Tableau Homework - Citi Bike Analytics

Background Info

This homework analyzed one-year worth of data for date ranges 7/1/2010 to 6/30/2020 extracted from the twelve CSV files available for download from the Citi Bike Data https://www.citibikenyc.com/system-data) webpage. Citi Bike is the nation's largest bike share program, with 14,500 bikes and 950 stations across Manhattan, Brooklyn, Queens and Jersey City. It was designed for quick trips with convenience in mind, and it is a fun and affordable way to get around town.

Where do Citi Bikers ride and when do they ride the most? How far do they go? How old are the riders and which gender is most represented riding bikes? Which stations are most popular? What hours are most popular? How about the rental seasonality? These questions are repeated frequently. Hence, I've collected some data to share on these subjects.

The data includes the following workbooks, titles are shown in the included PowerPoint document:

monthly rides – monthly count of bike rentals and aggregated Trip Duration (seconds).

gender and ***gender percentage*** – monthly count of bike rentals by gender and gender percentage, respectively.

usertype and ***usertype percentage*** – monthly count of bike rentals by subscribers vs. other customers and subscribers vs. other customer percentage, respectively.

gender and ***gender percentage*** – monthly count of bike rentals by gender and gender percentage, respectively.

age yearly and ***age decades*** – count of bike rentals and trip durations aggregated by subscriber age on a yearly or decade bins, respectively.

top ten start and ***end stations*** – display the most popular stations for starting and ending trips, respectively.

bottom ten start and ***end stations*** – display the least popular stations for starting and ending trips, respectively.

distance – monthly millage calculated using an assumed speed of 7.456 miles per hour. This chart also shows the repeated rental count and trip duration for reference.

bike id – shows combined bike usage in terms of number of the rentals and the trip durations.

hourly peak usage and ***hourly peak by quarter*** – breaks down aggregated rentals by hours and aggregated rentals quarterly, respectively.

map – area based on the coordinates of the start stations Latitude and Longitude.

Work Progression

Based on the multiple worksheets above, I created five **Tableau Dashboards** that were combined into a single **Tableau Story** – see the included Tableau workbook and exported PowerPoint file for further details.

Some of the most important dimensions used in my analysis were:

Start Time and Date Stop Time and Date, Start Station Name, End Station Name ,Station ID ,Station Lat/Long, Bike ID, User Type (Customer = 24-hour pass or 3-day pass user; Subscriber = Annual Member), Gender (Zero=unknown; 1=male; 2=female), Year of Birth.

Conclusions

Riding bikes to and from home is popular, in addition to riding home from bars after close in the summer. Ridership is generally higher on weekdays, but weekends were more popular among casual riders who do not subscribe to the service.

Growth was seasonally normalized until COVID-19 outbreak which skewed data trends.

Typical steady growth rate of annual members shows short term drop due to pandemic.

The most popular origins and destinations continue to be stations near large transit and tourist hubs, including the stations near Central Park, Penn Station and the Port Authority, Pershing Square, and the area around Union Square. As has been the pattern, the least frequented destination stations are in Brooklyn and Queens.

Trends

- there were 372,446 trips during last twelve months
- the combined distance traveled for all trips was estimated in the range of 799,368 miles
- the total time the bikes were used is estimated to be 6,432,685 hours
- an average trip duration was 17.25 minutes
- subscribers recorded 306,315 trips compared to 66,131 by other riders
- there is a steady growth of subscriber customers in 2019 that started to drop precipitously in 2020 most likely due to Covid-19 pandemic
- there is a steady growth of female riders from about 25% to 35%
- men over 50 years of age cycle especially much – data for 51-year-old males looks like an outlier