Cyclistic Bike Share Analysis Report

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Client / Stakeholder : Cyclistic Bike Share Company

Purpose :

This project will analyze the Cyclistic - bike share dataset with a focus on different age groups. The analysis will include examining trends, identifying key factors influencing customers, and segmenting insights by gender. Based on the findings, the project will develop recommendations for increasing the subscriber count.

Summary :

This report analyzes Cyclistic bike-share data from Q1 2019 to explore how annual members and casual riders differ in usage patterns. Key findings show that subscribers account for 98% of total rides, while casual riders take longer trips. Based on these insights, strategies are proposed to convert casual riders into members and enhance female ridership.

Phase I - Ask :

- Identified Business task
- Considered key Stakeholders
- BrainStormed SMART questions

❖ Business Task :

- Cyclistic, a bike-share company in Chicago, aims to understand how casual riders (customers) and annual members (subscribers) use bikes differently. The goal of this analysis is to identify patterns that can help convert casual riders into annual members, increasing overall revenue and long-term engagement.

❖ Stakeholder:

- Lily Moreno (Marketing Director)

*__Note__: SMART questions sheet is attached separately

Phase II - Prepare :

- The dataset includes Cyclistic trip data for **Q1 2019 (January–March)**.
- Each record represents a bike trip with details such as trip id, from station id, to station id, from station name, to station name, trip duration, user type, gender, birthyear and date-time information.
- Open Source data is used here from trustable sources.
- The dataset is relevant, credible, and historical data.
- The data is not shared with anyone else, it is maintained privately, and a licensed one.
- The data is well organized in row, column manner in **Google Sheets**.

- Columns used for analysis are trip id, birthyear, trip duration, data time, gender, usertype, weekday, age, month.

Phase III - Process :

- ➢ **Tool Used** : Google Sheets
- ➢ Ensured Data Integrity.
- ➢ Calculate trip duration in minutes,weekday and month from date - time columns and age from birth year.
- ➢ Some records had unrealistic durations exceeding a day, which were treated as errors and removed.
- ➢ Removed null or blank values in usertype, gender, and trip_duration.
- ➢ Removed Duplicate records and trim whitespaces.
- ➢ Converted trip_duration from seconds to minutes and rounded values.
- ➢ Extracted month and weekday from trip start date.
- ➢ Filtered out trips longer than 90 minutes to remove outliers.
- ➢ Removed records whose age is greater than 80 to avoid outliers.
- ➢ Sorted the records based on trip id.
- ➢ Verified data types and formatting for consistency.
- ➢ The data is cleaned, organized and well maintained.

❖ Formula used :

- =ROUND((C2-B2)*1440) , which is used to create trip duration in minutes.
- =TEXT(A2,"mmm"), which is used to get month in text from date
- =WEEKDAY(B2,1), which is used to get the day of the week as a number such as Sunday as 1.
- =2019-D2, which is used to calculate the age of the riders from the birthyear column.

Phase IV - Analyse :

❖ Pivot Table :

➢ Pivot Table 1: User Type Distribution based on Gender

- It shows both subscribers and customers have a maximum number of males and less females.
- Subscribers make up **98%** of total rides in Q1 2019.

COUNT all usertype	*usertype*		
gender	Customer	Subscriber	Grand Total
Female	1872	65031	66903
Male	4051	274208	278259
Grand Total	**5923**	**339239**	**345162**

Table 1: Count of Gender based on usertype

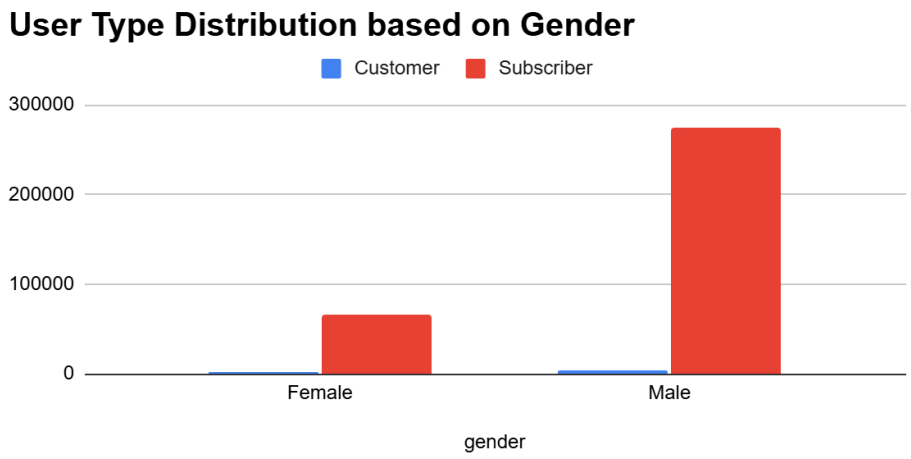

Figure 1: User type Distribution based on Gender

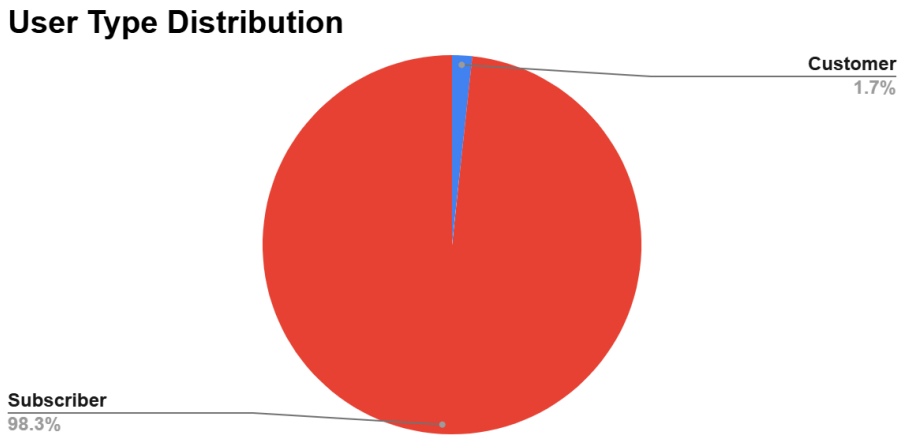

Figure 2: User Type Distribution

➢ **Pivot Table 2: Average Trip duration by Usertype**

- Customers take longer trips than subscribers, possibly for leisure rather than commuting.

usertype	AVERAGE of trip_duration(min)
Customer	31.31521189
Subscriber	13.85852747
Grand Total	**14.15808519**

Table 2: Average Trip Duration in minutes By User type

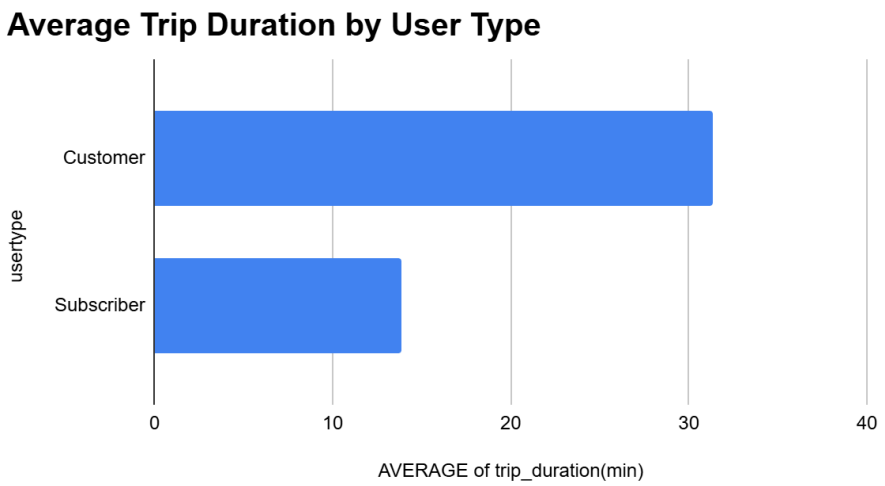

Figure 3: Average Trip Duration in minutes By User Type

➢ Pivot Table 3: Trips per Month

- Trips increased from February to March, showing rising ridership as weather improves.

Month	COUNT of trip_id
Feb	93449
Jan	99129
Mar	152584
Grand Total	**345162**

Table 3: Count the number of Trips based on Month

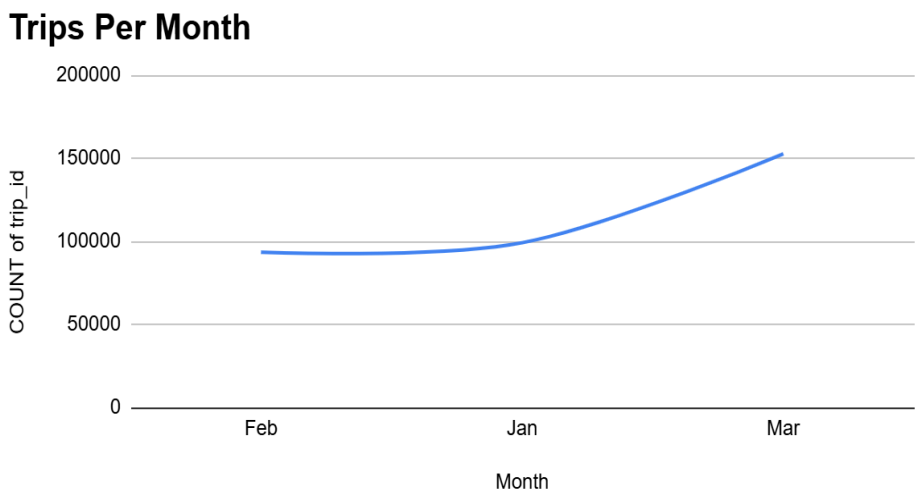

Figure 4 : No of Trips per Month

➢ **Pivot Table 4: Trips By Weekday**

- Higher usage on weekdays suggests many subscribers use bikes for commuting.

Weekday	COUNT of trip_id
1	24955
2	48699
3	58690
4	58116
5	64260
6	60065
7	30377
Grand Total	**345162**

Table 4: Count of Trip id per Weekday

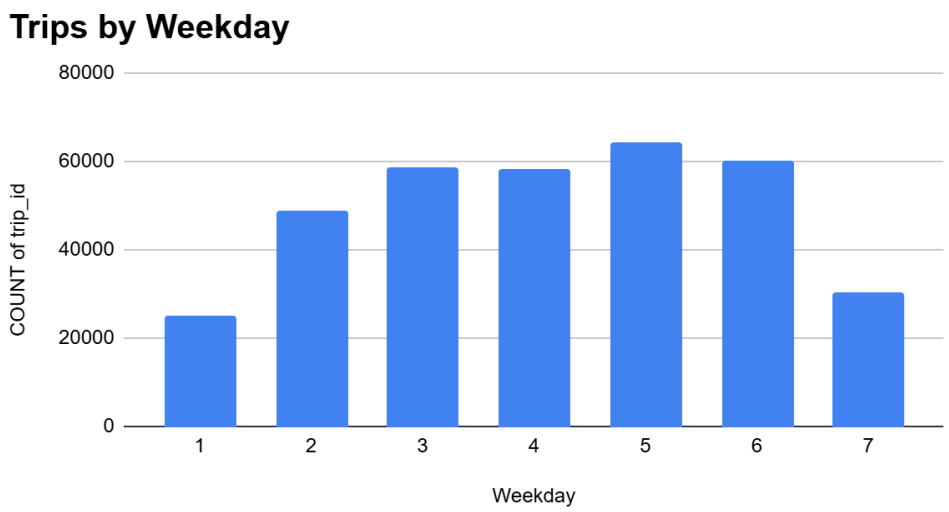

Figure 5: No of trips by Weekday

➢ **Pivot Table V : average trip duration by user type per weekday**

- The Customers count is higher than Subscribers, which means mostly the average is high for leisure times than commuting to work.

AVERAGE of trip_duration(min)	*usertype*	
Weekday	Customer	Subscriber
1	35.18051282	16.71547123
2	28.68959436	14.61370814
3	29.11381074	14.35452787
4	28.77547771	12.04381784
5	26.24839949	11.96879283
6	28.04022989	13.86404257
7	37.25681818	16.96881991

Table 5 : Average trip duration by user type per weekday

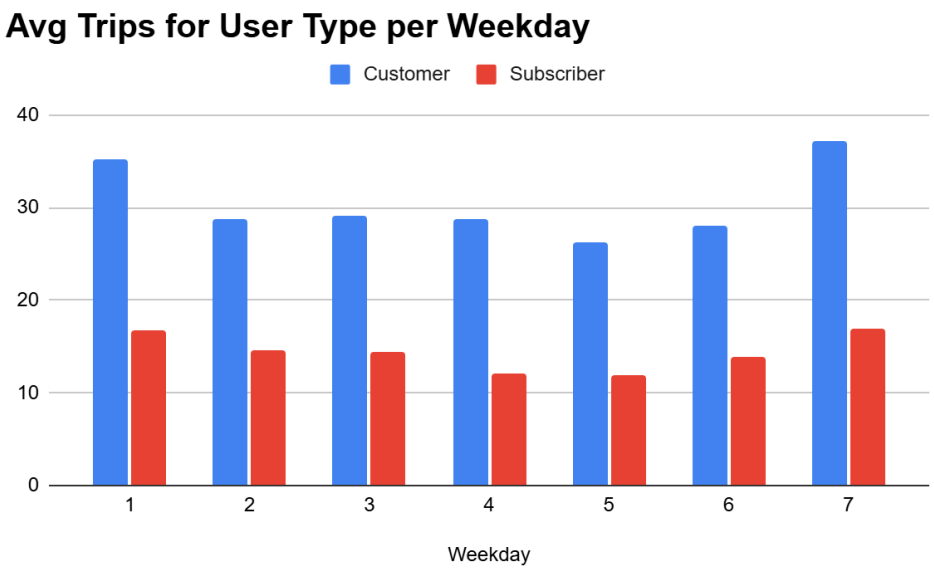

Figure 6 : Average trips for Usertype based on Weekday

➢ Pivot Table VI : Min & Max of trip duration for all customers

- Here is the Maximum and Minimum of Trip Duration and Average duration based on Genders for Customers.
- The maximum trip duration and Average of trip duration is higher for Females.

	usertype	***Values***	
	Customer		
gender	MAX of trip_duration(min)	MIN of trip_duration(min)	AVERAGE of trip_duration(min)
Female	1318	1	35.67254274
Male	574	1	29.30165391

Table 6: Min and Max of trip duration for all customers

➢ **Pivot Table VII : Customer whose trip duration greater than equal to 30**

- The average trip duration and count of Males are higher, but the maximum trip duration for females is higher than Male.

	usertype	***Values***		
	Customer			
gender	COUNTA of usertype	AVERAGE of trip_duration(min)	MAX of trip_duration(min)	MIN of trip_duration(min)
Female	770	62.74675325	1318	30
Male	1090	71.81376147	574	30
Grand Total	**1860**	**68.06021505**	**1318**	**30**

Table 7: Gender based customers count , average, min, max of trip duration which is greater than 30

➢ **Chart : Trip Duration Distribution**

- Most trips last between 5–15 minutes, indicating short-distance rides are most common.

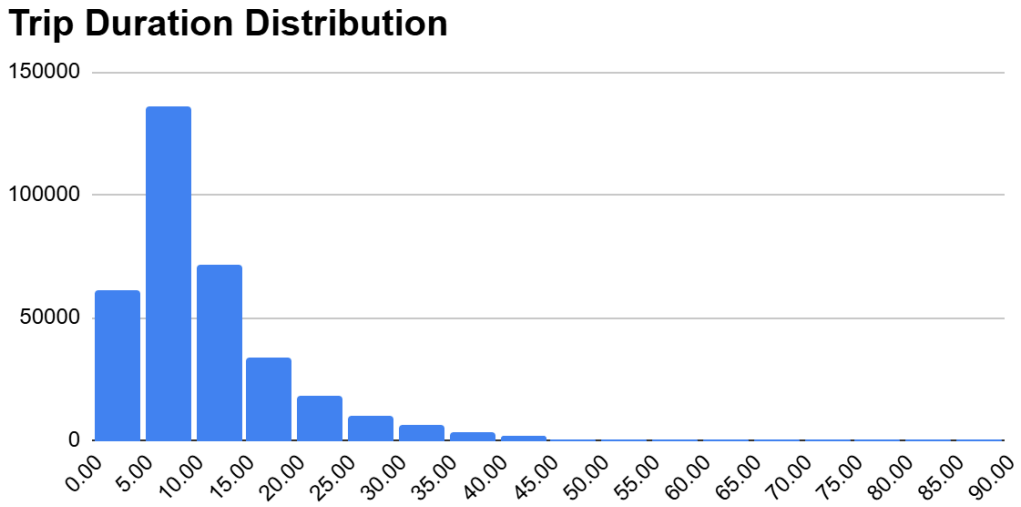

Figure 7: Trip Duration Distribution using Histogram

➢ **Chart : Age Distribution**

- Most riders' ages are between 25 to 35 and then 35 and 45 , which means college students and working people are using the service.

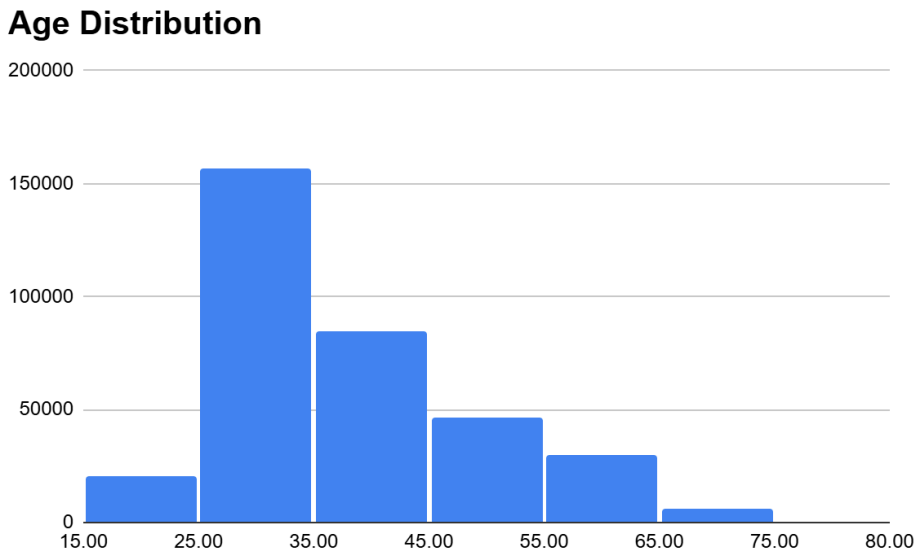

Figure 8: Age Distribution using Histogram

Correlation / Relationship Analysis :

- User Type vs Day of Week — Casual riders are more active on weekends, members on weekdays.
- Gender vs Trip Duration — Male riders show higher average trip durations than female riders.

Phase V - Share :

➢ Subscribers dominate the user base with 98% of trips.
➢ Customers ride longer per trip but use the service less frequently.
➢ Trips increase as weather improves (March > February).
➢ Weekday rides are higher, indicating workday commuting trends.

Phase VI - Act :

➢ Offer **discounted membership trials** for casual riders during warmer months to encourage conversion.
➢ Promote **commute-related benefits** (e.g., priority docking) to attract weekday users.
➢ Create **marketing campaigns targeted at women** to balance gender participation.
➢ Encourage leisure riders with **weekend passes** and **group discounts**.

Conclusion :

The analysis highlights strong user engagement among subscribers and the potential to grow memberships through targeted marketing and incentive programs. Focusing on casual riders with flexible offers and improving female participation can further strengthen Cyclistic’s customer base.