CitiBike Rideshare Analysis for the Period of February to April of Years 2020 and 2021

By

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Introduction

This project analyzes the New York Citi Bike program rideshare data for selected 3 months period of February to April of the years 2020 and 2021.

**Data source**  
Information about the program and link to the dataset can be found via the following links: https://en.wikipedia.org/wiki/Citi\_Bike

https://s3.amazonaws.com/tripdata/index.html

The Github link to the specific processing of the data used for visualization can be found at: <https://github.com/aadeba5/20-Tableau> while the link to the visualization dashboard is: <https://prod-useast-b.online.tableau.com/#/site/citybikeanalytics/workbooks/103376/views>

**Analytics Focused Questions**

1. What is the ride volume by user type?
2. How does user type between Feb to April of 2020 compared to same period in 2021?
3. What is the riders gender distribution?
4. Is there any difference between riders who are customers and subscribers?
5. What is the percentage difference between volume of rides in 2020 and 2021? 29.33%
6. What is the most popular start time of rides during the day?
7. Where are the destinations with longest rides?
8. What is the riders’ distribution by age?
9. What is the riders’ distribution by gender?

Analyses

1. Total Bike-ride Trip Duration (Table\_??): Total trip duration was approximately 1.57 million miles in 2021, up by about 29.3 % from the 2020 duration of 1.21 million miles. The difference in total trip duration between 2020 and 2021 studied periods could be attributed to the Covid-19 lockdown in that period of 2020. By March of 2021, some states were lifting social distancing policy and recreational and business centers were gradually opening up.
2. What is the riders’ distribution by age? (DB\_5). Age of riders fell around 1970 for both the 2020 and 2021.
3. What is the riders’ distribution by gender? More males than females rode bike during the same February to April of 2020; most riders in 2021 did not disclose their gender identities.
4. Trip Duration by User Type (DB\_1; DB\_2): During the months of February of 2020 and 2021 respectively, ride volume is highest around 8 a.m. By March, ride volumes were at the peak at 8 a.m. and between 4p.m. and 6 p.m. There appears to be a surge in ride volume in February which decreased progressively from February to April. Ride volumes were generally higher during the months of February to April of year 2021 than in year 2020, probably due to the Covid-19 pandemic that was ramping up during the first quarter of 2020.
5. User Type (DB\_3): two categories of riders were discernible: Customers and Subscribers. Ride volumes by customers were higher than those by subscribers in the period studied in 2020. Surprisingly, the trend was reversed in 2021 when ride volumes by Subscribers were higher than those by Customers.
6. Top Locations for Starting a Ride (DB\_4): In the year 2020, top five locations for starting a bike ride as indicated by decreasing order of bike ride volumes were Grove St. PATH, Sip Avenue, Hamilton Park, Harborside, and Newport Pkwy respectively. In 2021, top five locations for starting a bike ride as indicated by ride volumes were George St. PATH, Newport Pkwy, Liberty Light Rail, Hamilton Park and Sip Avenue, in descending order, respectively.
7. Ride start Time (DB\_3): Ride start time vary by month of the year and was earliest in February than in March and April. Generally, prime start time was around 8:00 a.m. in February while larger ride volumes started around 4 to 6 p.m. in March and April.
8. Longest Trip Destinations (DB\_3): Longest trip destinations were JCBS Depot and the Atlantic Avenue & forth Green Plaza.
9. Trip Duration by Gender (DB\_5): Generally, gender categories of riders were better defined in 2020 than in 2021. Overall, there were more male than female users of bike in the year 2020; the gap between male and female rider populations were very narrow in 2021.

Conclusion

Ride volume increased by about 30% between the study periods of February to April in the years 2020 and 2021. Male riders’ population was higher than that of females. Top 5 take-off stations were Grove St. PATH, Sip Avenue, Hamilton Park, Harborside, and Newport Pkwy in 2020 and George St. PATH, Newport Pkwy, Liberty Light Rail, Hamilton Park and Sip Avenue. It might be business-wise to ensure adequate maintenance of bikes at these locations and replace damaged backs quickly in order to ensure that customers are served well in the course of the project.

Longest trip durations were JCBS Depot and the Atlantic Avenue & fort while the start time for most riders was around 8 a.m. and 4 to 6 p.m. respectively. More customer riders rode bikes in 2020.