**New York City Citi Bike:** [A Data Story with Tableau](https://public.tableau.com/profile/areerat.kichkha#!/vizhome/NYCCitiBike_15762252491070/GoNewYorkCityCitiBikeRiding?publish=yes)

**Data Source:** [Citi Bike](https://s3.amazonaws.com/tripdata/index.html)

**Data Preparation:** Monthly data during the period of July-October, 2019, were merged deploying Pandas on Jupyter Notebook. The story focuses on the current time and thus the latest available monthly data, which also include more characteristics of Citi Bike. Please note that the end station data will have some data on November 1 because some Citi Bike rides ended after the midnight of October 31.

**Story Board:**

**Citi Bike Station Maps** consist of two dynamic maps (sheets), *NYC* *Citi Bike Start Stations* and *NYC Citi Bike End Stations*, on the dashboard, *New York City Citi Bike Stations*. One may click on the dropdown search filter on each map to see monthly changes of the numbers of records on each start or end station.

**Top 10 Citi Bike Stations** for all four months are dotted on maps (sheets), *Top 10* *NYC Citi Bike Start Stations* and *Top 10 NYC Citi Bike End Stations*, onthe dashboard, *New York City Top 10 Citi Bike Stations*. The Pershing Square North station, which is close to Grand Central Terminal, seems to be the number one start and end station of all times. The results provide a suggestion that the Citi Bike riders likely be commuters. It is also interesting that the other 9 start stations are also listed as the other 9 end stations though their ranking orders may be different.

**Shifts in Station Popularity** shows monthly dynamic changes of the start and end stations popularity rankings from two graphs (sheets), *NYC Citi Bike Start Stations Popularity Rankings* and *NYC Citi Bike End Stations Popularity Rankings*, on the dashboard, *New York City Citi Bike Popularity Station Rankings*. A shift is apparent in October comparing to July, August, and September. This may suggest a correlation between the shifts in Citi Bike station popularity and quarterly and season changes.

**Peak Riding Times** consist of two peaks. First peak is around 8 am at start stations and 8-9 am at end stations with a slightly sloping decline toward 9 am. The second peak is around 5-6 pm with a slightly sloping decline toward 6 pmat start stations and sloping upward toward 6 pm at end stations. The Illustrating graphs (sheets) depicting these peak times (also in monthly dynamics) are *Peak Start Times* and *Peak End Times* on the dashboard, *Peak Riding Times*.

**Weekday/Weekend Rides** further explains the patterns of weekday rides, with two peaks similar to the immediate aforementioned findings, and weekend rides showing a normal curve with busy times around 12-6 pm. The overall monthly pattern thus is influenced by higher numbers of records during weekdays. The Illustrating graph (sheet) depicting these patterns (also in daily dynamics) is *Daily Rides & Times*.

**Riding and User Types** showsthe rides by customers (17.13%) and subscribers (82.87%). Obviously, subscribers are influencers of the weekday/weekend riding patterns given the graphs (sheets) *Peak Riding Times by Usertypes* (also in daily dynamics) and *Rides by Usertype* on the dashboard, *Frequent Riders*. In addition, subscribers are likely working members given the two peak riding times. Citi Bike business strategies thus may set goals to maintain the high or higher percentage of subscribers for sustainability of Citi Bike.

**Riding and Genders** shows that genders of the overall riders consist of 25% female, 66% male, and 9% unknown, as shown on graph (sheet), *Rides by Gender* (also in monthly dynamic, with very slight changes monthly). Both female and male riders, however, are influencers of the weekday/weekend riding patterns given the graph (sheet), *Peal Riding Times by Gender***.** Both graphs are on the dashboard**,** *Gender Demographics of Riders*. Increasing female ridership thus will definitely expand the pie. A question remains on whether to prioritize expanding subscribers over increasing female ridership.

**Riding by Age** shows thataverage trip duration is quite consistent at age 25-69 years, except for a surge on the average at age 48-53 years, based on the graph (sheet), *Age and Average Trip Duration*. The distribution of age and number of records on the graph (sheet), *Age and Rides*, seems logical from age 16 and peak at age 30 before continuous declining to age 75 years, except for the unusual peak at age 48-53 years with no quick explanation. The declining of riding record after age 30 may first have to do with parenting and increasing child members in their families thus requiring other means of transportations. As for age 54 or higher, the declining may also due to declining in physical strength. There is quite a bit of noise in these two graphs that may interfere with findings. Thus, the strategies here seems ambiguous between expanding members at age 16-30 or inducing more members at age after 30 years. These two graphs are on the dashboard *Age Demographic of Riders*.

**Conclusions:** Citi Bike is quite phenomenal by itself given the sizes of itsmonthly number of records which continue to grow. As the data suggest changes in station popularity by seasons, Citi Bike may cater its promotions to optimize its sales. Riding and times patterns would be helpful in managing bike availability. Riding by user types perhaps is easier to implement for expansion.

**Future Analysis:** Expanding ridership by age and genders may need two periods comparisons to identify improvement of demographics of riders and to find workable patterns before discussing demographic expansions of ridership. Another interesting analysis would be to find how Citi Bike perform after Lyft’s taking over starting July 2018.