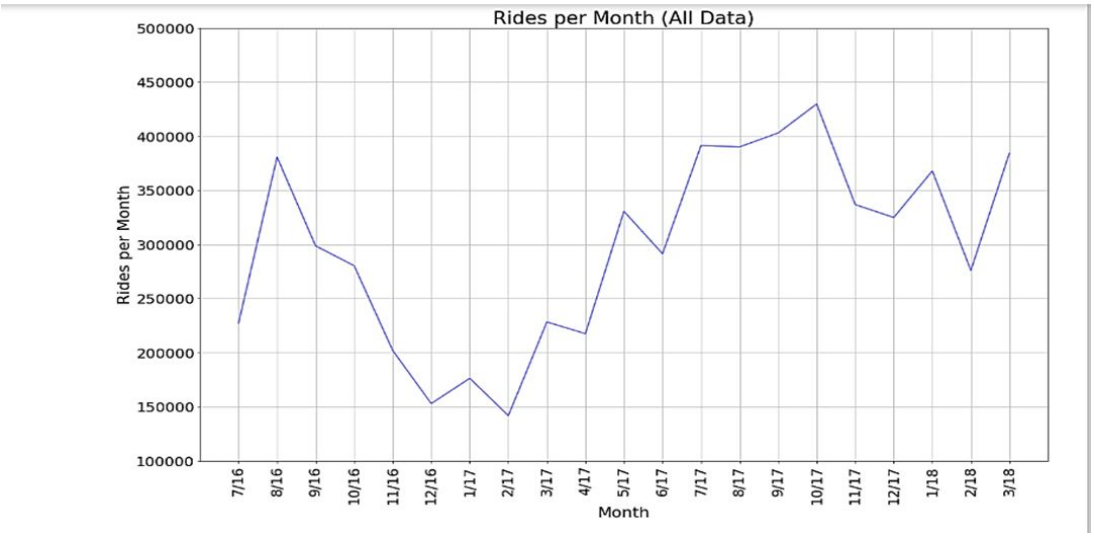
The Metro Bike Share system is a company that provides on-demand bike rentals for customers in Downtown LA, Port of LA and Venice. Users can unlock bikes from a variety of stations throughout each city, and return them to any station within the same city.There are approximately 1,400 bikes available 24/7, 365 days a year. Metro Bike Share is an additional public transportation option for residents and visitors to get around. Users pay for the service either through a yearly subscription Flex Pass or by purchasing single ride, one day or a 30 day pass.

The bike share data was gathered from the Metro Bike website and data.gov. Each team member used git with individual branches and the master. CSV's were broken down into data frames and bins in pandas. Pandas and Matplotlib were utilized for plotting.

The first project subject was abandoned because it lacked available information. Blizzard, World of Warcraft creator, has a stranglehold on the demographic information we needed. Switching from World of Warcraft to bike sharing left us scrambling. Rapidly generating plots assisted with generating our hypothesis for the project.

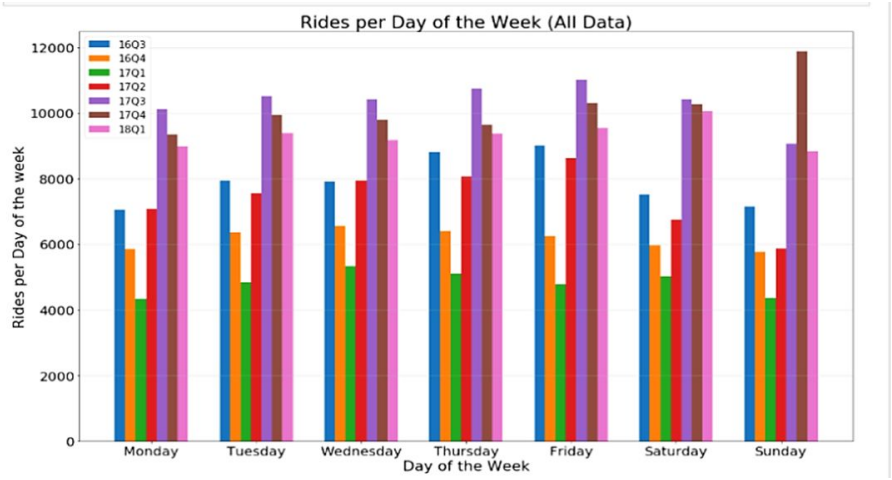
Hypothesis 1: Ridership has increased steadily over time following the opening of business in 2016.
Null Hypothesis: Ridership has not shown a steady increase over time.

Metro Bike began service in July of 2016 with 23,000 rides. Rides climbed to 38,000 in August before declining to 30,000 in September. Weather, tourism, and novelty could be the reasons for the rapid expansion. Despite the initial growth and excitement about this new venture, numbers dropped to an all time low of 15,000 rides in December. This drop off can be attributed to weather and slowing tourism. Rides rebounded in 2017 and corresponded with the upswing in weather conditions and the return of tourism season. Ridership has increased over time.



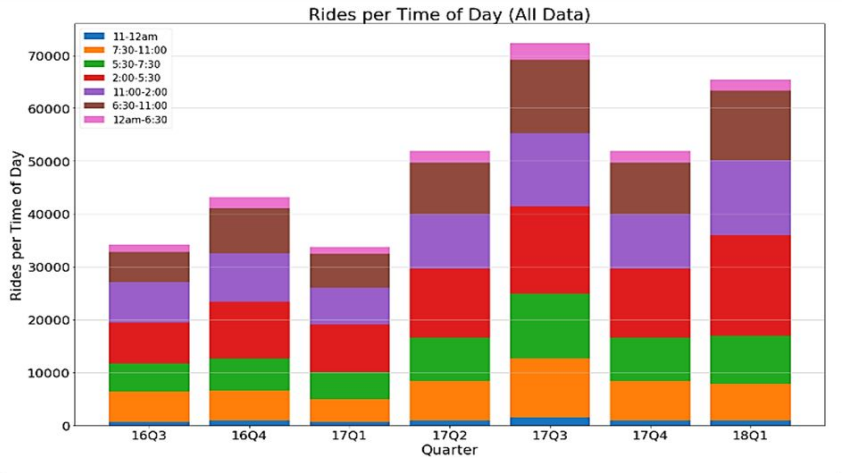
Hypothesis: Bike sharing riders use the system differently depending on the day of the week.
Null hypothesis: Day of the week has no effect on total ridership.

Weekends did not have more riders than weekdays. Our original expectation was that the bikes would be used as alternative transportation for residents and visitors on the weekends. Friday turned out to be the top day for rides. This could be because of tourists exploring their new environment. Many of the docking stations are located by hotels and a bulk pass discount is offered by Metro Bike. The spike in Sunday rides occurred the same day in 2016 and 2017 because of a large car free festival in downtown Los Angeles. The Day of the week does have an effect on the ride total.



Hypothesis: Bike sharing riders use the system more during certain times of day (i.e. for commuting).
Null hypothesis: Time of day does not affect rate of ridership.

Rush hour is the busiest time for the freeways but the bike shares don't kick into high gear until the afternoon. We expected the bikes to be in use during rush hour along with cars and mass transit but lunch time is significantly busier. We think lunch and tourism account for this trend.The ratio stayed consistent no matter the change in the days ride volume.



Our conclusion is that ridership has increased, days of the week and time of day influence ridership for Metro Bike in Los Angeles. We tried to pull pollution information from the EPA site but our credentials that they generated were consistently denied. Pulling information from the tourism API was more advanced than we covered in class.

https://bikeshare.metro.net/

https://catalog.data.gov/dataset/metro-bike-share-trip-data