Cyclistic Bikeshare Analysis Project

Introduction

For the Capstone Project of the Google Data Analytics course on Coursera, this case study was performed on a fictional bike-share company called Cyclistic. The data were cleaned, processed and analyzed in Power Query prior to importing it into Excel for visualization.

The company was founded in 2016 in Chicago and has a fleet of 5,824 bicycles that are retracked and locked across 692 stations across Chicago. Customers who purchase a single-ride or full-day passes are referred to as casual riders. Customers who purchase annual memberships are Cyclistic members. The director of marketing has a clear goal: design marketing strategies aimed at converting casual riders into annual members. In order to do that, the marketing analysis team needs to better understand how annual members and casual riders differ. This dashboard will present the trends between casual and annual members in the last year.

Report Deliverables:

- Clear statement of the business task.
- Description of all data sources used.
- Documentation for processing of cleaning or manipulation of data.
- A summary of the analysis performed.
- Visualizations and Key Findings: Supporting visualizations and key findings.
- Recommendations: Top three recommendations based on the analysis.

Business Task

Since annual memberships are more profitable to the company. The stakeholders need to determine.

- The differences between how casual riders and annual members use the Cyclistic bike-share program differently.
- We will then use this information to design marketing strategies aimed at converting casual riders into annual members.

Preparing and Data Source.

The full dataset can be accessed here. The data has been made available by Motivate International Inc. under this license. For this study, I used the data from May 2021 to April 2022.

Processing and Cleaning Data.

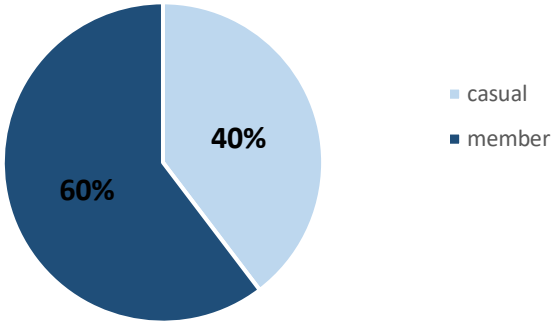
I used the Power Query by Microsoft Excel to clean and manipulate the data. Upon exploring the data, I noticed the following.

- Most of the columns I needed to use were complete and had no null, duplicate or missing values.
- The "Start Station" and "End Station" columns had a total of about 14% of its data blank (roughly 800,000 rows). This will be above 5% tolerance range, so I decided to duplicate the dataset, and remove the blanks from this dataset only and perform the analysis for Top 10 most popular “Start Station” , “End Station”.
- Calculate the ride length by subtracting the (ending at – starting at) and create a new column name is “ride_lenth”
- Cearte new column “day_of _week” to compute the day of the week that each ride began.
- Create a new column called "month" to determine the month of the year that each ride began.
- Create a new column called “period” to divide the day into 4 periods. (Morning, Afternoon, Evening and Night) in order to calculate which period is peak in day.

Data Analysis.

1- Overview

In this analysis, I examine the contribution for “Casual Riders” and “Annual Member” in total rides, and I found that “Annual Members” made up 60% of total rides and casual member made up the rest 40%. However when we conducted analysis to get the average ride length, I found the “Casual Riders” had ride average length longer period of time (28.2 MIN) than “Annual Member” (12.46 MIN).



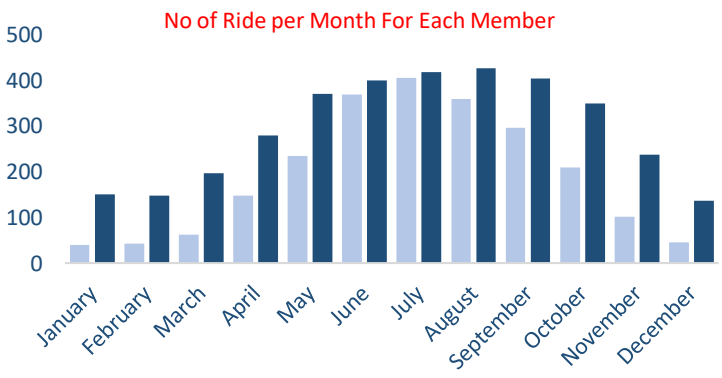
2- No rides during (Month, Day and period of the day).

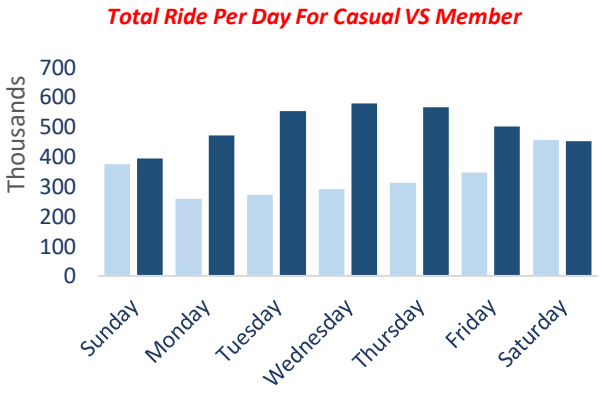
No. of rides for both “Annual Members” and “Casual Riders” had a peak number of rides. from June to August.

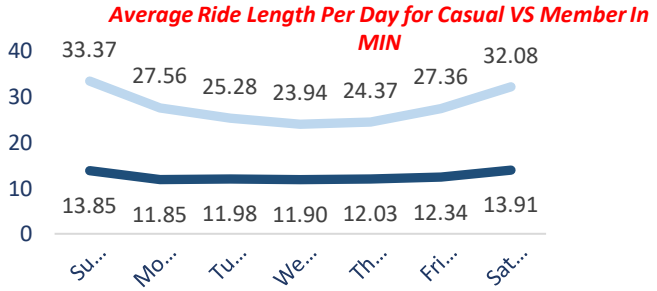
Also, I found that Both “Annual’ and “Casual” have almost close in total number of rides during the weekend days, however in weekdays I found the “Annual Members” had the largest number of rides than “Casual Riders”.

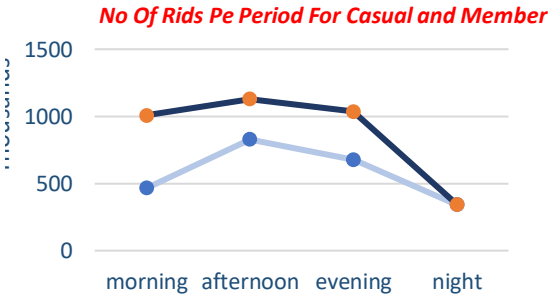
Additionally, I get the same finding when it gets to period of the day, the ‘Annual member” have a high number of rides more than ‘Casual Riders”.

However, I found that ‘Casual Riders” uses the rental bike with average Min more than “Annual member” during the week.



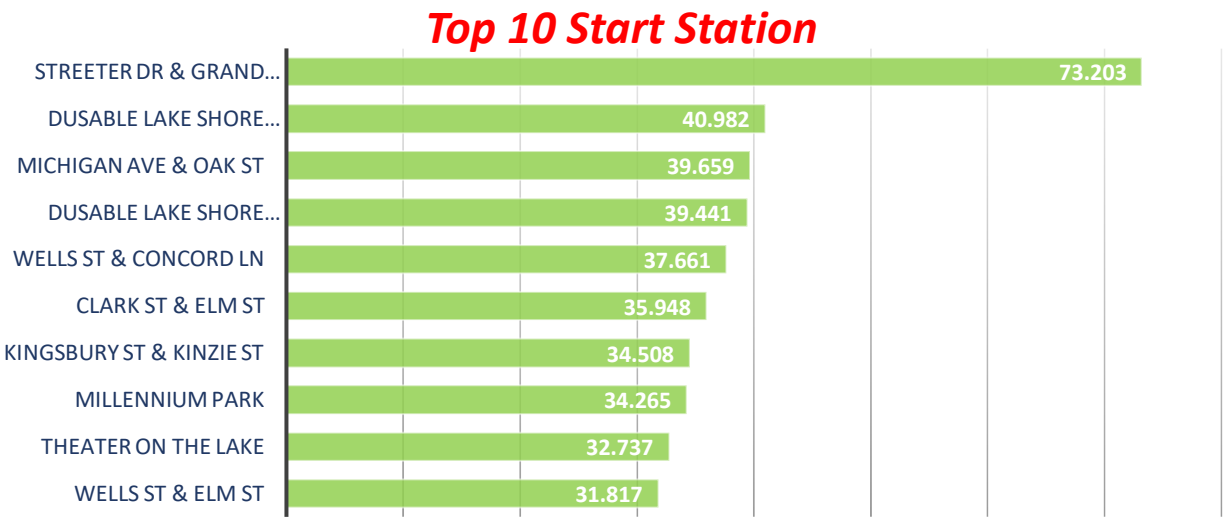






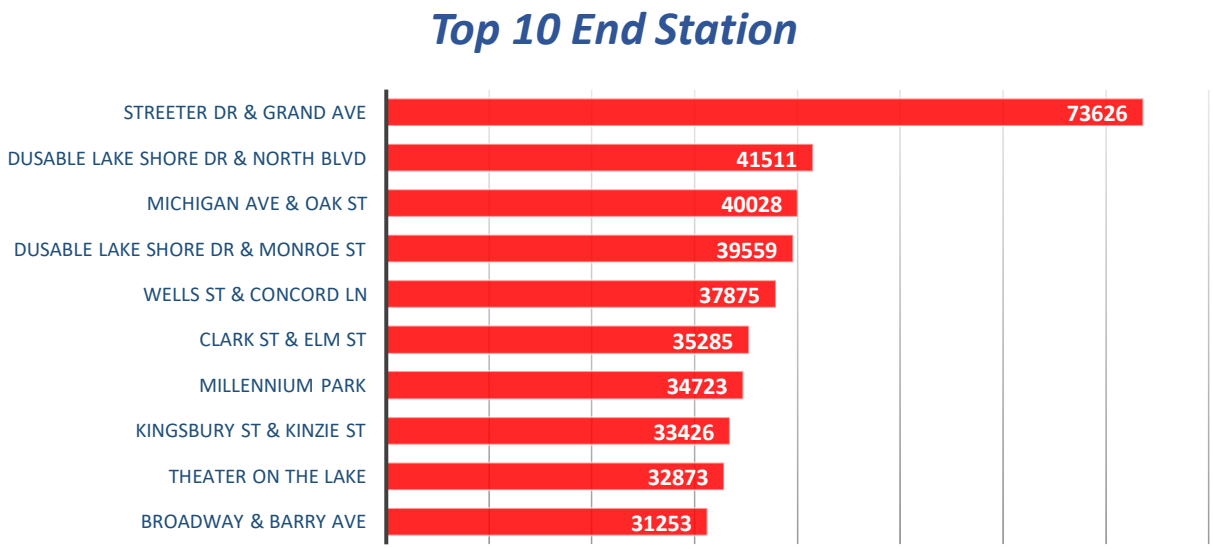
3- Top 10 Start Station

I found that Streeter Dr & Grand Ave is the most popular station for both "Casual Rider" and "Annual Member".



4- Top 10 End Station

Also, I found that Streeter Dr & Grand Ave is the most popular station for both "Casual Rider" and "Annual Member".



Conclusion

Key Finding

- The trend for both casual and member riders is quite consistent with a peak in riders during the Summertime. While there is a huge dip in riders during the Wintertime. Which leads to the fact that there is a strong relationship between the weather and the usage of bikes.
- There are more “Annual Member” riders during weekdays as compared to the weekends, while there is an inverse relationship for “Casual Riders”, as there are more riders during weekend than weekday.
- Casual Riders” have a longer ride length than “Annual Member” throughout the week. However, both “Annual Member” and “Casual Rider” have a longer ride during the weekend.
- Streeter Dr & Grand Ave is the most popular Start and End station amongst both “Casual Rider” and “Annual Member”.

Key Recommendation

As Indicated in the preceding analysis, there is a notable difference in the way "Casual Rider" utilizing Cyclistic's Bike -Share program compared to "Annual Member". To Successfully transition "Casual Rider" into "Annual Member" it is important that we consider these differences. Several strategies may be explored to elevate the membership status for "Casual Riders".

- ***Seasonal Membership Option:***

  A suggested solution is to introduce a Seasonal membership option that allows "Casual Rider" to switch aligned with preferred season, this will give the "Casual Rider" tend to be most active during the summer.

- ***Discount Membership for Casual Riders***

  Introduce a special, one-time discounted membership rate exclusively for individuals who are transitioning from being casual riders to annual members. This approach serves as an effective incentive for casual riders to recognize the advantages of an annual membership. Timing-wise, implementing this offer during peak summer months, when casual rider usage is at its highest, can potentially encourage a greater number of them to embrace the annual membership option, drawn by the appealing discount.

- ***Raise Prices During Peak Times:***

  Now that we know when casual riders are the most active, raising prices during peak times like summers and weekends could convince casual riders that the annual membership is a better deal than a single day pass.

- ***Create a Time Limit for Rides:***

  Since casual riders take on average longer rides than annual members, putting a time limit on how long the rides can be could convince a casual rider that an annual membership would be better suited for their needs. Making it so a casual rider is limited to something like 10-minute rides without a membership could incentivize casual riders who like to take longer rides to upgrade their memberships.