

Capstone Case Study

(as part of the Coursera Google Data Analytics Course)

Case Study 1 - Cyclistic Bikeshare

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Introduction

Company

- **Cyclistic** , is a fictional **bike share company** in Chicago.
- In 2016, Cyclistic launched a successful bike-share offering.
- The bikes can be unlocked from one station and returned to any other station in the system anytime.
- Types of riders :
 - **Casual Riders** : Customers who purchase single-ride or full-day passes
 - **Members**/Cyclistic members: Customers who purchase annual memberships.

Introduction

Company

- Cyclistic's finance analysts have concluded that annual members are much more profitable than casual riders.
- The Director believes that
 - maximizing the number of annual members will be key to future growth.
 - Rather than targeting all-new customers, there is a very good chance to convert casual riders into members as casual riders are already aware of the Cyclistic program and have chosen Cyclistic for their mobility needs.

Introduction

Scenario

- The director of marketing believes the company's future success depends on maximizing the number of annual memberships.
- The marketing analyst team wants to understand how casual riders and annual members use Cyclistic bikes differently. From these insights, the team will design a new marketing strategy to convert casual riders into annual members.
- **As a junior data analyst working in the marketing analyst team at Cyclistic, the main objective is to get the relevant data insights regarding annual & casual members.**

The problem

(Ask Phase)

Business task

How do annual members and casual riders use Cyclistic bikes differently ?

Objective

To clean, analyze and visualize the data to observe the usage of the casual riders and annual member riders.

About the Data

(Prepare Phase)

- The data was downloaded via this link
-<https://divvy-tripdata.s3.amazonaws.com/index.html>
- It has been made available by Motivate International Inc. under this [license](#)
- Data range considered for the study : **May 2020 to May 2021** (730 MB data)
- All data was available in .csv format
- Individual csv files were uploaded individually to **Bigquery-Google Cloud Platform**

Processing & Cleaning

(Process Phase)

- Data manipulation and analysis was done using **SQL (BigQuery)**.
- Datatypes made consistent by changing the data type for two columns.
- 4 new columns were added to assist in analysis
 - ride duration in minutes
 - start point location
 - end point location
 - ride start day name
- 42,74,375 rows were returned which required cleaning.

Processing & Cleaning

(Process Phase)

- The cleaning process included-
 - Finding missing start and end station names
 - Finding missing values in other columns
 - Negative and zero ride duration values
- After the data was cleaned, it was consolidated into one table without null values which was the final data.
- **No of rows of data returned - 39,01,829**

Analysis

(Analyze Phase)

- The cleaned data was worked upon by using SQL queries.
- **Some SQL queries which were used -**
 - JOIN,
 - WITH,
 - UNION ALL,
 - WHERE etc
- The results were saved as separate tables.

Visualizations

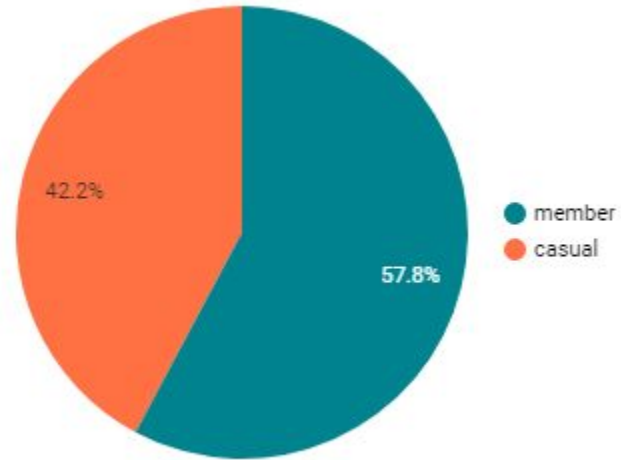
(Share Phase)

- **Google Data Studio** was used to prepare /create all the charts.
- The data was connected directly from BigQuery.
- **Charts which were used -**
 - Pie Charts
 - Bar Charts
 - Time Series

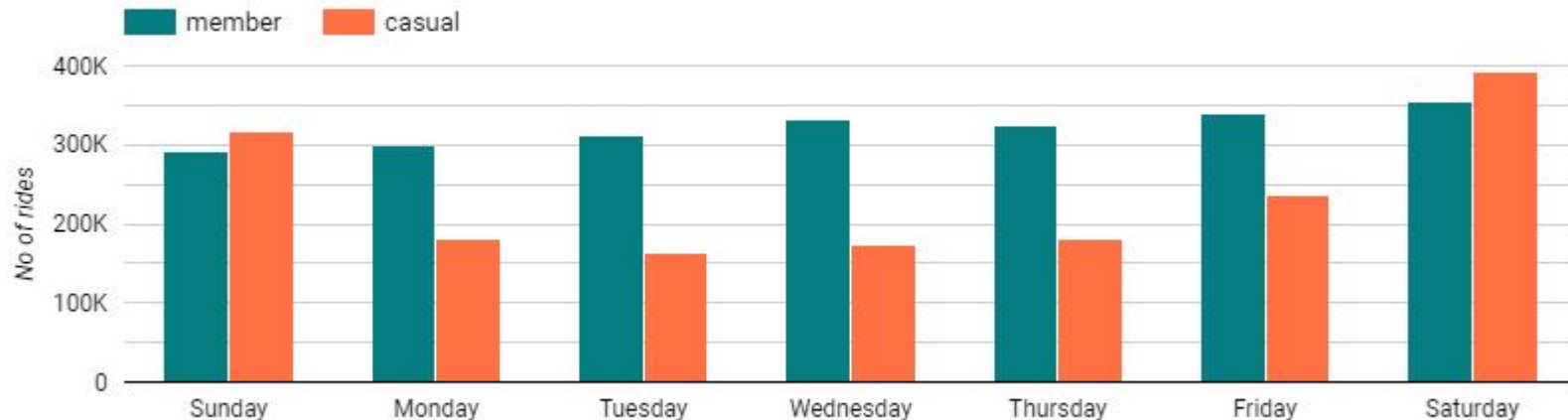
Share of Riders

Total Riders
3.9M

- 57.8% of the total riders were **annual members**
- 42.4% of the total riders were **casual members**

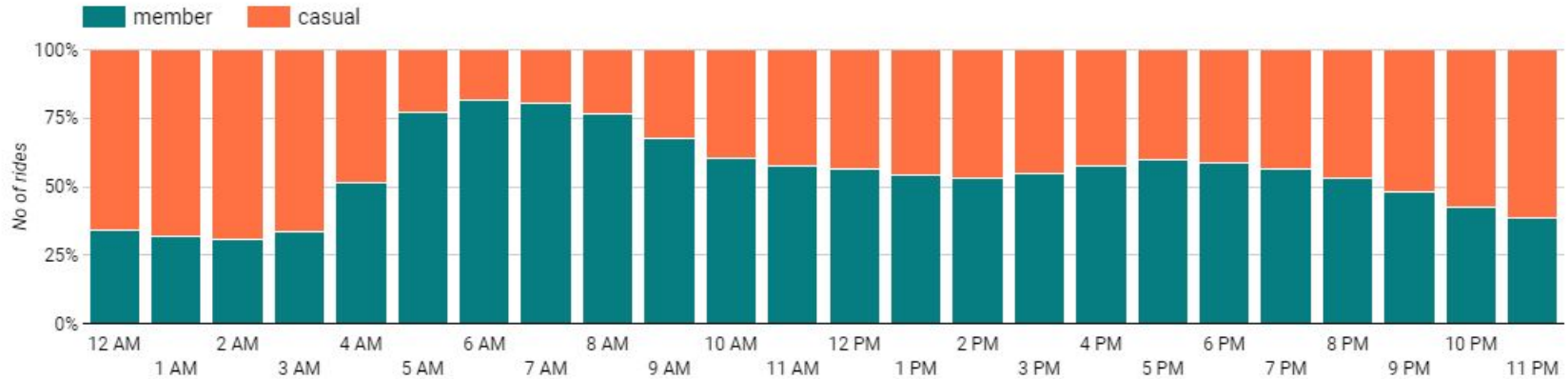


Rides by the week



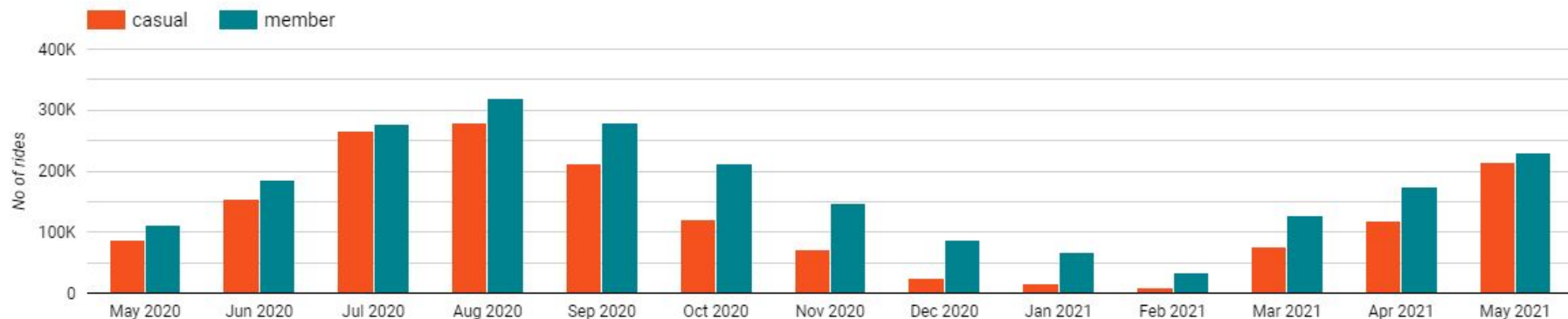
- On **weekends**, the total rides taken by **casual riders** are **more than** those taken by the annual **members**.
- On **weekdays**, annual members use the bikes more than the casual riders.

Rides by the hour



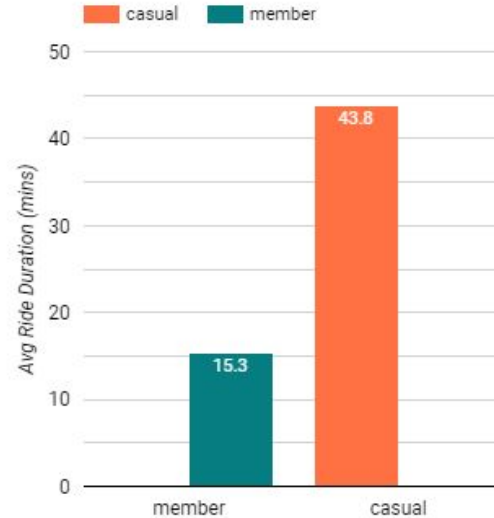
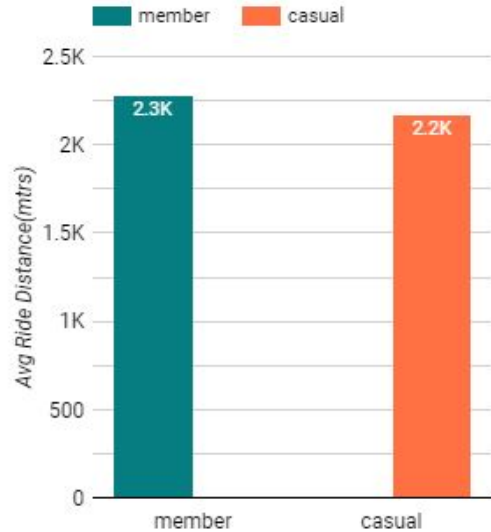
- The rides taken by the **annual members** is at the **peak in the morning** (approx 50-80% of the rides) after which they **fall during the day** and then again **increases in the evening** to about 54-58% after which they decline post 6pm.
- For **casual riders**, the ridership is the **least during the mornings** and **increases in the evenings till late night**(approx 60-70%)

Rides by the month



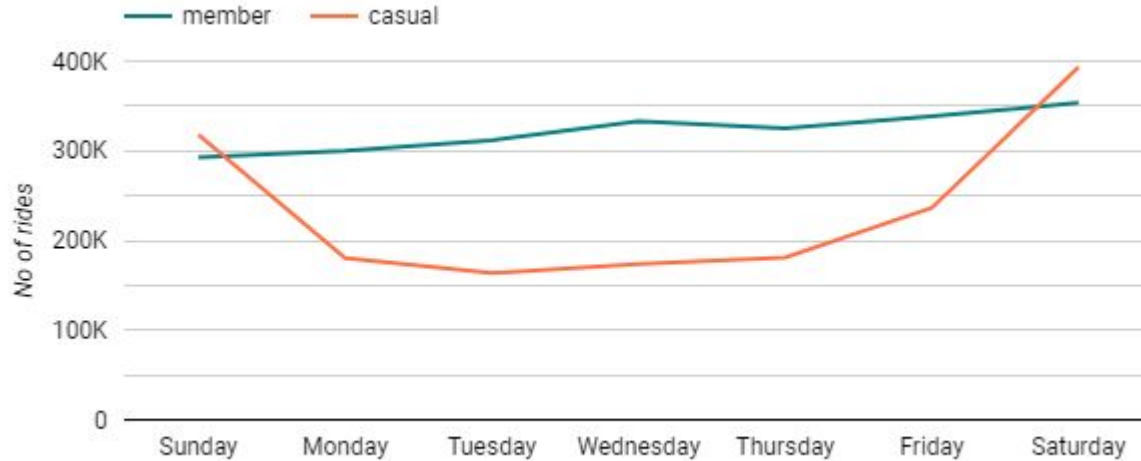
- For **casual riders**, a sharp decline in riders can be seen in the months DEC-FEB and the ridership increases MAY onwards.
- The **annual members**, a similar pattern is seen but with a little less variation.

Average Ride Distance & Duration



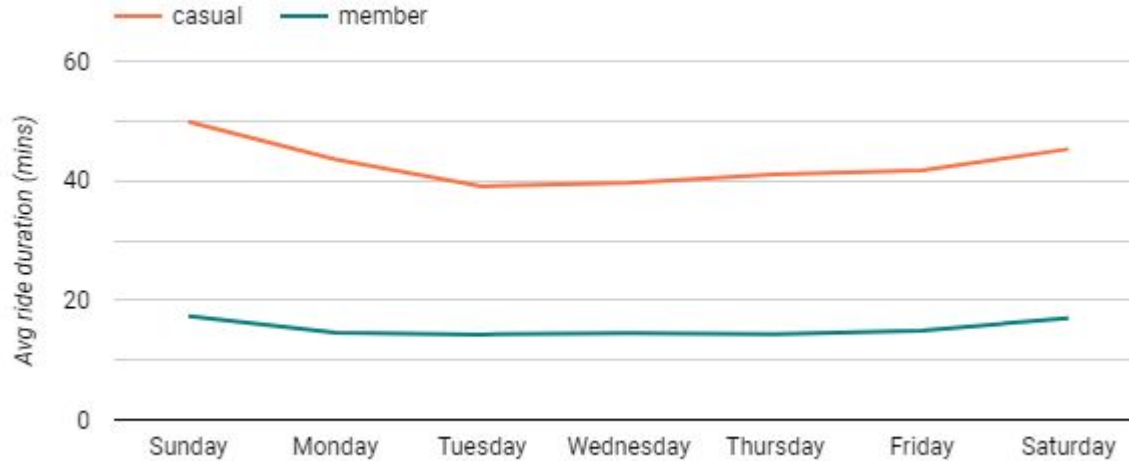
The **average ride distance** was almost the same for both the casual and annual members but the **average ride duration** for the **casual riders** was **3 times** that of the annual members.

Rides on days of the week



- It can be clearly seen that the rides taken by the **casual riders** are **high on the weekends** than on the weekdays .
- The rides taken by the **annual members** is relatively the **same throughout the week**.
- Probable reasons- Annual members use the bike rentals for daily, routine activities while the casual members use the rides for recreational activities.

Average Ride Duration -Days of the Week



- The average ride duration for both **casual and annual members** are **high on the weekends** than on the weekdays .
- Overall the average ride duration for the casual riders is almost 3 times than that of the annual members.

Conclusion

- As observed from the data , the usage of bikes for the annual members is more for routine and daily activities and that is maybe the reason why they have opted for a long term subscription/plan.
- The casual riders use the bike rentals for recreation activities and other weekend plans,and usage is limited to a few days hence have opted for a shorter subscription
- Average distance travelled for both the casual and annual members is almost the same in number .
- Average duration of rides is almost 3 times for the casual riders as compared to the annual members.

Recommendations (to convert casual to member)

- For the initial stages of the plan, point or credit system can also be started for every distance covered on weekdays for auto update of plan from casual to annual.
- Offers and discounts can be given to the casual members in order to encourage them to take a annual plan.
- Promotional limited time deals can be offered in different months for casual members to encourage taking the annual subscriptions for example in months of Dec-Feb where the ridership is the lowest.
- Campaigns can be organised at the start and end stations to encourage the purchase of plan.



Thank You