Case Study:

Cyclistic Bike-Share Navigate

Contents:

A. About Case Study

- The Case Study purpose is to practice, demonstrate my Data Analysis skills. Along this document describe my analysis on the case study is about, information about the case study, steps I take to approach and the result of each step.
- The case study is fictional using some made up information such as company name, stakeholders. And it use data made by Motivate International Inc which have the matching information with the case.
- This case study idea, scenerio and resource is from Google Data Analytics course on Coursera.

B. Content

1. Business task/Scenerio

- You are a data analyst working in 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, your team wants to understand how casual riders and annual members use Cyclistic bikes differently. From these insights, your team will design a new marketing strategy to convert casual riders into annual members. But first, Cyclistic executives must approve your recommendations, so they must be backed up with compelling data insights and professional data visualizations. Time period: 12 months (07/2022 - 06/2022)

## 2. Data Preparation and Processing

- Data description: The data set given is public data. Since the data is already available, I only have to download from it's source - Motivate International Inc at the link: https://divvy-tripdata.s3.amazonaws.com/index.html
- Data formats and structures: structured data, quantitative data, qualitative data.
- The data is stored in a .csv format and can be opened/used with Excel/other spreadsheet tools, The data is organized in wide data format. Since the data from 07/2022 to 06/2023, the data is large, each file can come up to 25Mb, I use Python to work with the data.
- The data set have 13 fields, 719618 observations with each field's description as below:
    - Ride_id: id of each ride
    - Rideable_type: type of the ride bike
    - Started_at: Time started in date-time format
    - Ended_at: Time ended in date-time format
    - Start_station_name: name of the starting station
    - End_station_name: name of ending station
    - Start_station_id: id of the starting station
    - End_station_id: id of ending station
    - start_lat: start station latitude
    - start_lng: start station longtitude
    - end_lat: end station latitude
    - end_lng: end station longtitude
    - member_casual: type of customer, member are customers who purchase annual memberships at Cyclistic, casual are customers who purchase single-ride or full-day passes.
- For more detail steps about data preparing and processing can be found in the markdown file analysis.ipynb.

- I use Tableau to visualize data. See Tableau data visualization dashboard at: https://public.tableau.com/views/Book1_16905157628900/Dashboard5?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

3. Analysis and Insight
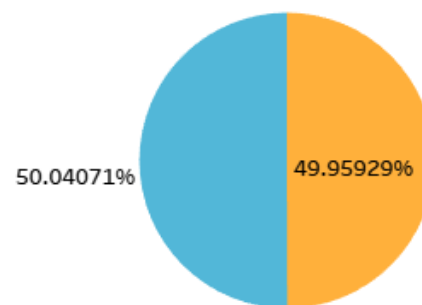
Analysis

Ride Count of Members and Casual Customers
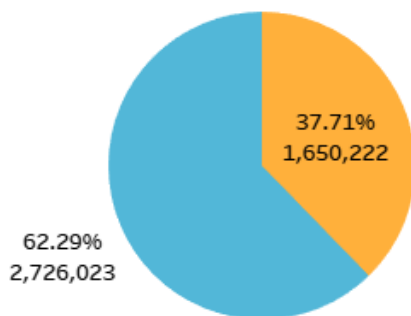
Total Ride Time of Members and Casual Customers

37.71%
1,650,222

62.29%
2,726,023

50.04071%

49.95929%

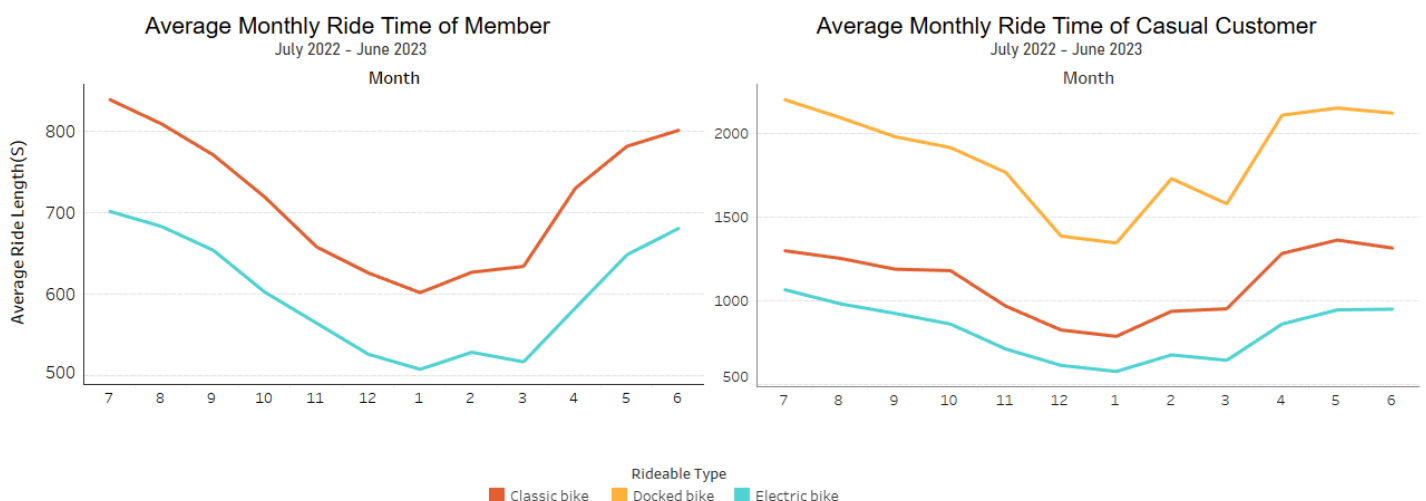**Customer type**

■ Casual   ■ Member

- Total number of rides from member is more than casual customer. Contrast to the total number of rides, the total ride time from casual customers are slightly more than members. I also calculate the average time of each ride and see that the time from member is less than casual customers about 10 minutes. And the time from casual customers are also more unstable.

| Ride length	Member	Casual
Mean	00:11:40	00:19:14
Standard deviation	00:10:14	00:19:31

- This difference maybe because of ride purpose or bike type the customer use. To dig deeper, first we consider the types of bike they use.

Number of Rides by Bike Types
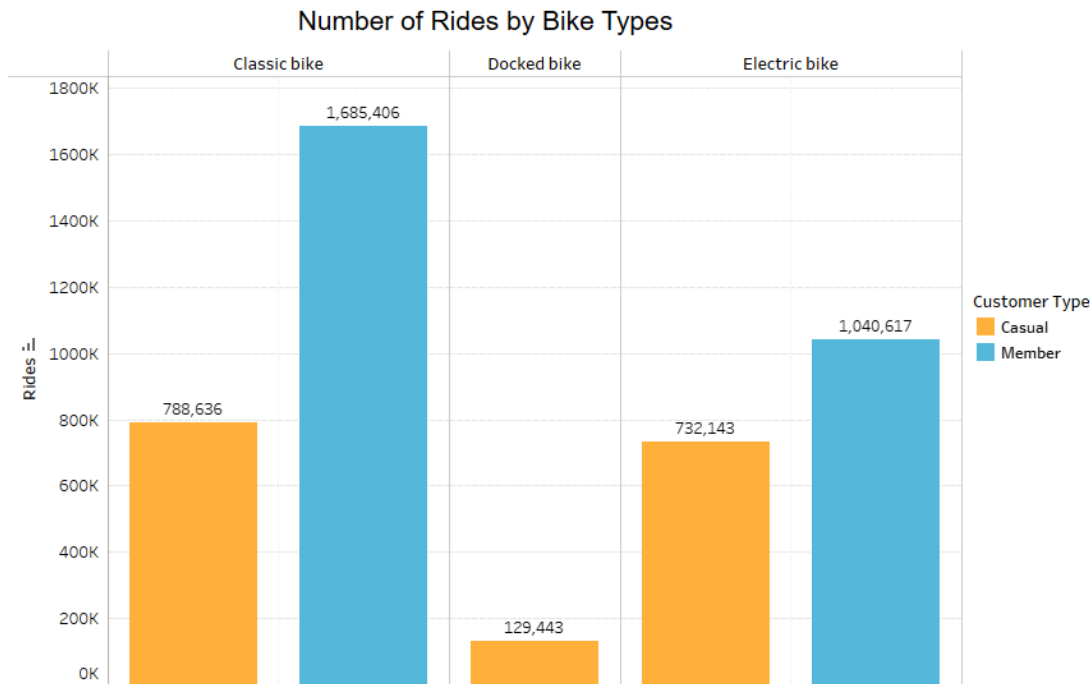
- First, any type from member have a larger number than casual customers. But classic bike has the most rides, 1685406 rides which is even larger than all rides from casual customers. And members also don't use docked bikes.
- Docked bikes have the least number of rides. And members don't use docked bikes at all.


- Even though the number of rides from docked bike is the smallest but it has the longest average ride time -> maybe adjust the plan for docked bikes.
- Both types of user have the least average time in December, January and March. And casual customers have the most ride time in summer, which is in May, June, July and August.
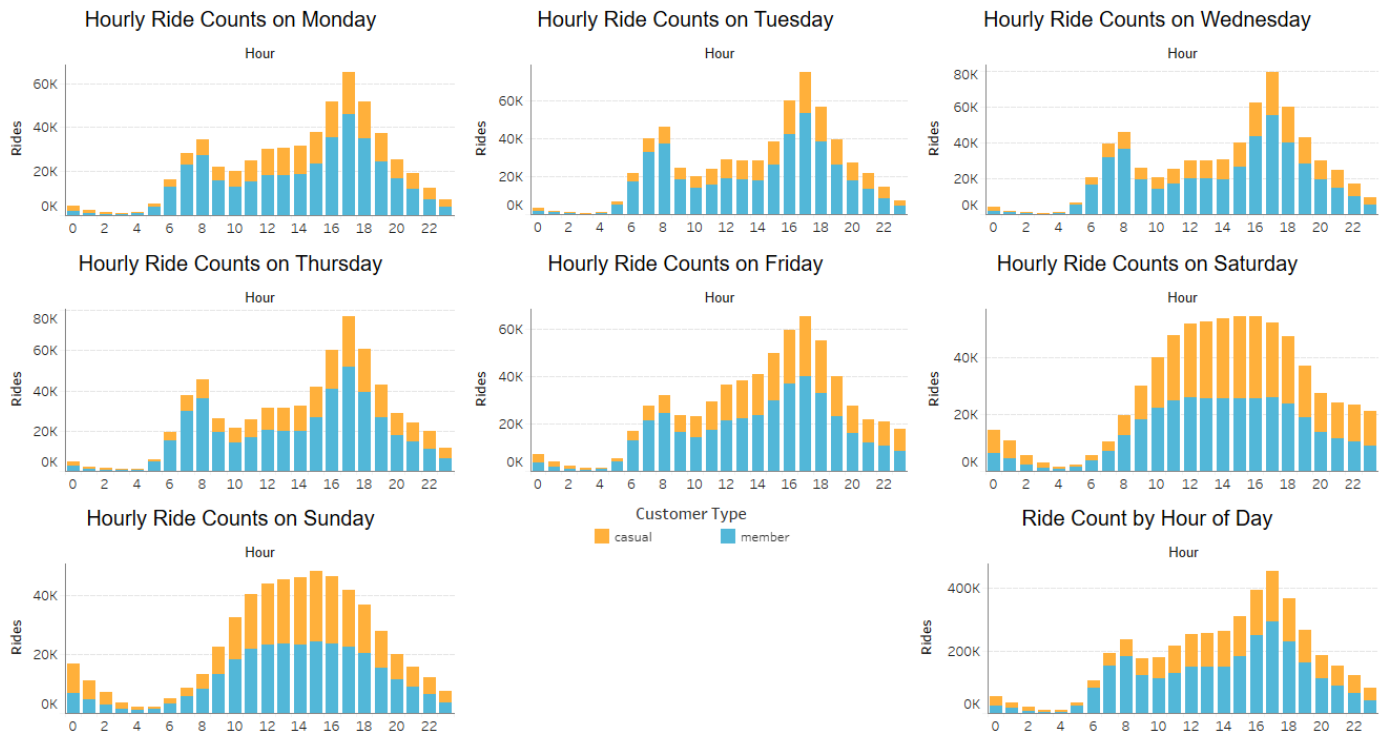
- Casual customers mostly use bikes on the weekend and the most rides in Saturday, from 11pm to 18pm.
- Member use bikes mostly on working day, from Monday to Friday. The number of rides is also at peak on 7-8 A.M and 16-18 PM from Monday to Friday so members may use bikes mostly for traveling to work and home.
- Both customers have the most rides on 17 P.M so it's may be considered as peak hour of the day -> We can add some benefits for membership to attract casual customers.

Most Popular Stations Among Casual Customers
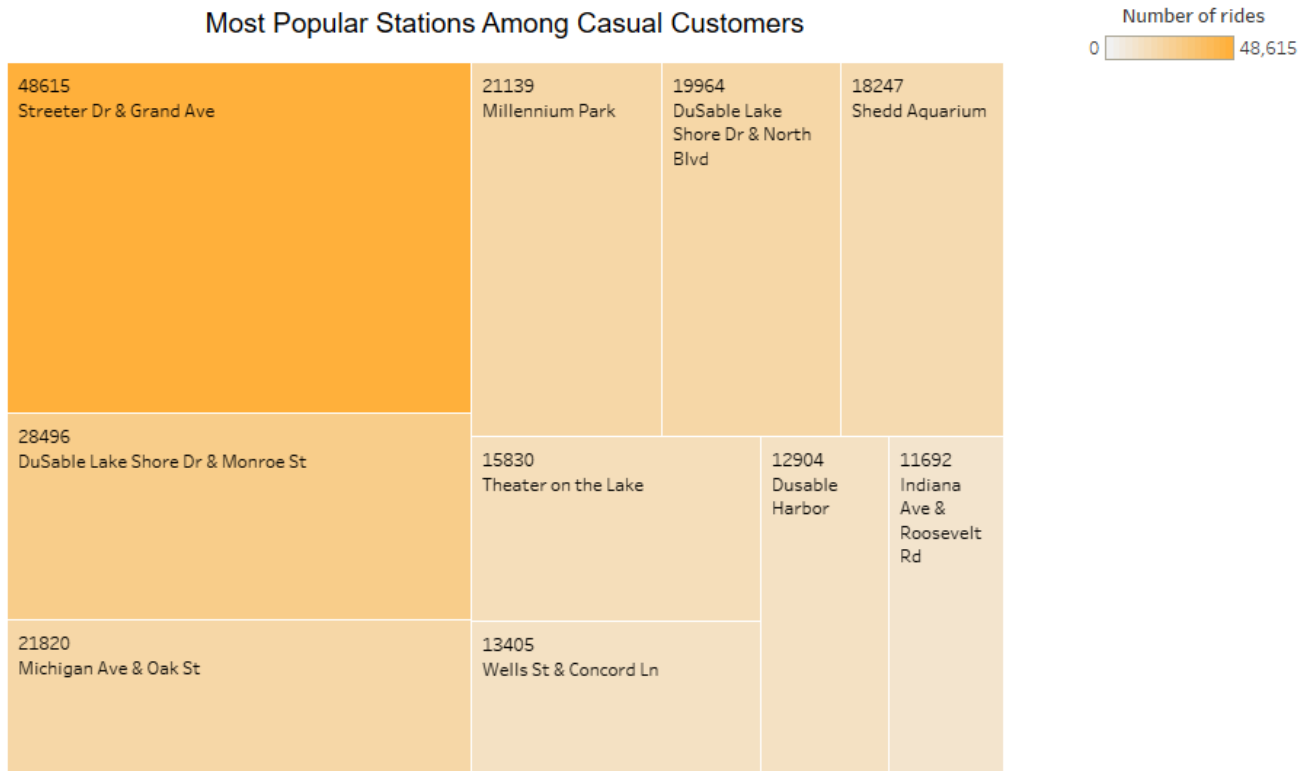
- The above chart show top 10 popular stations among casual customers. We can put advertisements on these sites to target casual customers to subcribe to membership.

Insight:

- So to increase the number of members, we can consider the following options:
    - Promote to casual customers that use classic bikes and casual bikes for customers that rent bike regularly.
    - Adjust the policy so that members can book bikes renting online or prioritize bikes availability on peak hours for members.
    - Target advertising to the casual customers in Saturday from 11 to 18pm on Saturday and Sunday.
    - Focus advertisting some popular stations among casual customers.
    - Add some special sales for member subscription in May, June and July since these are the months that have the most rides.
- Other options to consider:
    - Since docked bikes haves the most bike time -> we may need to increase charge when customer use it pass renting time.