

Capstone: Case Study 1 – Cyclistic

By Rishabh Thukral

Quick Intro

This case study is to verify my learning steps for the eighth module of studying in the **Data Analyst course**.

My choice is to pick **Cyclistic** case study. In this case, they are trying to design a marketing campaign which goal is to converting casual riders to become annual members. My task is to gain insights and identify trends of how casual riders and annual members use Cyclistic bikes differently. From these insights, the team will design a new **marketing strategy**.

Scenario

I am a junior data analyst working in the marketing analyst team at Cyclistic, a fictional bike-share company based in Chicago. The marketing team is trying to design a marketing campaign that can convert casual riders to annual members. The goal is to find out user behavior and develop our membership strategy of **converting casual users become members**.

Ask

Before starting, to find a way, I need to ask the leader at Cyclistic these questions -

- How do annual members and casual riders use Cyclistic bikes differently?
- Why would casual riders buy Cyclistic annual memberships?

Prepare

To find out **user behavior** between these two types of casual users and members. I need to identify the time they use, their site, and the kinds of bikes they ride in the data. Gain insight into user behaviors' patterns; the team can follow up to make suitable promotions and **marketing campaigns**.

The insightful information I received after downloading the data:

- Unique id for each ride
- Type of bikes (classic, electric)
- When the ride started
- When the ride ended
- Where the ride started
- Where the ride ended
- Whether is a member or a casual user

Process

The company provides the last 12 months of historical trip data for us to analyze and identify trends (The data has been made available by Motivate International Inc. under this license <https://www.divvybikes.com/data-license-agreement>).

It consists of twelve separate '.csv' formatted files representing each month.

The datasets are located in the company's cloud server, and must be downloaded to enable us to prepare, process, and analyze the data. Each of them consists of 13 fields with a various number of records depends on each month's rides. There are multiple null values across each file and there will be further inspection on these null values and how to minimize them. There are also critical issues where Station ID values have inconsistent; the Station ID values are in a new format.

In the data clean phase, I use the **R language** to clean up the null values and unnecessary data. I decided to export the clean data sets for further inspection.

It would be much convenient to identify data when converting the **raw data into months, weeks, and ride length** for further analysis.

Analyze

Revealing Insights

After rechecking several issues in the cleaning process, we can finally start to analyze the data and mix-match columns to see the pattern that differs between casual rider and annual member behavior. I used **Tableau** software to **visualize the data**. Here is what the data tells us –

First Insight

The proportion of users in the last year, the majority is members. Casual users are approximately 3/4 of the number of annual members and very near to half of the total users. Members use more often than casual users but casual users spend more time per trip, whereas members have constant trip duration.

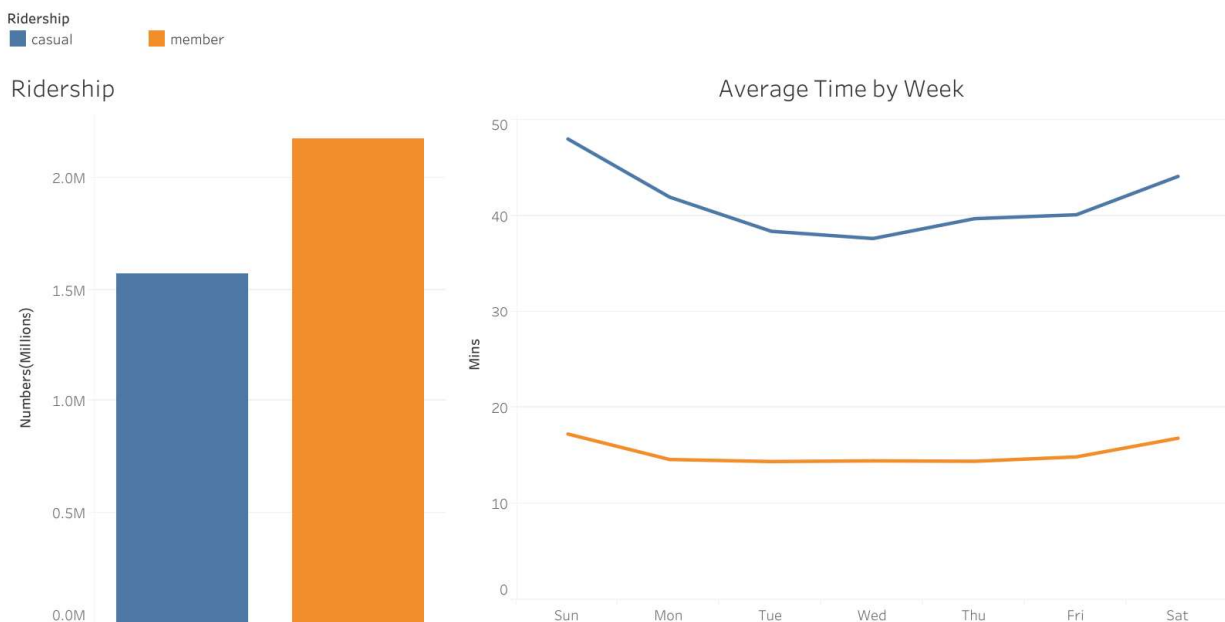


Fig.1 Blue is represented for **casual ridership** and Orange is represented for **member ridership**.

In the first chart y-axis represents **number of people**.

In the second chart y-axis represents the **minutes taken on average**, x-axis represents the **days of week**.

Second Insight

Bike usage spikes in the summer, peaking in **August**. **June to September** could be the best time to launch the campaign for the **widest reach** possible.

Traffic by Month

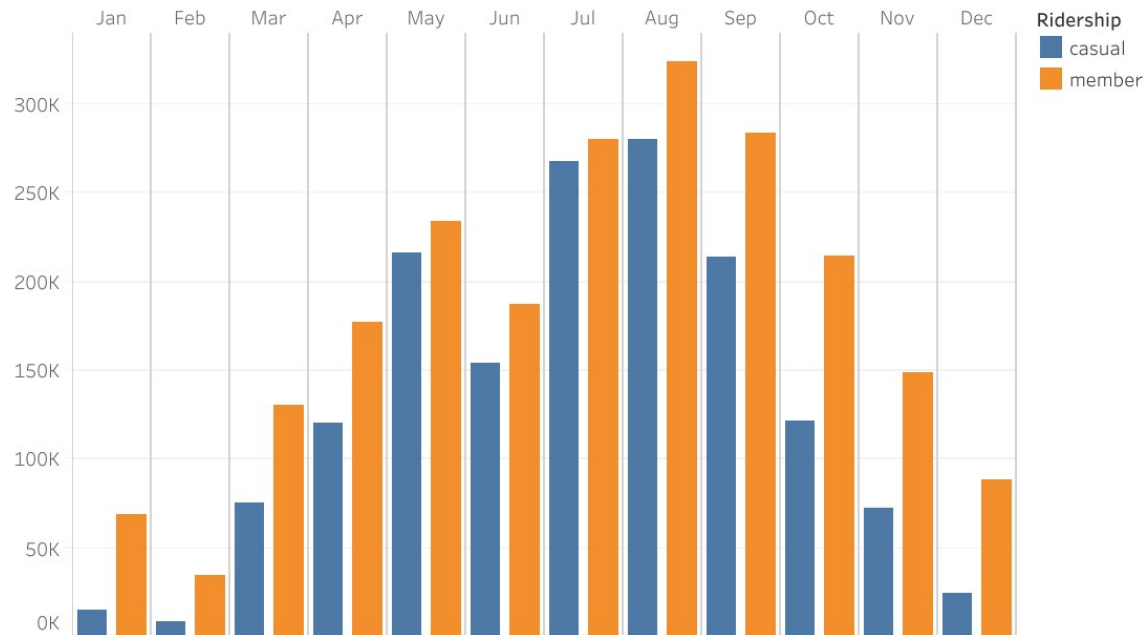


Fig.2 Blue is represented for **casual ridership** and Orange is represented for **member ridership**.

Y-axis represents **traffic**

X-axis represents **months**

Third Insight

It is more average number of **members** riding during the week. **Casual users** are preferred riding on **weekends**. It can be considered a good time to do a special **promotion** to attract them to **sign up as members**.

Traffic by Ridership

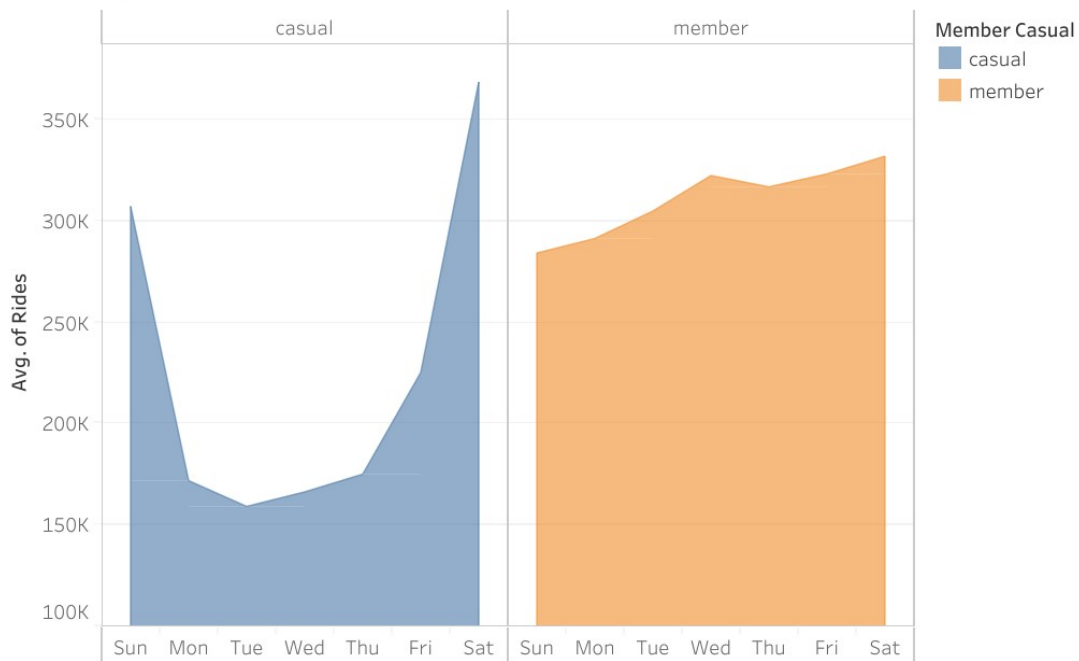


Fig.3 Blue chart represents traffic by **casual users** and orange chart is for **members**.

Y-axis is **average riders**

X-axis is **days of week**

Fourth Insight

Members commute between the offices and casual users are more likely to visit around harbors in terms of usage. A campaign idea can be a one-day or two-day offers of promotions for them to sign up at the weekends at these locations.

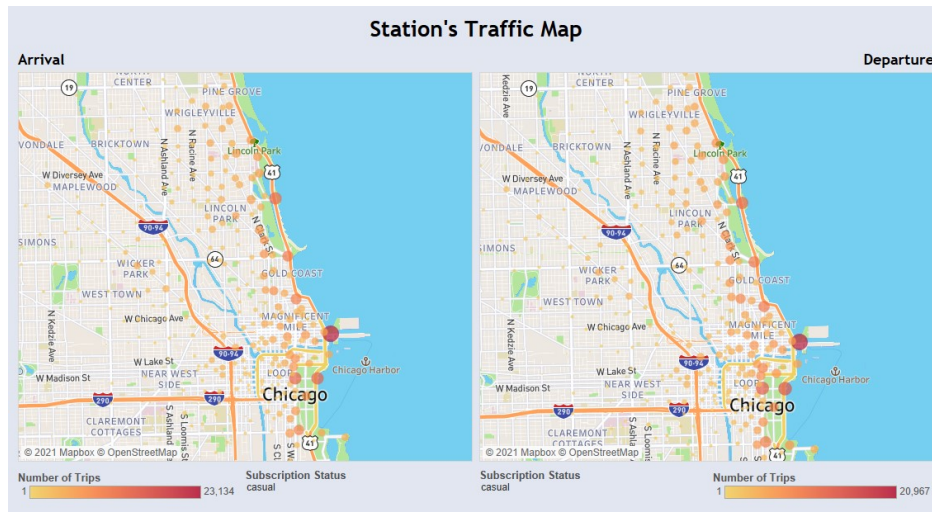


Fig.4, from the map, we could spot the difference that casual riders mostly start and end their ride around **Chicago Harbor** and **Millennium Park** and less on the area where office buildings are located.

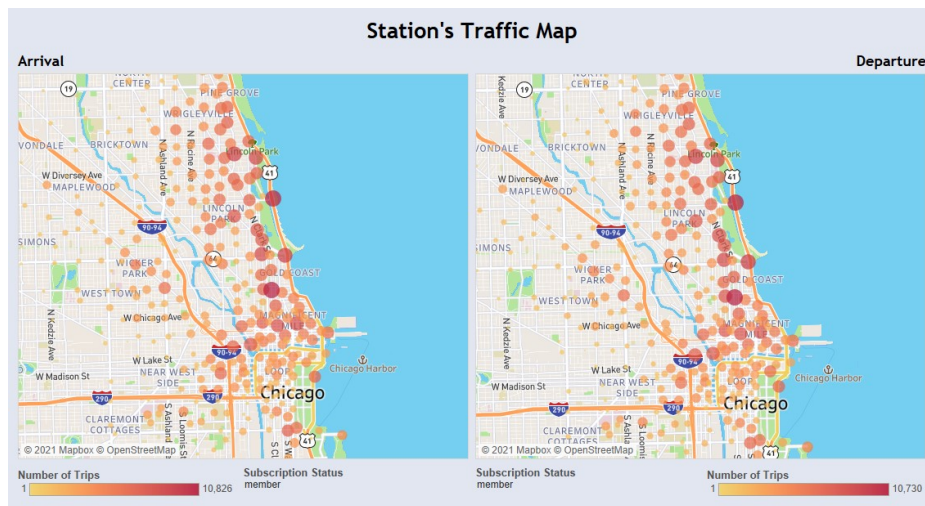


Fig.5, Opposite to them, **annual members'** bike usage is **less dense** on the harbor and the park but heavily located around office buildings and also **Route 41** exit stations. It could mean that most of the **annual members are workers** that commute daily to their office while **casual riders are mainly tourist**.

Fifth Insight

Users are more **likely to ride classic bikes** in comparison to **electric bikes** in both members and casual ridership. But again, the inference is that **Casual ridership is highest on the weekend**, both in the case of classic bikes and electric bikes.

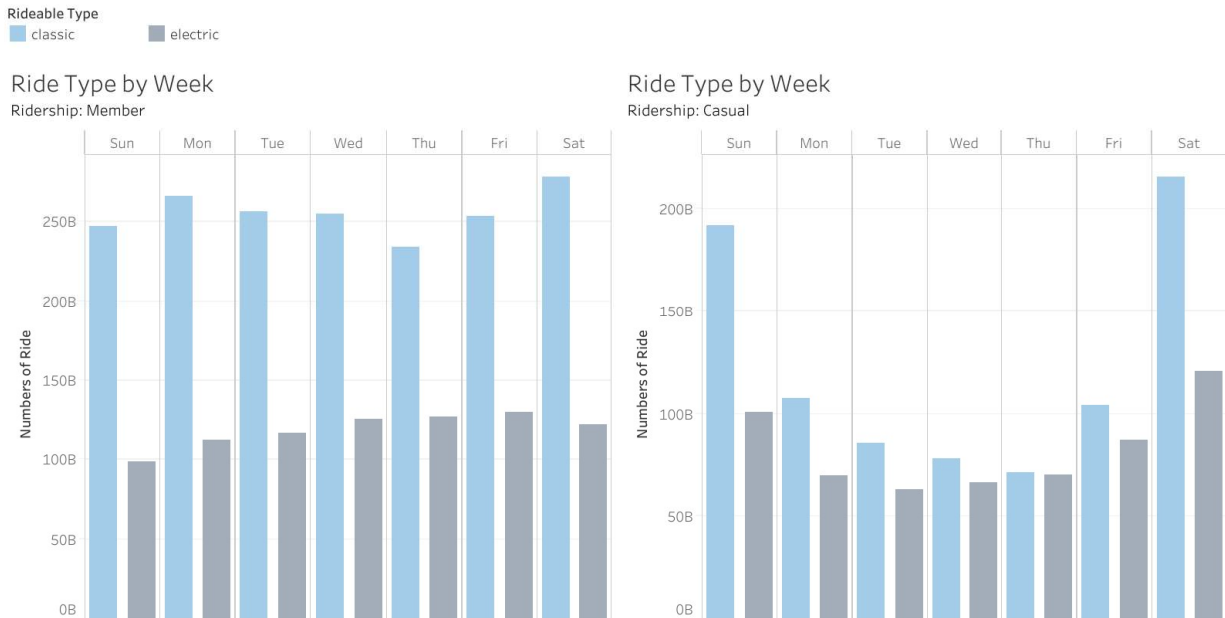


Fig.6, Left chart represents Annual members, Right chart represents casual ones.

Y-axis represents **number of rides**

X-axis represents **days of the week**

Light blue color represents **classic bikes** and grey color represents **electric bikes**.

Act

To summarize, briefly all possible suggestions are:

- Promote Cyclistic according to the **popular months** of usage, and follow up with suitable advertising strategies.
- **Promote** the offers **during weekends** or time-reward membership program to attract sign-up for members during the weekends.
- **Generate more consumer interest.** Follow-up suggestions can be planned, survey to **understand the choice** between classic bikes and electronic bikes.

Final Recommendations

The marketing campaign goal is to attract **casual riders** to subscribe as an **annual member** and our team decided to channel the campaign on digital media.

The design of this campaign must be **data-driven**, so here is what I recommend -

- The best campaign period is in the summer **between June and August** while bike usage reaches its **peak**.
- **Casual riders** are more active on the **weekend** around **Chicago Harbor** and **Millennium Park** stations, so it could be a great opportunity to concentrate the ads around the area on those days. Also **offline events** can be conducted in these areas and they can include **limited time offers** for the weekends to increase number of member sign ups.
- These can be followed by **Surveys**, in order to understand **consumer choice patterns** between classic and electric bikes. After surveys consumers can be **rewarded with merchandise and vouchers** in order to build **motivation**.
- To gain potential members interest, Cyclistic can launch a new program that **incentivizes** their long ride behavior. For example, they will get points proportionate with ride length or distance which they can exchange for rewards. It could also appeal the annual members to continue their membership.