**Analysis (also included in story)**

Graphs 1-4: Demographic data

1. Gender Distribution

* There are visibly more men than women taking advantage of the bike program. This trend maintains across the three months being evaluated.
* With a men-to-women ratio in New York of 94:100, this gap in the usage of public bikes cannot be explained by the demographics of the state.
* In red, we observe the number of users that marked 'unknown'. It is importance to notice the high number of users that have not provided an answer to this question. A lack of additional alternatives for other genders in the survey can be an explanation for this phenomenon.

2. Age distribution

* The highest population of users is in their 30’s for both genders. Naturally, there are fewer users as age increases.
* However, note the high number of users that have 50 y/o. This is perfectly clear in the graph for those individuals that chose 'unknown' as their gender. It is possible that the birth year is automatically set up at a year between '1967-1973' in the survey that gathers data for this program. Hence, all users that ignore this question (and potentially the entire survey) automatically get identified as having 50 y/o.

3. Bike users/gender in time

* This visualization confirms the observations made in #1 bar charts showing that the number of male users is higher than female user. This trend does not change during any week within the timeframe of this dataset.
* There is a clear dip around Christmas and New Year. As well, as January progresses, we also observe a lower number users, which is likely explain by the decrease in temperature.

4. Type of user/age

* It is evident that more users prefer to have a subscription.
* We can also notice that subscribers are often in their 30s. This is the predominant age.
* The fact that the highest group of users that are customers are users and not subscriber may not be accurate. This due to the high number of people ignoring the ‘date of birth’ question.

Graphs 5-8: Popularity and Frequency

5. Popularity of Start Stations

* High frequency of trips departing from a station does not mean that the trips departing from that station take a long time.
  + Grove St. Path, Newport Parkway, Sip Avenue and Marin Light Rail are the most common starting points in the data set evaluated.
  + However, Harborside and Union Station, which are not part of these top 4 stations are part of the list of start stations with the longest routes/trips taken by bike users.

6. Most used bikes

* Bike ids #47019, #129209, #42177 and #17231 have, by far, the highest number of minutes being active. i.e. We have added their trip duration for three months, and these are the top four bikes used. It is likely that these bikes will need repairs or replacement sooner than the others.

7. Popular routes per gender

* We have created a visualization showcasing the most frequent routes (i.e. beginning station & end station). Notice that the popularity of routes does change depending on gender.
* There are important implications regarding this visualization. To-do’s such as maintaining the facilities of stations or replacing bikes may be prioritized based on the most popular stations regardless of the gender. However, if we discuss decisions such as the amount of police officials patrolling near certain routes, then it is worth to know that a high frequency of female users rent a bike at Liberty Light Rail, use it around the area and then return to Liberty Light Rail to return the bike. The same goes for Newport Parkway Station.

8. Popular stations per age

* In a similar fashion as in visualization #7, it is relevant to know about the end stations where the average age of users is higher or lower. For instance, the average age of users that give back their bikes in 5 Ave & E88 St. station is 63 y/o. Much higher than every other station. On the contrary, all stations under zip code 07302 have users with an average age in their late 30s and early 40s. Advertisement sold by the governing body of the bike program in the city of NY is likely to be different in these two areas.

Required map

* End stations are more dispersed than start stations.
* Grove St. Path is a popular station both to begin as well as to end bike journeys.
* Using the filter to modify the time period of this assessment drastically impacts the sizes of the circles per start station (i.e. the cumulative number of users in start stations), but not end stations.
  + Though I do not have enough knowledge of how public bike systems work, I venture to suggest that, at the end of the day, users have to give back their bikes wherever they have an available spot. Hence, eventually all end stations will receive bikes until there are no empty spots left.