How does a bike-share navigate speedy success?

Google Data Analytics Professional Certificate Case Study

Hi! I have recently completed the Google Data Analytics Professional Certificate program on Coursera. As part of this course, students are required to complete a data analysis case study to showcase the skills learned throughout this course and here is my take on this project. For this case study, I used RStudio for the data preparation and Tableau for the data visualization and analysis.

Characters and teams

● Cyclistic: A bike-share program that features more than 5,800 bicycles and 600 docking stations. Cyclistic sets itself apart by also offering reclining bikes, hand tricycles, and cargo bikes, making bike-share more inclusive to people with disabilities and riders who can't use a standard two-wheeled bike. The majority of riders opt for traditional bikes; about 8% of riders use the assistive options. Cyclistic users are more likely to ride for leisure, but about 30% use them to commute to work each day.

● Lily Moreno: The director of marketing and your manager. Moreno is responsible for the development of campaigns and initiatives to promote the bike-share program. These may include email, social media, and other channels.

● Cyclistic marketing analytics team: A team of data analysts who are responsible for collecting, analyzing, and reporting data that helps guide Cyclistic marketing strategy. You joined this team six months ago and have been busy learning about Cyclistic's mission and business goals — as well as how you, as a junior data analyst, can help Cyclistic achieve them.

● Cyclistic executive team: The notoriously detail-oriented executive team will decide whether to approve the recommended marketing program.

About the company

In 2016, Cyclistic launched a successful bike-share offering. Since then, the program has grown to a fleet of 5,824 bicycles that are geotracked and locked into a network of 692 stations across Chicago. The bikes can be unlocked from one station and returned to any other station in the system anytime. Until now, Cyclistic's marketing strategy relied on building general awareness and appealing to broad consumer segments.

One approach that helped make these things possible was the flexibility of its pricing plans: single-ride passes, full-day passes, and annual memberships. Customers who purchase single-ride or full-day passes are referred to as casual riders. Customers who purchase annual memberships are Cyclistic members.

Cyclistic's finance analysts have concluded that annual members are much more profitable than casual riders. Although the pricing flexibility helps Cyclistic attract more customers, Moreno believes that maximizing the number of annual members will be key to future growth. Rather than creating a marketing campaign that targets all-new customers, Moreno believes there is a very good chance to convert casual riders into members. She notes that casual riders are already aware of the Cyclistic program and have chosen Cyclistic for their mobility needs.

Moreno has set a clear goal: Design marketing strategies aimed at converting casual riders into annual members. In order to do that, however, the marketing analyst team needs to better understand how annual members and casual riders differ, why casual riders would buy a membership, and how digital media could affect their marketing tactics. Moreno and her team are interested in analyzing the Cyclistic historical bike trip data to identify trends.

Data Source

The dataset used in this case study is public data. (View license). The analysis is made with the data from last year 2022, to avoidant any irreguar situations due COVID in 2021.
The data contains the following columns:

No	Column Name	Description
1	ride_id	Unique identifier given for each ride booking
2	rideable_type	Type of bicycle used
3	started_at	Datetime of the start of the trip
4	ended_at	Datetime of the end of the trip
5	start_station_name	Name of the starting station
6	start_station_id	Unique identifier of the starting station
7	end_station_name	Name of the end station
8	end_station_id	Unique identifier of the end station
9	start_lat	Latitude of the start station
10	start_lng	Longitude of the start station
11	end_lat	Latitude of the end station
12	end_lng	Longitude of the end station
13	member_casual	User type (either member or casual)

Data Preparation

First of all I opened my RStudio app and installed all the necessary applications to clean and prepare the data for the next process of visualization and analysis.
I initiated the applications, imported the data, checked everything to make sure it was in the right format and created a unique dataset called "total_trips_2022".

Then I created the variables needed for the visualization.

Analysis

Number of trips per member by week

On this graphic I can see that on average the casual clients use bikes more often during the week compared to members. That being said, regardless of type of client, the bikes are a highly demanded service.
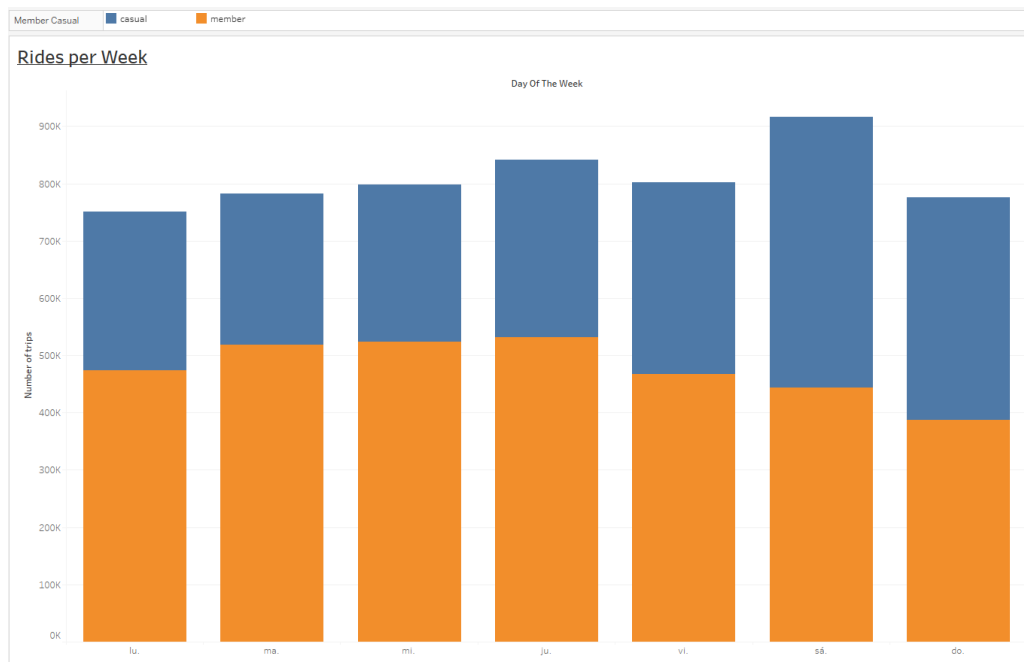
Duration of trips per member

According to the data, casual clients take longer trips than members. Members could be using the bikes for routines, while casual clients seem to use the bikes more occasionally with higher rates during the weekend.
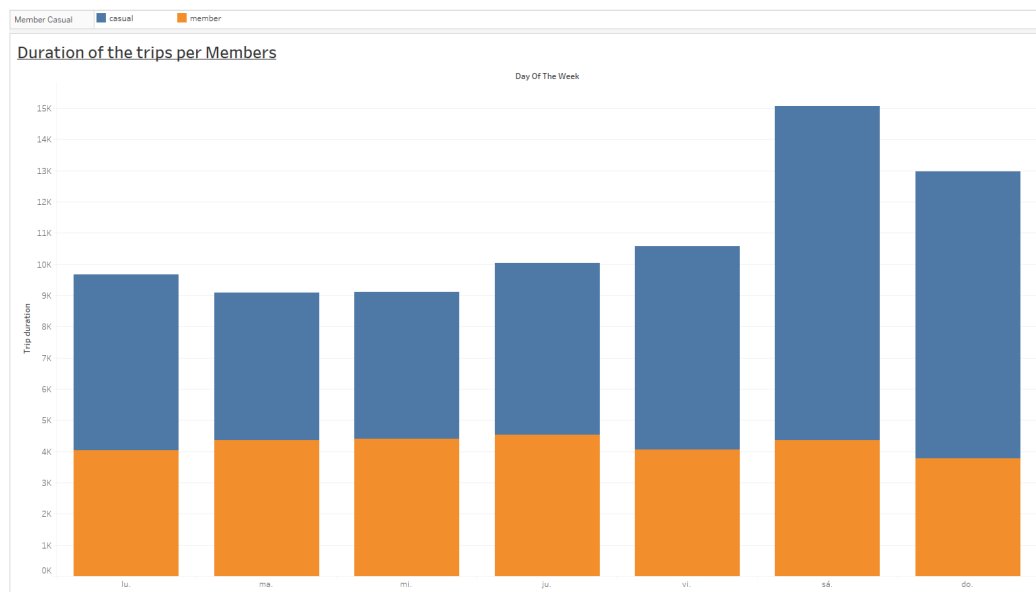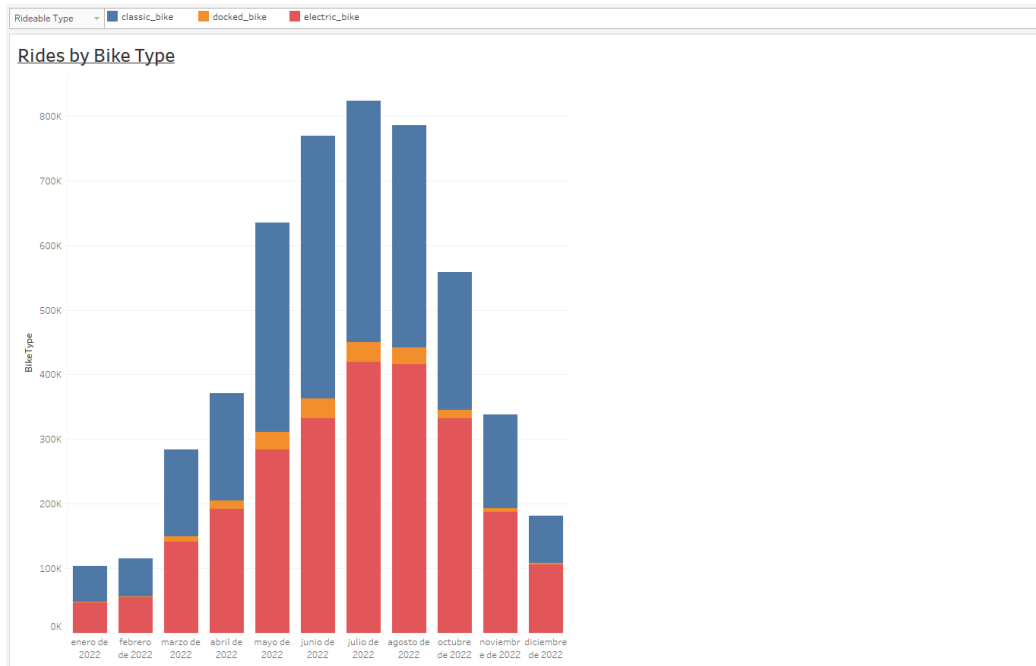

Number of trips by month per member

I discovered the months of summer, when there is good weather are the months when the bikes are most utilized. Tourists could also contribute to this phenomenon. Both casual clients and members follow this same trend.
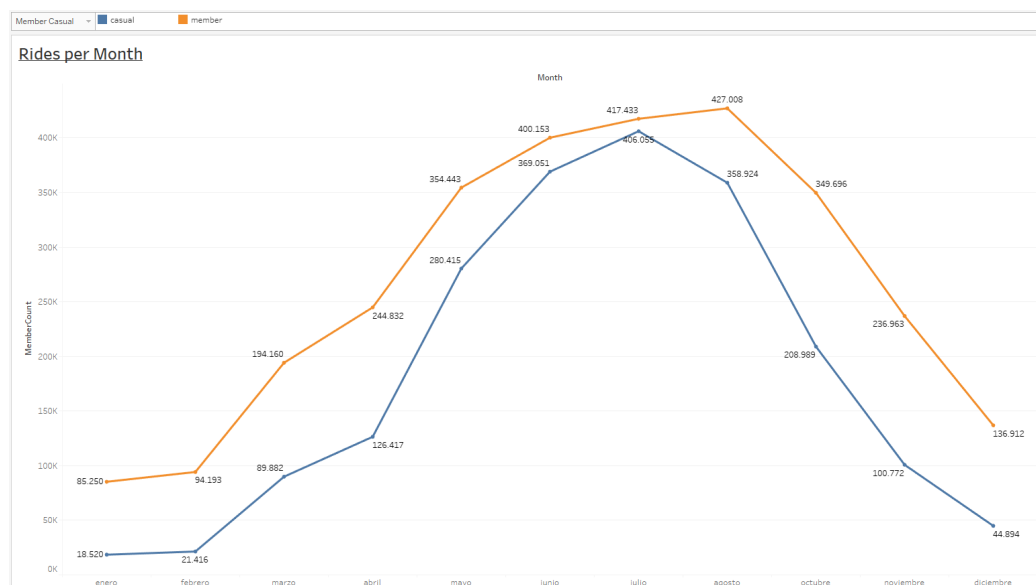
<u>Number of trips by type of bike</u>

Classicbike are the most used bikes.

Conclusion

To create a strong marketing campaign to convert casual riders into annual members, the following data should be used:

1. Casual clients take longer trips than members: The company could take advantage of that by implementing special deals for new members to encourage them to join.

2. The company could increase marketing during the summer months when more clients use bikes and create special offers to get tourists through Chicago tourist companies.
   Another idea could be that clients can share their link I.D. with a friend to get a discounted or free ride.

3. Casual riders use bikes more often during the weekend so it could be a good idea to create special weekend membership deals with lower prices than the rest of the week to encourage more people to become members on the weekend.

4. Classic bikes are the most used type of bike and the cheapest type of bike so it could be beneficial to create weekend deals for other types of bikes so those other kinds of bikes can be used more often.