:

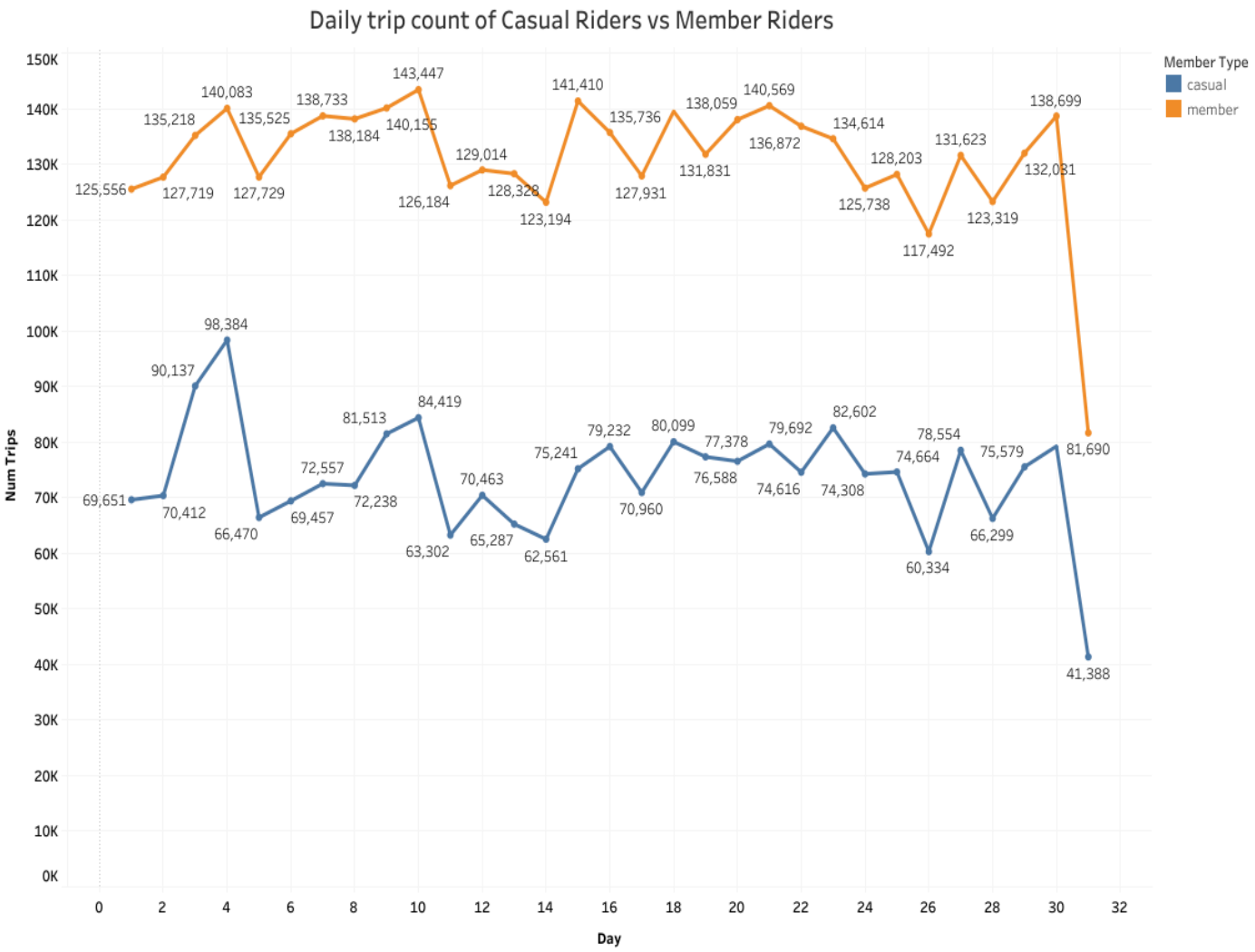
Activity	Description
1. Upload Data	**Tool:** MySQL **Activity:** ● Import dataset from May 2023 to May 2024
2. Data Manipulation	**Tool:** MySQL **Activities:** ● Derived **average ride duration** for casual and annual members for the past year ● Derived the **total number of rides per day/month** for both rider groups ● Cleaned and grouped longitude and latitude data to analyze the **number of ride-starting locations** for both rider groups ● Derived the number of riders for each ride type for both rider groups
3. Create Visualisation	**Tool:** Tableau **Activities:** ● **Bar Chart:** ○ Compare trip duration for the past years between the rider types ○ Compare the usage of different modes of rides ● **Map:** Displayed the density of rides starting or ending at different stations ● **Line Graphs:** Illustrate trends in ride count for casual and annual members over time in days/months for the past year

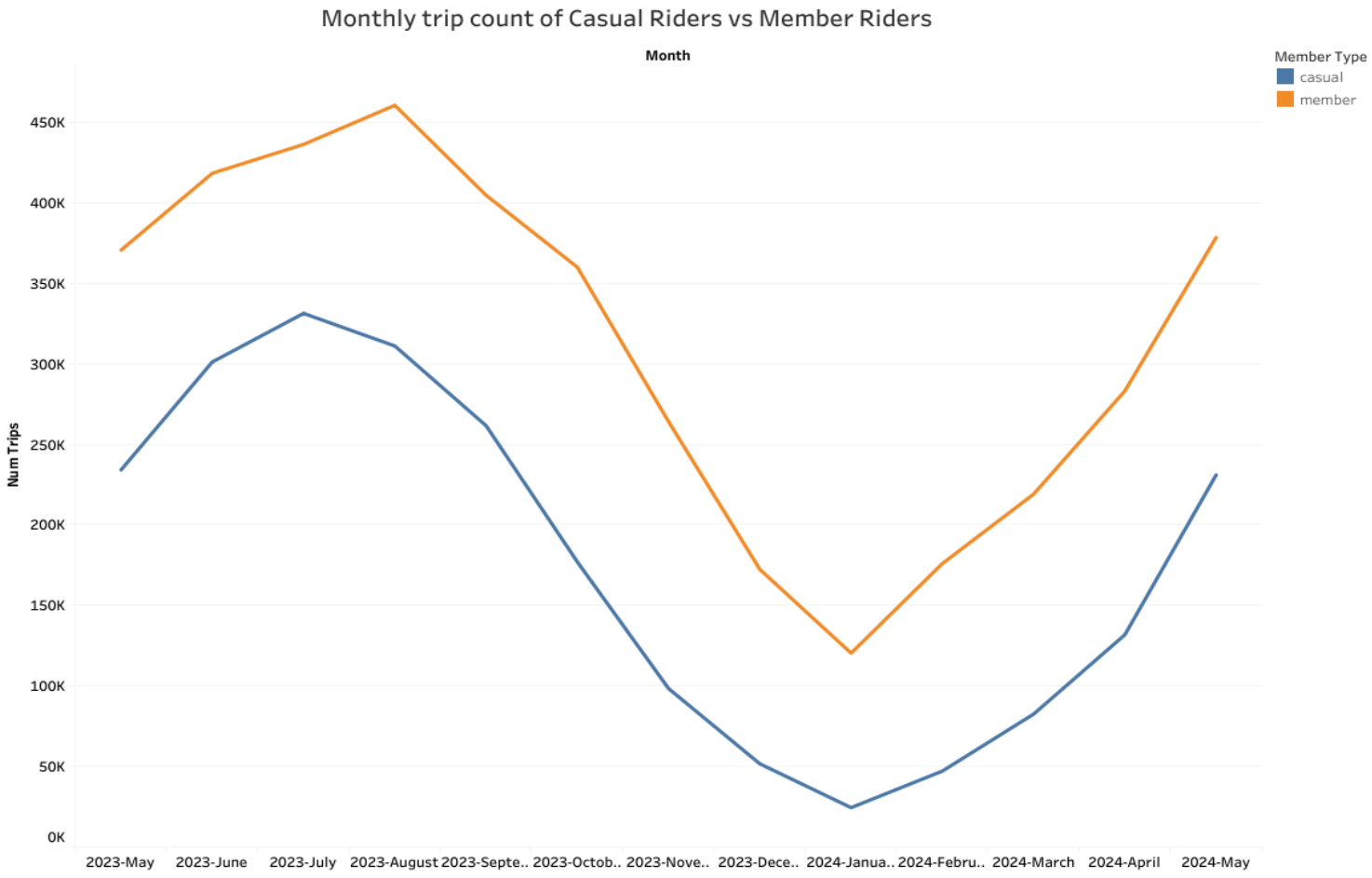
Summary of analysis:

- **Average Ride Duration Trend (Past Year)**
  - Duration Comparison
    - On average, annual members ride for approximately twice the duration of casual users throughout the year.
  - Peak Duration
    - Casual riders experienced a notable peak in ride duration in August 2023, while the ride duration for annual members remained consistent throughout the year.

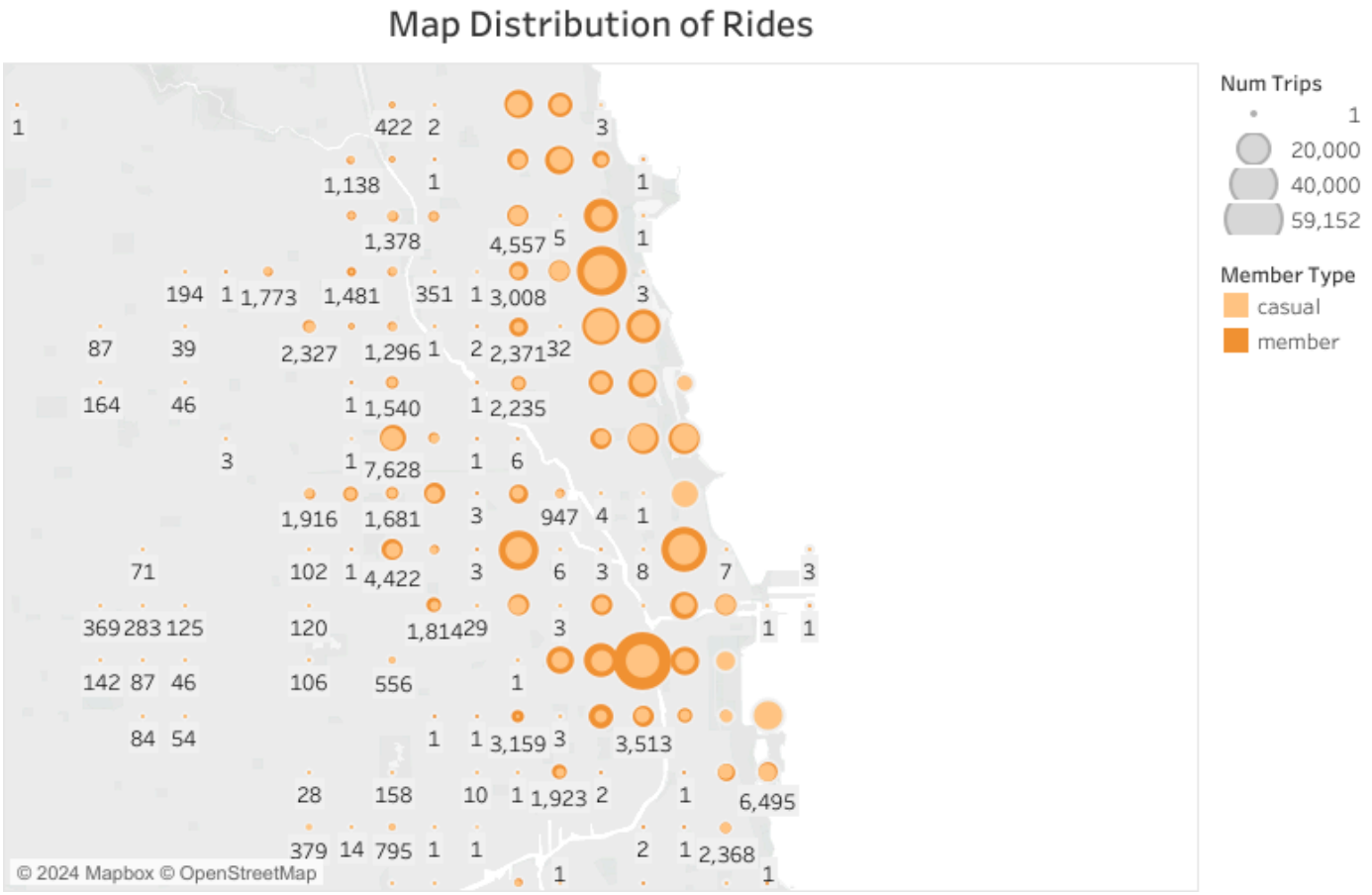


- **Trip ride visualisation of casual riders vs member riders**
    - Trip Frequency
        - Overall, annual members take approximately twice as many trips as casual riders both daily and monthly.
    - Peak Usage
        - Casual riders reached their peak trip count in July 2023, whereas annual members peaked in August 2023.
    - High Activity Period
        - Both casual and annual riders exhibit higher trip counts during the first five days of each month.

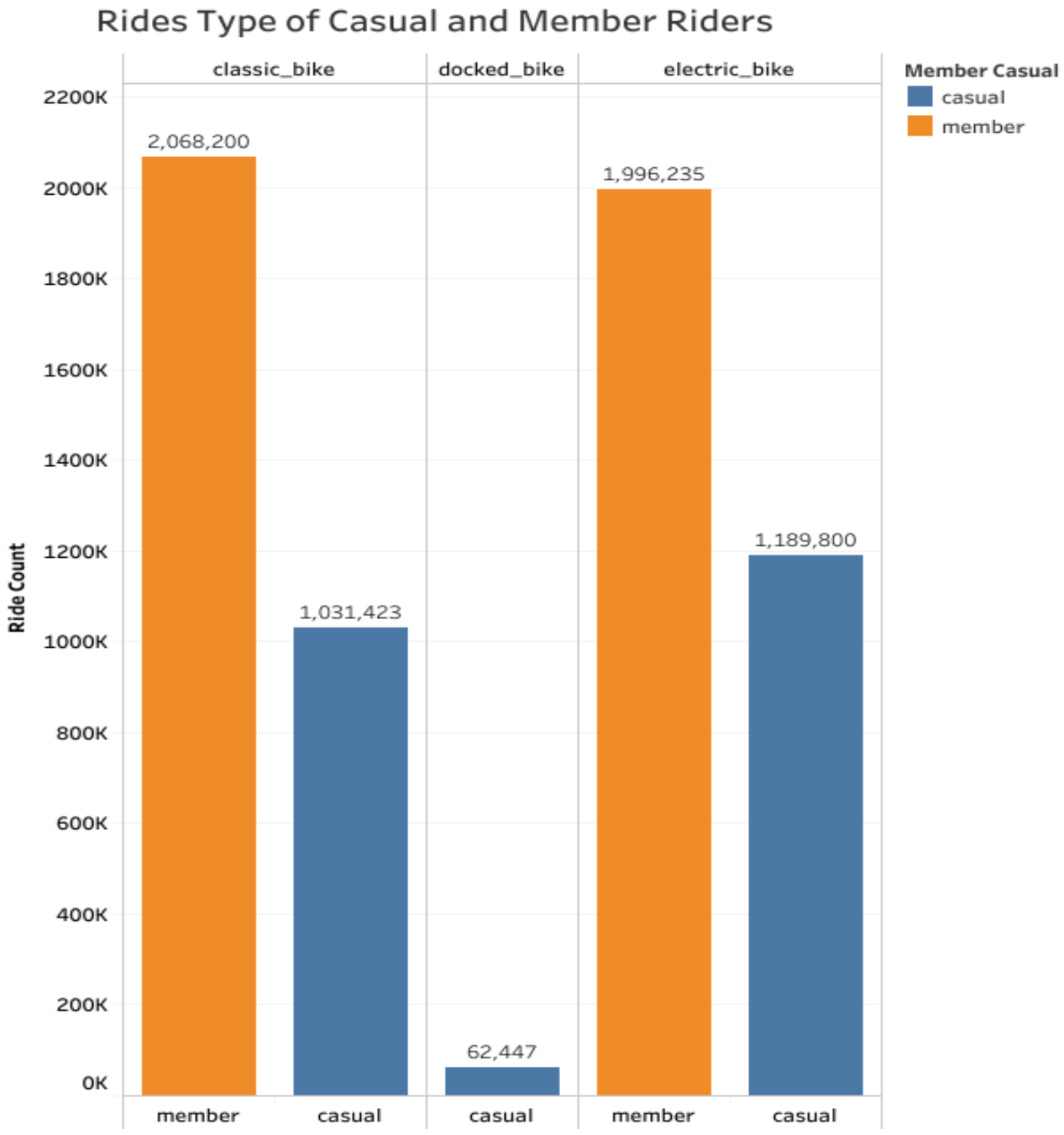

Daily trip count of Casual Riders vs Member Riders
Member Type
casual
member
Num Trips
Day
150K
140K
130K
120K
110K
100K
90K
80K
70K
60K
50K
40K
30K
20K
10K
0K
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
125,556
135,218
140,083
135,525
138,733
138,184
140,155
143,447
126,184
129,014
128,328
123,194
141,410
135,736
127,931
138,059
131,831
140,569
136,872
134,614
125,738
128,203
117,492
131,623
123,319
132,081
138,699
127,719
127,729
69,651
70,412
90,137
98,384
66,470
69,457
72,557
72,238
81,513
84,419
63,302
70,463
65,287
62,561
75,241
79,232
70,960
80,099
77,378
76,588
74,616
79,692
74,308
82,602
74,664
78,554
60,334
66,299
75,579
81,690
41,388


Monthly trip count of Casual Riders vs Member Riders
Month
Member Type
casual
member
Num Trips
450K
400K
350K
300K
250K
200K
150K
100K
50K
0K
2023-May
2023-June
2023-July
2023-August
2023-Septe..
2023-Octob..
2023-Nove..
2023-Dece..
2024-Janua..
2024-Febru..
2024-March
2024-April
2024-May

- **Map distribution of start stations**
  - While certain start stations are more popular among annual members, these stations also experience considerable usage by casual riders. This indicates potential opportunities for targeted marketing efforts at these locations to convert casual riders into members.



- **Popularity of different ride types**
    - Both classic and electric bikes are favored by casual and annual members, while docked bikes are exclusively used by casual riders and are less popular overall. This suggests a preference for more flexible and versatile bike options among all users.



Recommendations:

1. **Targeted Promotions at Popular Start Stations**
    a. Focus on stations that are popular among both casual riders and members. Use targeted promotions or incentives (such as discounted annual memberships, free trials, or loyalty rewards) to encourage casual riders to switch to annual memberships.
2. **Seasonal Campaigns Based on Peak Months**
    a. Launch marketing campaigns around peak months: July for casual riders and August for members.
    b. Highlight the benefits of annual memberships during these periods, emphasising increased ride duration and trip frequency.
3. **Referral Programs**
    a. Introduce referral programs where existing members can earn rewards for referring friends or family to sign up for annual memberships.
    b. Leverage word-of-mouth marketing to boost member numbers, especially at popular locations where casual rider usage is high.
4. **Removal of docked bikes**
    a. Remove docked bikes, which have low usage by casual riders and no usage by members.
    b. Redirect marketing efforts and resources towards promoting electric and classic bikes to increase membership and profitability.

Tableau Visualisation link:

https://public.tableau.com/views/Cyclistic-Analytics-Google-Capstone-Project/RiderHistoryDashboard?:language=en-GB&:sid=&:display_count=n&:origin=viz_share_link

Github link:

https://github.com/Luanjie-Dong/Cyclistic-Analytics-Google-Capstone-Project