

Bay Wheels

Another Way to Commute

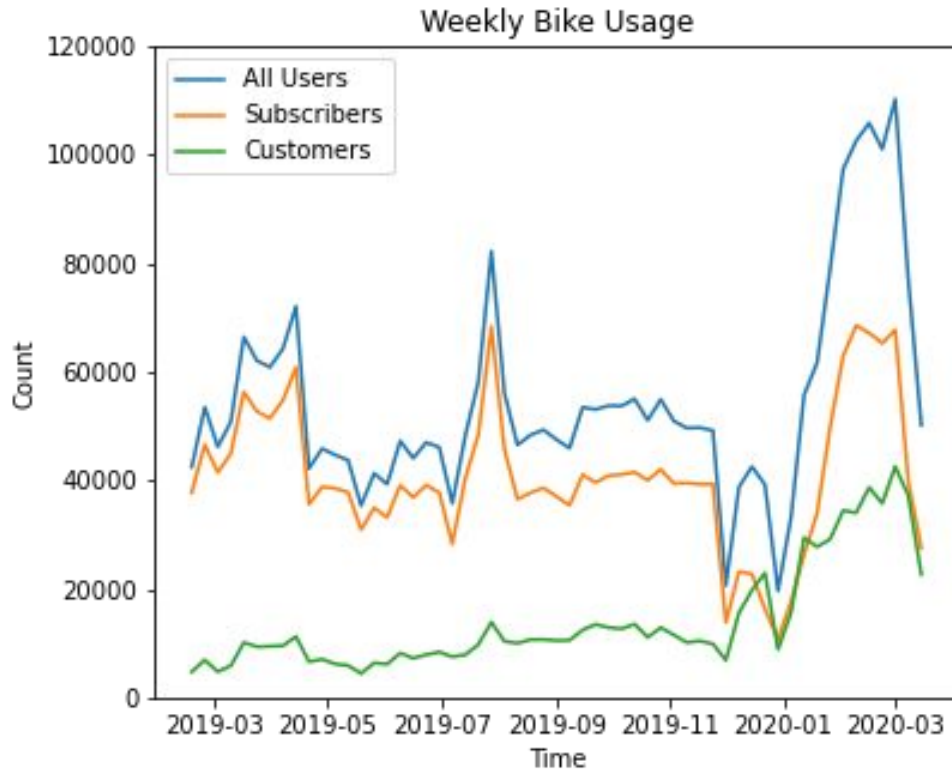
baywheels

Bay Wheels is a service provided by Lyft which allows someone to rent a bike via an app. The bike can be picked up and dropped off at a bike station or locked the bike at any place a bike can be secured (for a small fee). There are two levels of users, a yearly subscriber (who gets a discount) and a regular customer.

From the data it appears the Bay Wheels service is used mostly for commuting.



Bay Wheels Usage

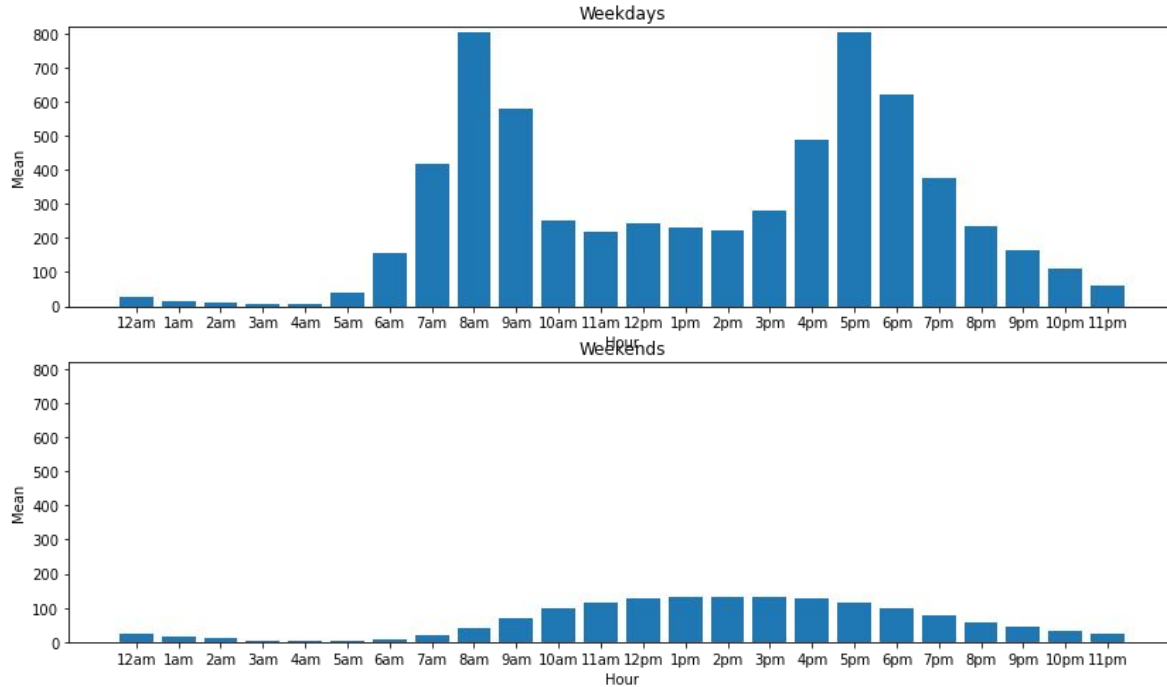


I analyzed the data from Bay Wheels from February 11th, 2019 to March 15th, 2020*. The usage of the bikes keep at about the same level with some spikes through 2019 and the proportion of subscribers and customers stayed about the same through the year. At the beginning of 2020, the usage went up considerably and the customers increased faster than the subscribers. In March 2020, the Covid-19 virus came to the U.S. and the usage plummeted dramatically.

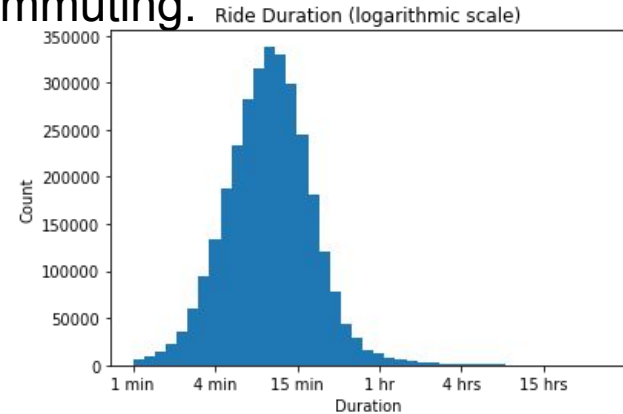
*February 11th, 2019 was when the BART schedule changed. March 15th, 2020 was the day before the Bay Area's stay at home order was enacted.

Bay Wheels for Commuting

Mean Rides by Hour of the Day

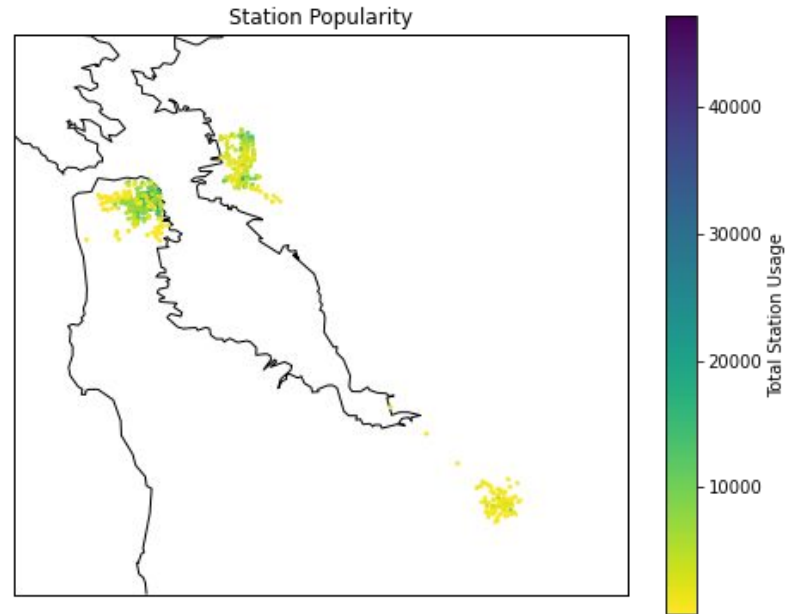
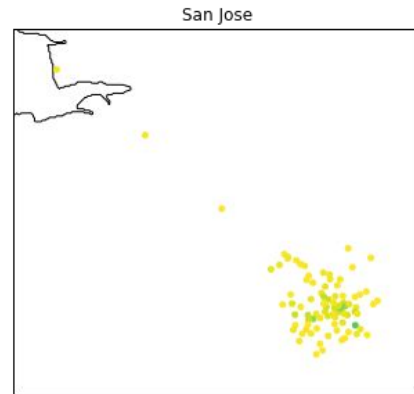
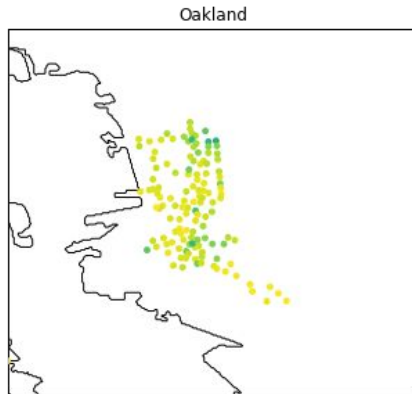
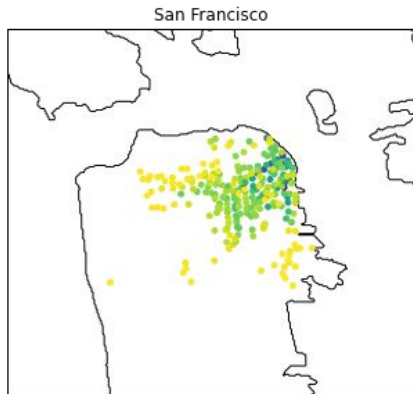


Bay Wheels appears to be mostly used for commuting. The bikes are used more on weekdays than weekends with spikes during rush hours. Also, the bikes usually make short trips leading me to believe they are mostly used for commuting.



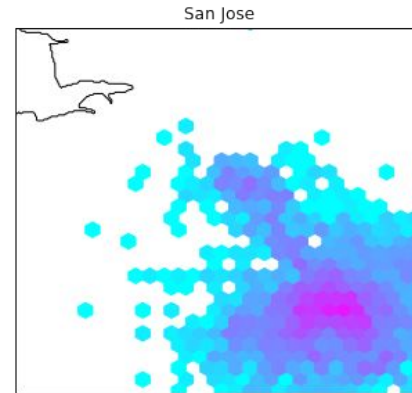
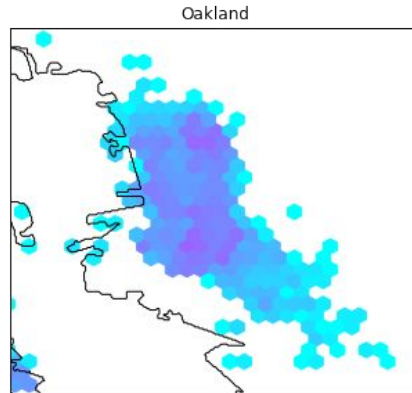
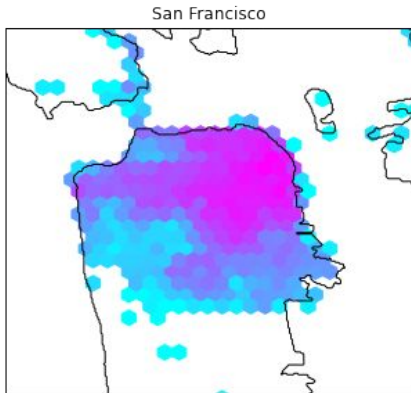
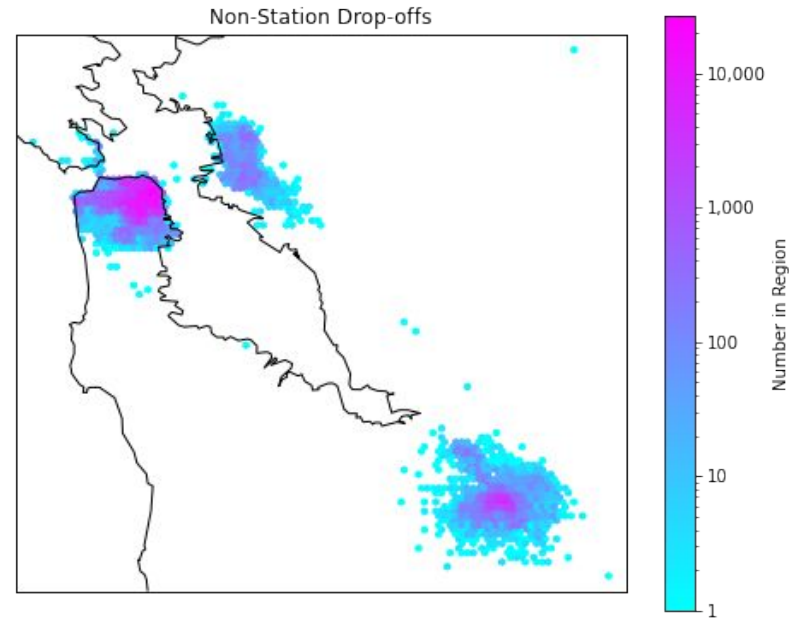
Station Usage

There are definitely some stations that are used more than others. Mapping these you can see that there are three areas where the stations are located; San Francisco, Oakland and San Jose. More detailed maps were created. San Francisco sees the most bike usage, followed by Oakland and then San Jose.



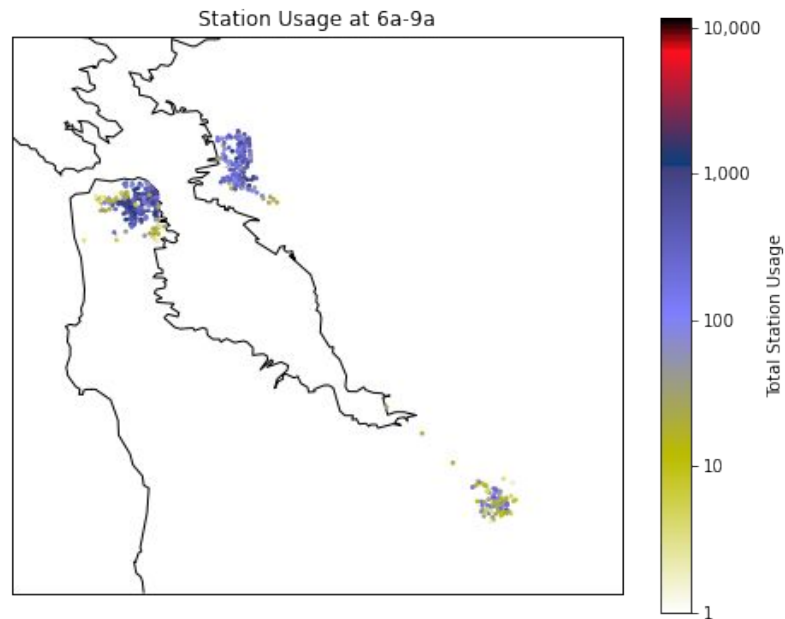
Non-Station Drop Off

People can drop off the bikes at places other than a station by locking them to a secure location. I looked at the locations that these bikes were dropped off. Most of the bikes were dropped off near stations, but some were dropped off a good distance away. This could be used to help find new locations for stations.

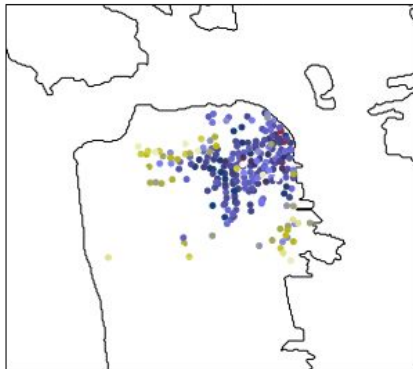


Station Usage 6 a.m. - 9 a.m.

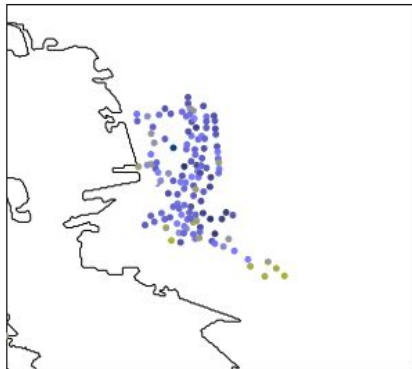
As the day goes on, the usage of stations change. For the most part, the stations go up and down proportionally, but there are a few stations that light up at certain times. Here are the stations in 3 hour intervals.



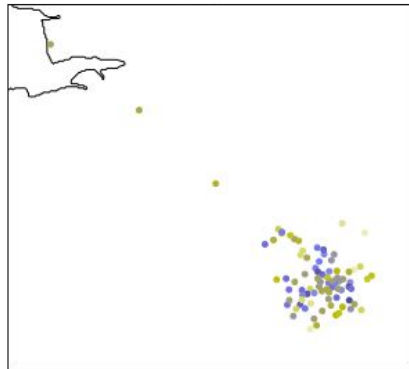
San Francisco



Oakland

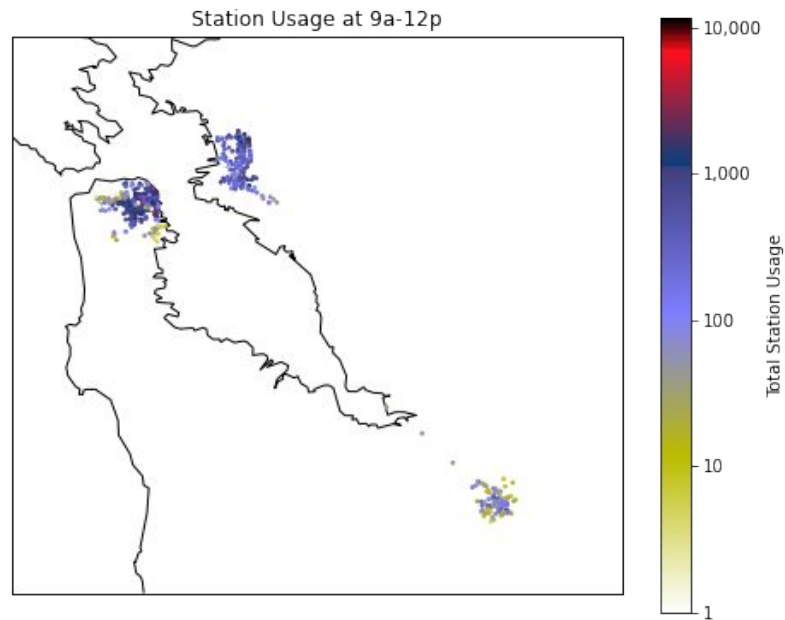


San Jose

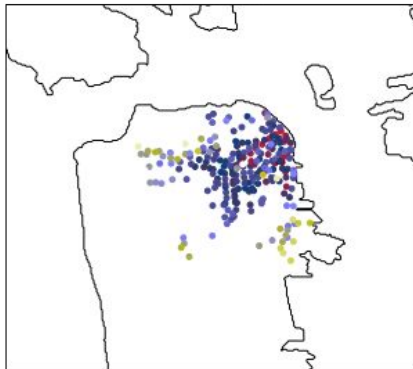


Station Usage 9 a.m. - 12 p.m.

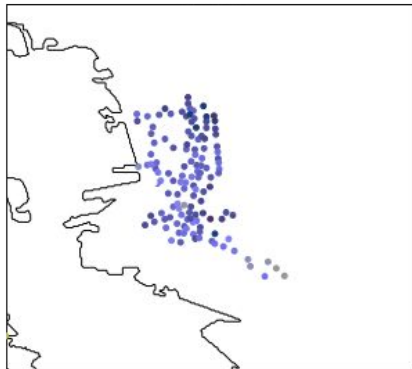
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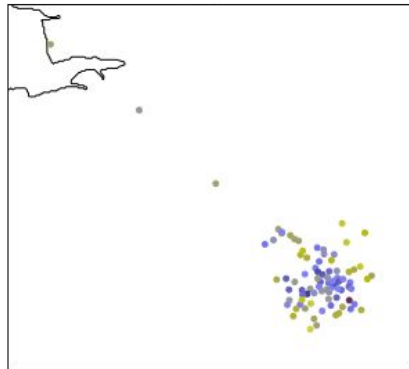
San Francisco



Oakland

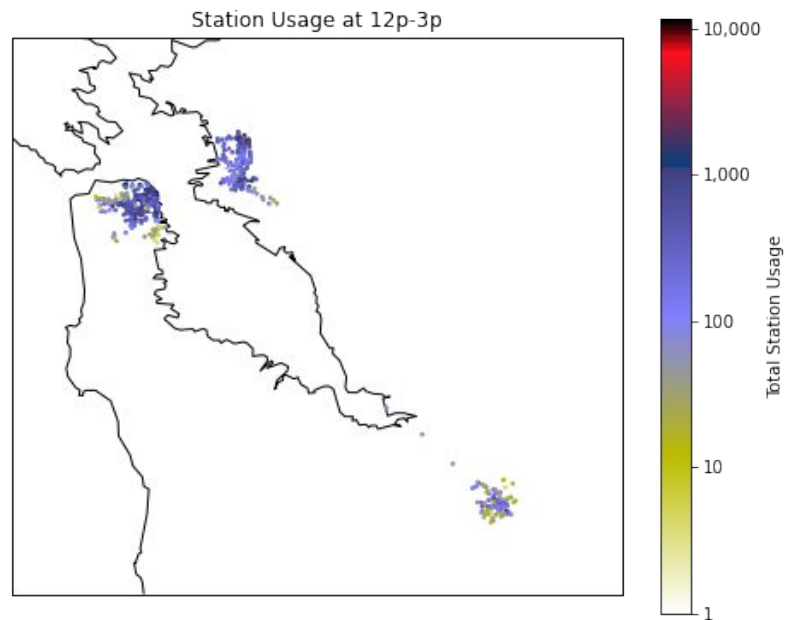


San Jose

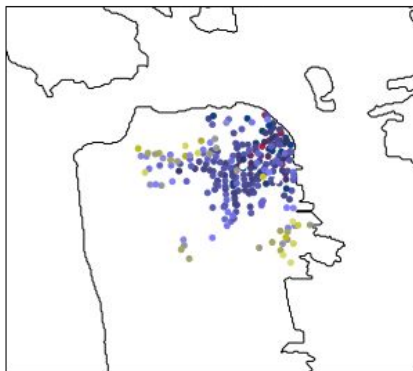


Station Usage 12 p.m. - 3 p.m.

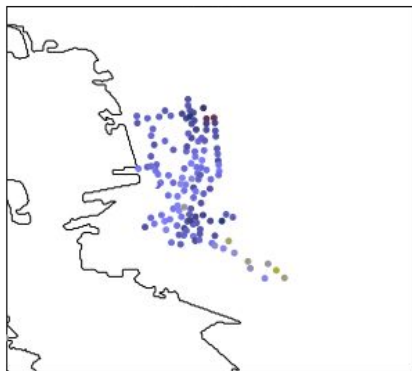
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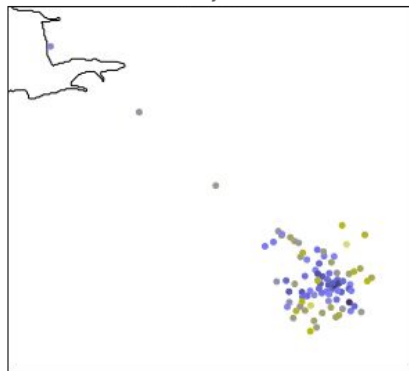
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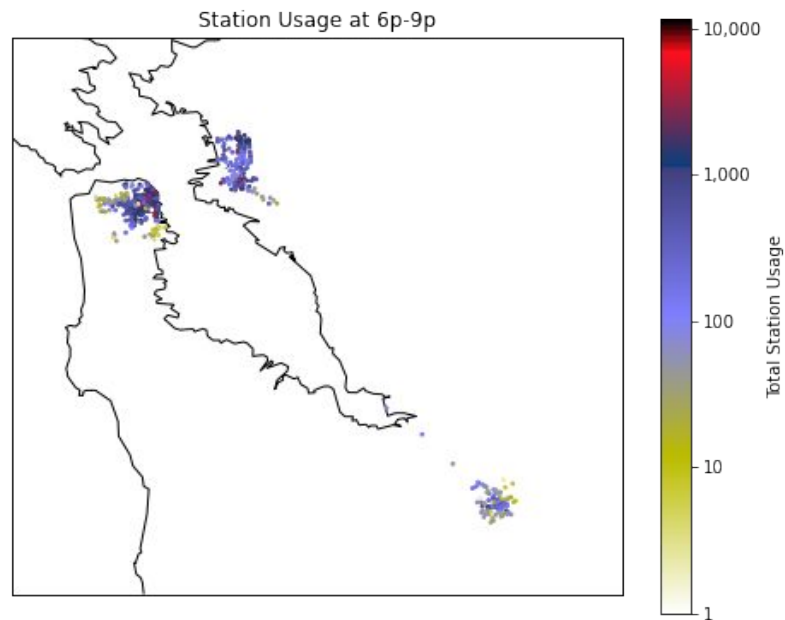


San Jose

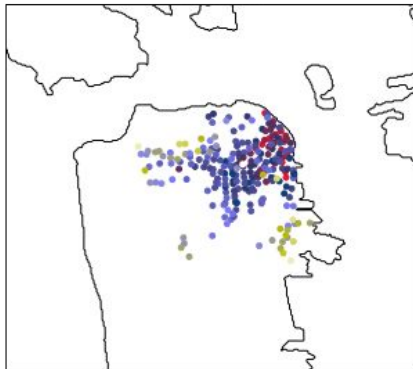


Station Usage 3 p.m. - 6 p.m.

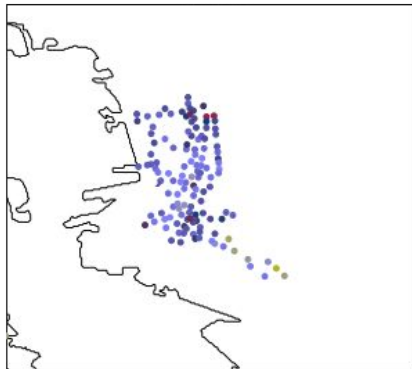
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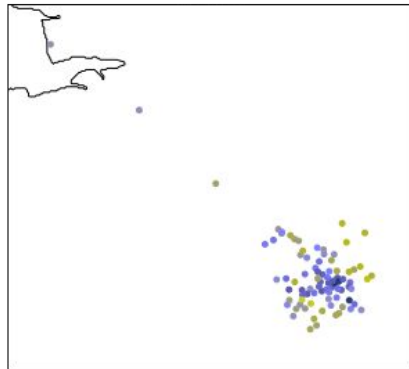
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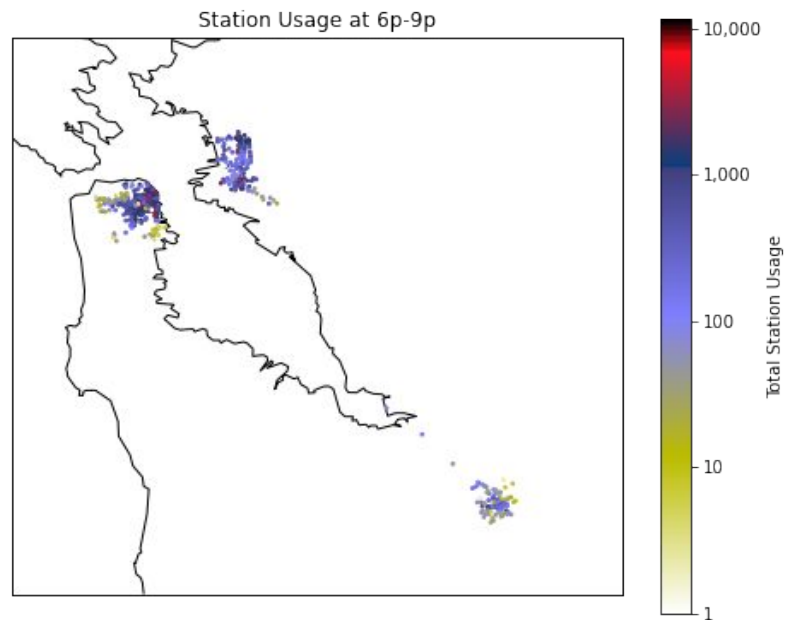


San Jose

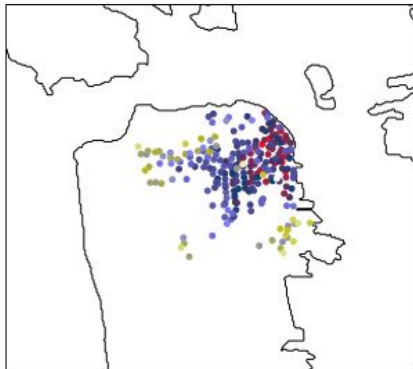


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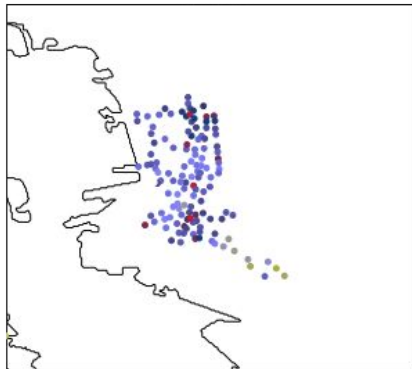
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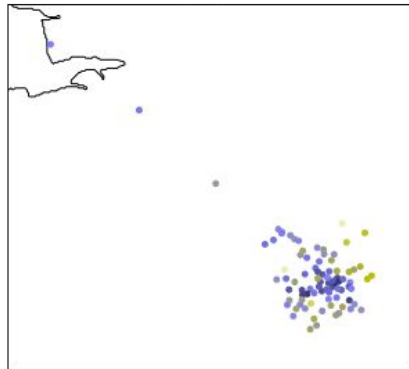
San Francisco



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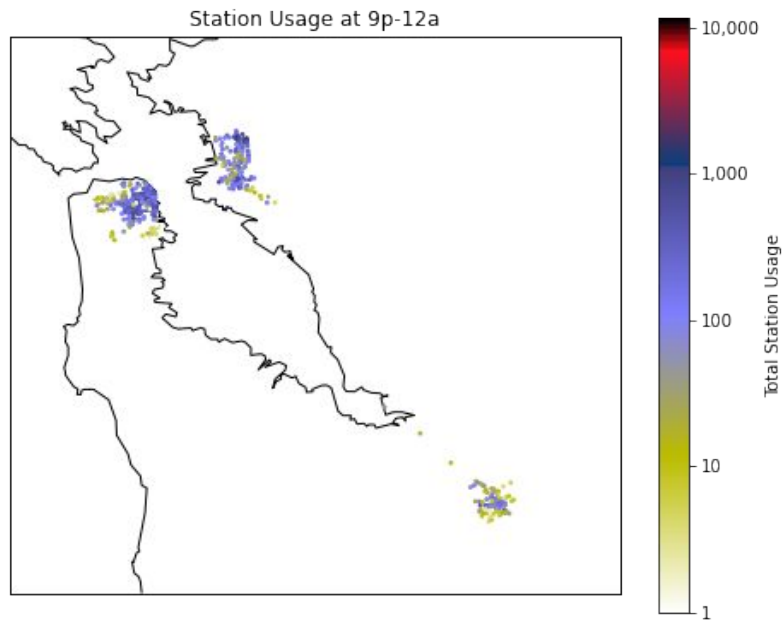


San Jose

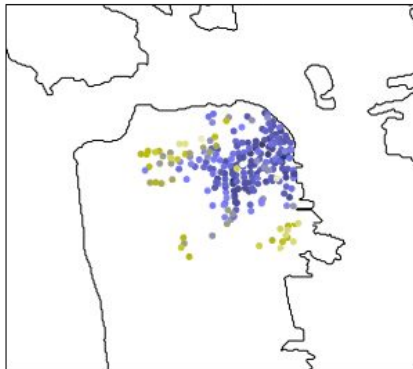


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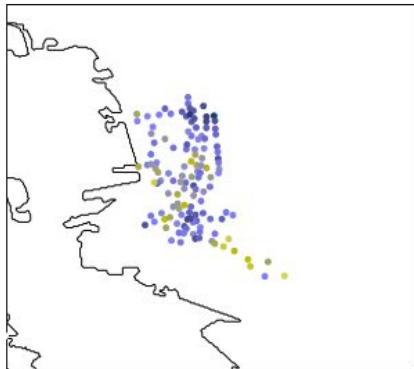
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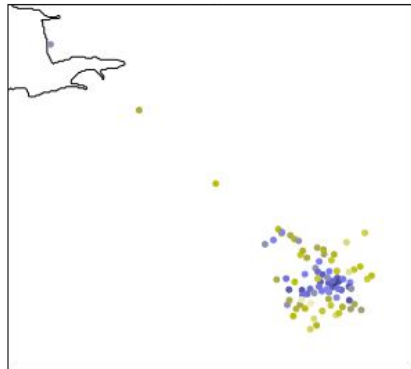
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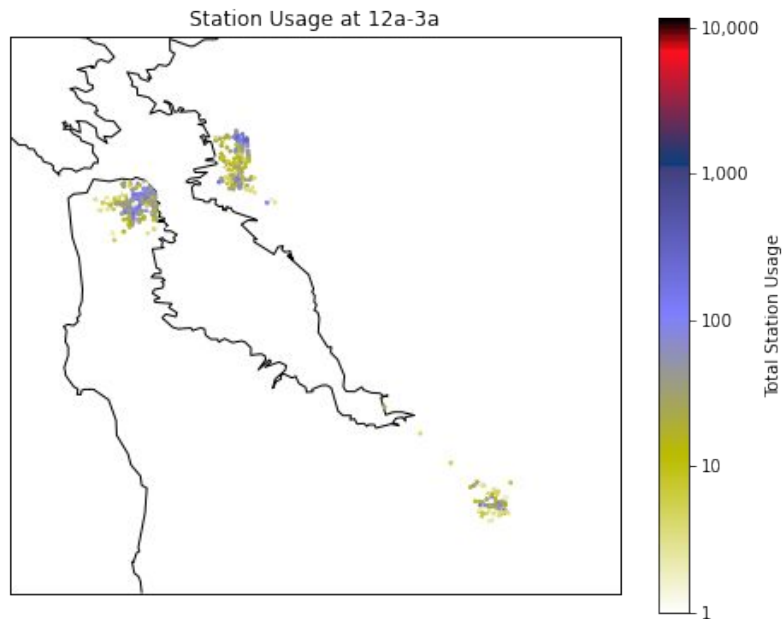


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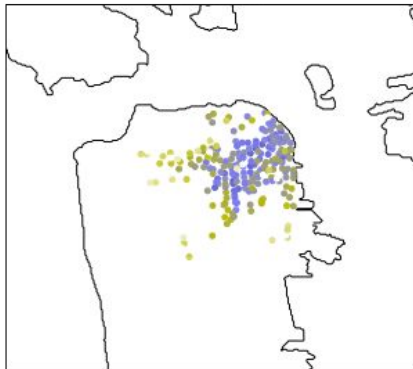


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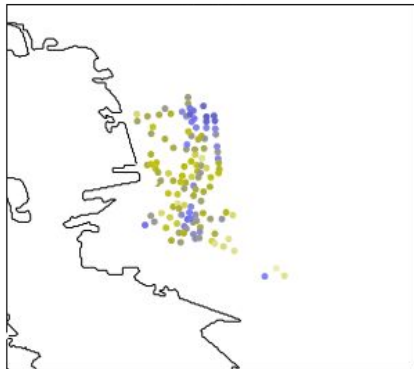
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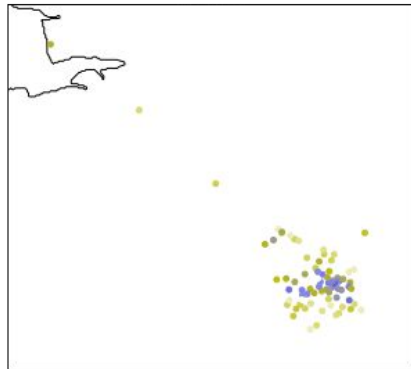
San Francisco



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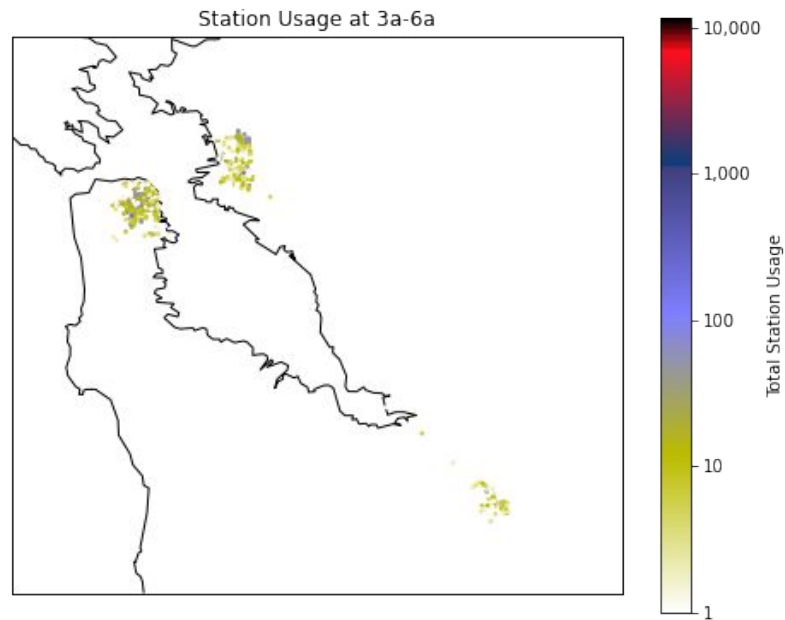


San Jose

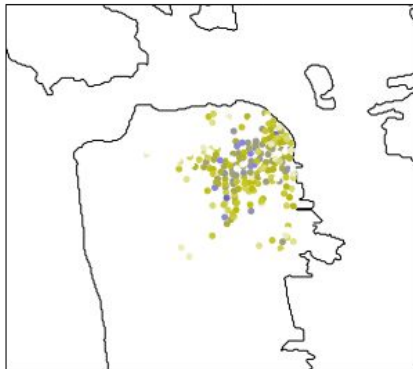


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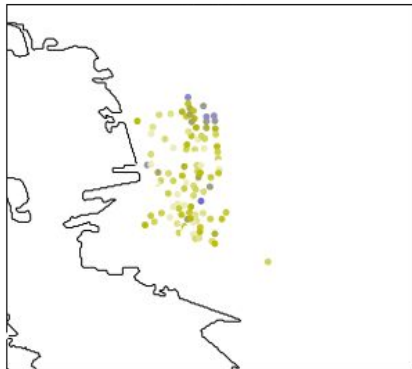
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San Francisco



Oakland



San Jose





Bay Area Rapid Transit

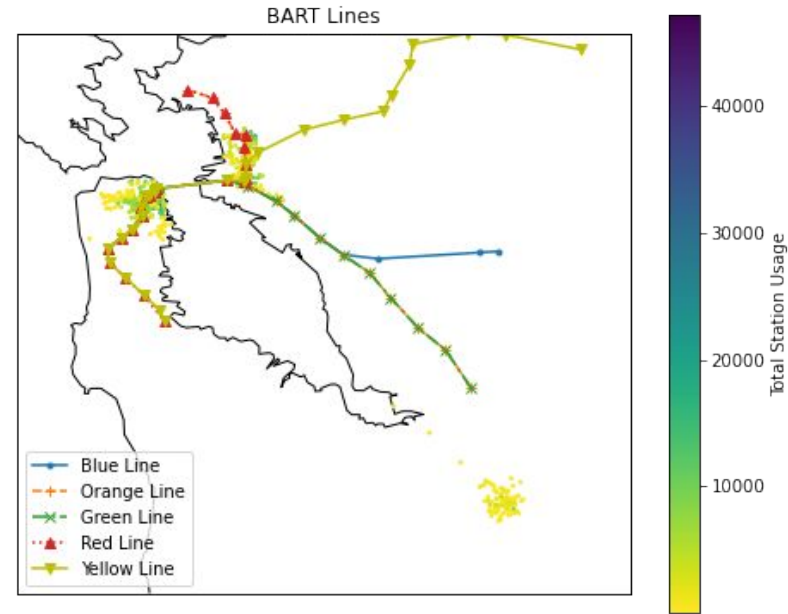
As Bay Wheels appears to be used for commuting, it's reasonable to look at how this works with other ways to commute. Bay Area Rapid Transit (BART) is a commuter rail servicing much of the bay area. But how does this work with Bay Wheels?



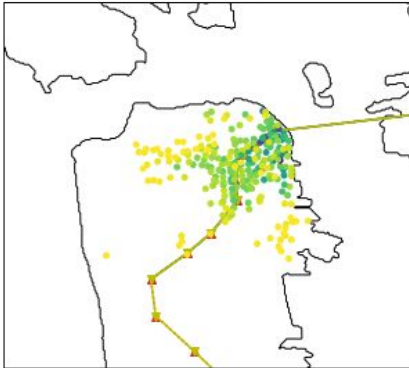
San Leandro Station

BART System

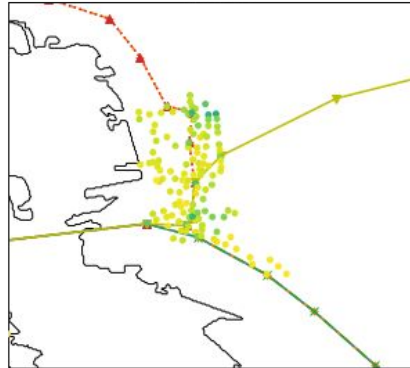
Here is a map with the 5 main lines of BART. It appears that the BART system goes through areas with popular Bay Wheels stations. For the time period of this report, the BART system did not extend to San Jose; BART is in the process of opening stations in San Jose.



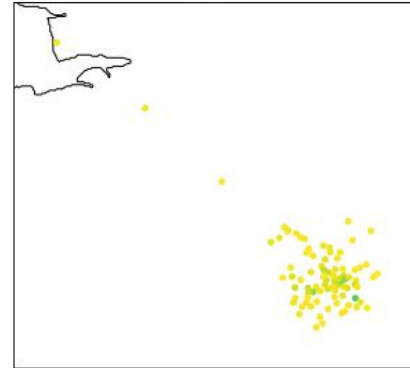
San Francisco



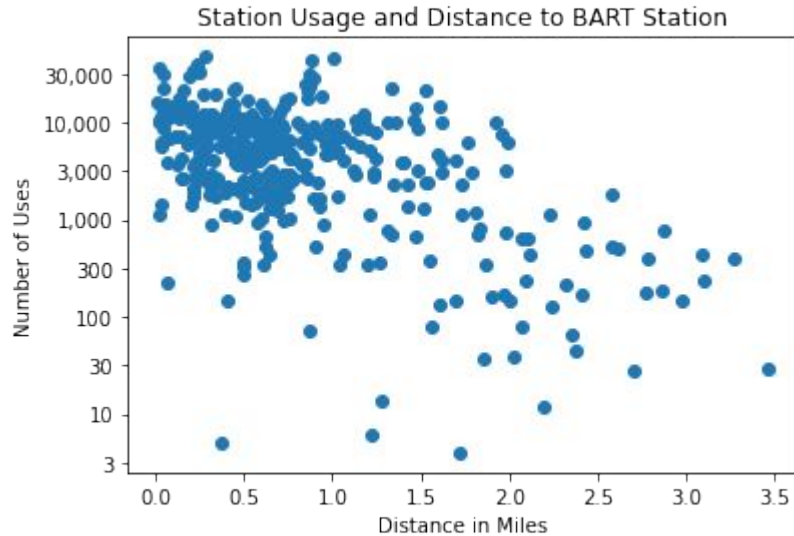
Oakland



San Jose



The Bay Wheels and BART Correlation



For the Bay Wheels stations in San Francisco and Oakland, the distance to the nearest BART station was determined. Plotting the distance from a BART station and the number of users of a Bay Wheels station show a decrease of popularity as the distance to the BART station increases. It appears that the nearer a Bay Wheels station is to a BART station, the more it is used.

Conclusions

Here are some thoughts on what Lyft could do to expand their bike sharing:

- Expand to other cities, particular those with mass transit. They seem to have preemptively taken this advice and are in New York City, Chicago, Washington D.C., Columbus Ohio, and Minneapolis.
- Look to expand stations along the BART routes.
- Add stations at more popular drop off sites, like just north of the Golden Gate.

Disclaimer: Due to Covid-19, there have been many changes in people's behavior in 2020. While in this pandemic Bay Wheels usage will be down. After the pandemic is over, it cannot be assumed that the trends seen here will return. More data will be needed post pandemic.

Further Research Areas

There is always more to look into. For this data here are a few ideas of areas to look into:

- Look into how other mass transit system affect Bay Wheels.
- Look into how the weather affect Bay Wheels.