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**Introduction**

The Bay Area’s bike share program was established in August 2013 as Bay Area Bike Share with only a few bikes and stations in operation. The program was later re-launched as Ford GoBike in 2017 and expanded to multiple cities in the Bay Area with over 2,600 bikes. Recently, in June 2019 the bike share program was rebranded to Bay Wheels. Bay Wheels currently operates in San Francisco, Oakland, Berkeley, and San Jose.

**Research Question**

For our project, we are interested in exploring the distribution of Bay Wheels’ bike share trips, bike stations, and user types in comparison with the demographics of San Francisco. Some of the potential questions that we would like to answer include:

* Is there a correlation between bike sharing trips and location? For example, is bike share more popular in areas that are tourist spots, or more popular in areas with higher population densities?
* Is there a correlation between bike sharing trips and the household median income of an area?
* Is there a difference between the distribution of the users of bike sharing with the distribution of the entire population? To be more specific, whether there are some groups of people who subscribe more than others?

In addition, we would like to explore how the coronavirus pandemic has affected the number of trips, such as finding a correlation between the number of bike trips and the date of when shelter-in-place orders went into effect for San Francisco.

**Data Sources**

* Lyft Bay Wheels [https://www.lyft.com/bikes/bay-wheels/system-data](https://www.lyft.com/bikes/bay-wheels/system-data?fbclid=IwAR22VgBr3-MbneGjwY2JzLaiB5SUDL4iS3mC6SALvqa_1eQs86bQohxWeGc)
* American Community Survey Data <https://onthemap.ces.census.gov/?fbclid=IwAR0WJD4MG28b75a2RqyhAva0b86l8mkY89hqcPq3P96tGoaSNJMtSnnSQno>
* Map of SFMTA Bikeway Network <https://data.sfgov.org/Transportation/Map-of-SFMTA-Bikeway-Network/ccs9-xdqj>
* SFMTA Bikeway Network <https://data.sfgov.org/Transportation/SFMTA-Bikeway-Network/ygmz-vaxd>
* SFMTA Bikeway Network Point Features <https://data.sfgov.org/Transportation/SFMTA-Bikeway-Network-Point-Features/k6qg-djmi>
* Uber visualization FYI <https://data.sfgov.org/Transportation/SFMTA-Bikeway-Network-Point-Features/k6qg-djmi>

**Methods**

Lyft Bay Wheels offer 13 categories of data including trip duration, start time and date, and station information by .csv format. We will import .csv data into the Jupyter, create a dataframe for each month, and clean the data to prepare for analyzing. For deriving the correlation between bike sharing counts and location, we use Carto to visualize its densities. To examine the relationship between bike sharing trips and the household median income of an area, we use scatterplot using seaborn library (*sns.scatterplot*). To explore the ride sharing and time, we count the number of casual and registered riders and create line plot for average riding hour. In addition, for experimental feature, we can use Uber’s open source project (<https://uber.github.io/#/>, <https://vis.gl>) to create interactive visualization mapping.

TOTAL : 450 WORDS.

See you guys few days later.