Analysis:

I randomly selected one file from New York City’s CitiBike data history logs, aggregated the data and found three unexpected phenomena. I then designed five visualizations for each discovered phenomenon using Tableau. The file chosen includes data from June 2022. I analyzed the data to determine which bike stations are the most popular within the CitiBike system. As a result of this mapping, I determined that the most popular bike station is on the corner of West Street and Chambers Street in lower Manhattan. Next, I created a line graph that visualizes the number of EBike rentals per day. An interactive feature that is included with this line graph is a popup window. This popup window shows the count of EBike rentals per day. The most popular day for EBike rental is Thursday. After peaking on Thursday, the number of rentals decline through Saturday before they begin to increase again on Sunday. Rentals increase daily until peaking on Thursday. I created two additional visualizations to analyze for the most popular start and end times for EBike rentals. The EBike rental start and end graphs match one another. The most popular start and end times for EBike rentals is 17:00 (5:00 pm). Ridership in the morning peaks at 8 am, declines until 10 am, then increases until it peaks at 5 pm. Ridership declines after 5 pm until reaching minimum ridership at 4 am. The administrators of New York City’s CitiBike program need to utilize this data analysis to ensure that they have sufficient inventory to meet typical demand on any given day and at any given time. The most inventory is needed on Thursdays, while the least inventory is needed on Saturdays. Similarly, the most inventory is needed daily at 8 am and 5 pm, while the least inventory is needed early morning at 4 am. Finally, I put two maps of CitiBike station locations showing the relative usage (rental pick ups and drop offs) of each station together on one dashboard. I also placed the three line graphs of start times, end times, and weekly EBike rentals on another dashboard. I made a story out of these visualizations. The additional phenomenon discovered from mapping the data is that the CitiBike program stations are concentrated in Manhattan. They haven’t expanded yet to underserved boroughs like Staten Island and the eastern parts of Queens and Brooklyn. The administrators of New York City’s CitiBike program can use this data analysis to expand or reallocate the CitiBike service throughout underserved communities within the city.