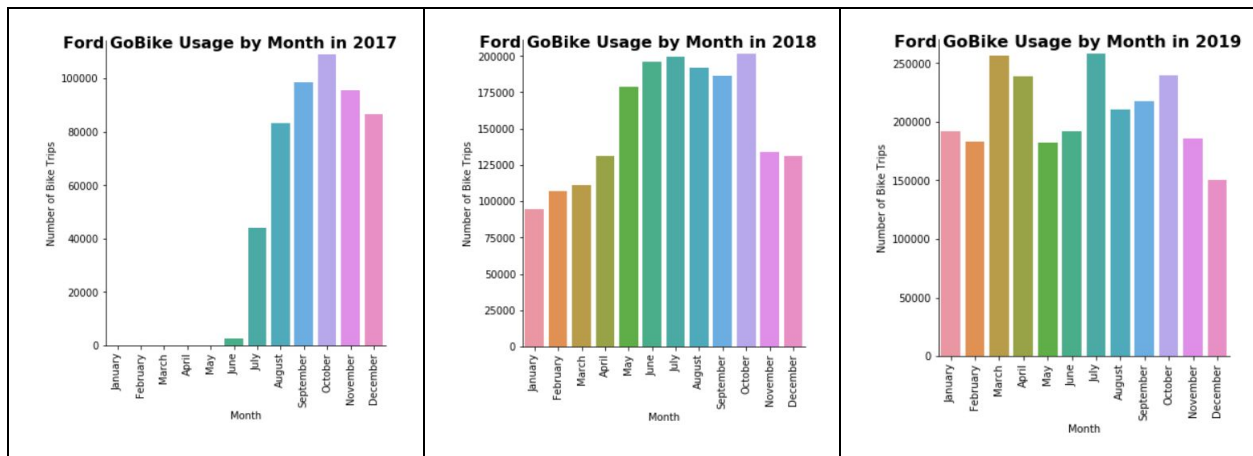


Explanatory Data Analysis

Ahmed M. Hasan

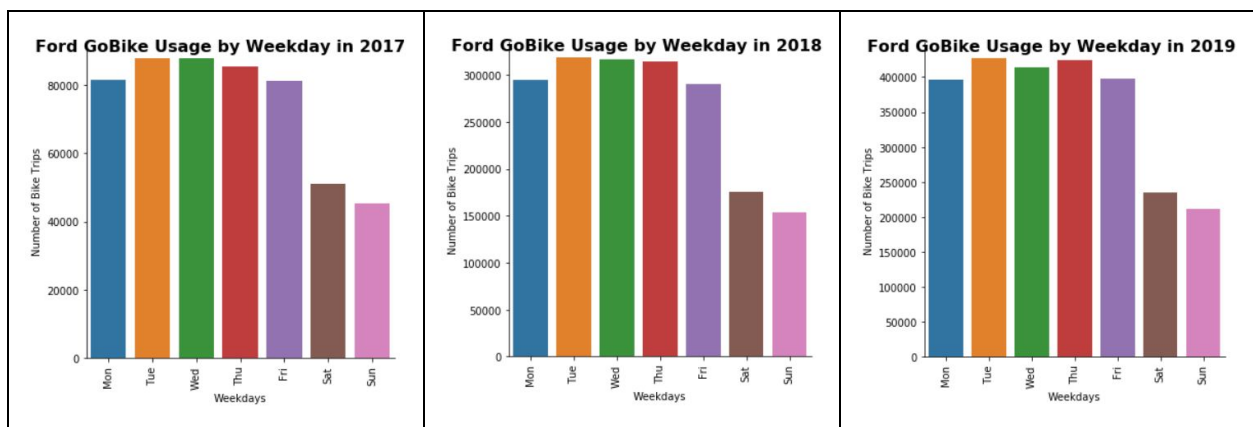
Dataset used : FordGoBike (June 2017- December 2019)

Bike Usage by Month



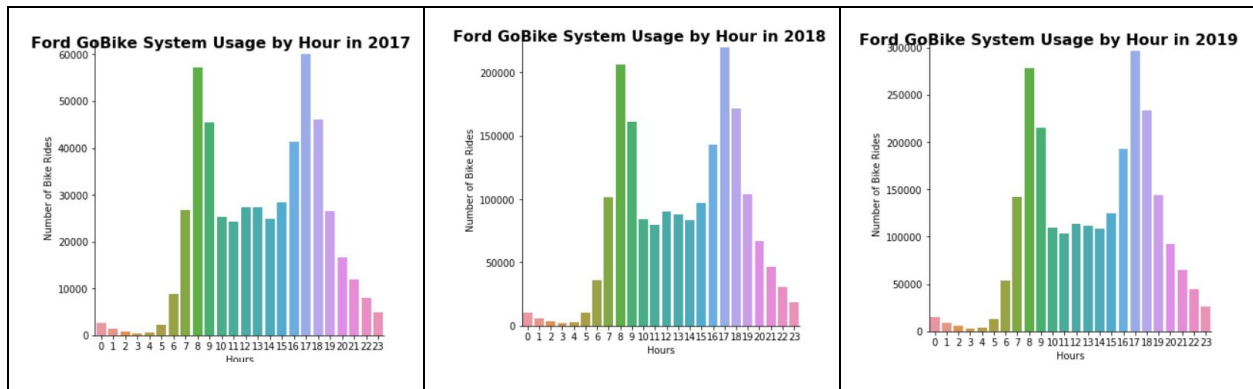
Observation: The summer months and early-mid autumn are the most popular times to use the Ford Go Bike sharing system. October is the most popular month in 2017 and 2018, but July got the highest trips in 2019.

Bike Usage by Day



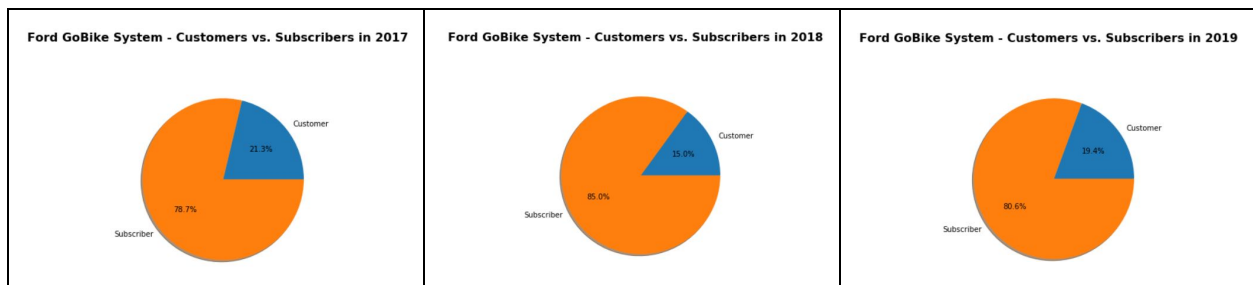
Observation : Weekdays seem to be the most popular days for using the bike sharing system. The usage drops significantly on Saturdays and Sundays suggesting the Ford bike share system is used primarily for commuting purposes.

Bike Usage by Hour



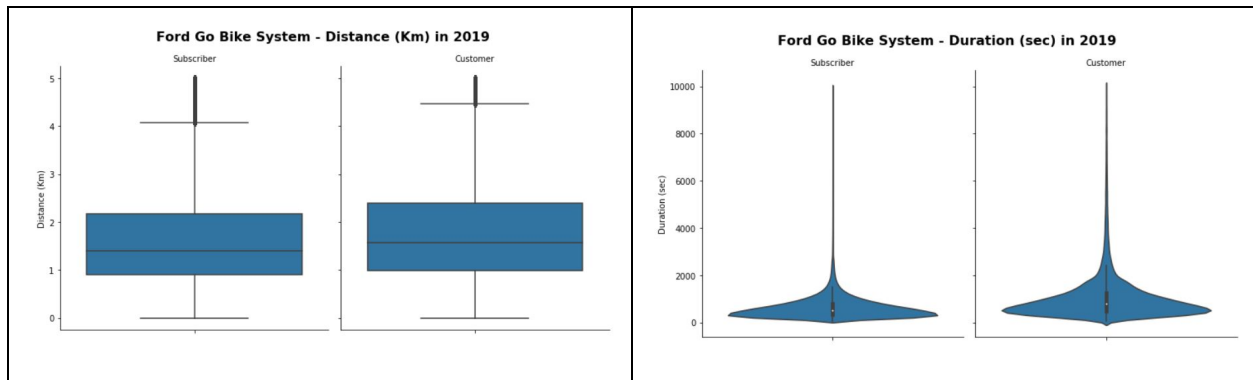
Observation: The bike service observed the most usage during the morning hours of 8-9am, and in the afternoon hours of 5-6pm. This furthers the suggestion that the bikes are being used primarily for commuters.

Customer vs Subscriber Proportion



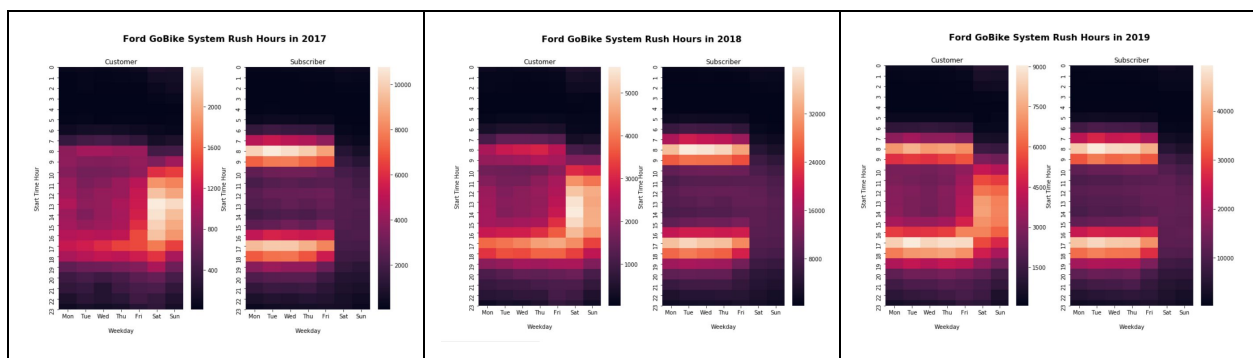
Observation: The subscriber proportion increased from 2017 to 2018, but it decreased from 2018 to 2019, which suggests that some subscribers withdrew their membership.

Travel Habits of User Type



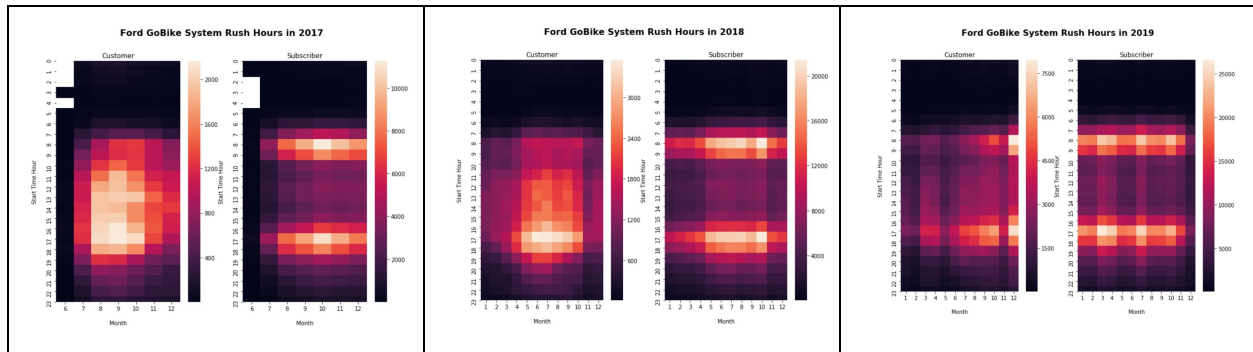
Observation: Compared to customers, subscribers tend to travel for smaller durations and distances.

Rush Hour Pattern by User Type and Start Day



Observation: There is an interesting difference observed between 2017/2018 and 2019 heatmaps. In 2017/2018, there is a rush for customers during 11 am to 4 pm on Saturday, but for the subscriber, there is a rush at 8 am and 5 pm during the weekdays. But the pattern changed for customers in 2019, which further suggests that some commuter subscribers withdrew their memberships and were using the bike service as non-member customers.

Rush Hour Pattern by User Type and Month



Observation: There is a difference in heatmap patterns between customers and subscribers. While the rush hours happened twice (8 am and 5 pm) in a day for subscribers, for the customers the rush hour happened only in the afternoon at 5 pm.

In 2019 December, the subscribers tend to use the bike service less, while the customers tend to pick up the bike service.

Summary

There are two types of clients using the system: Subscribers and Customers. Subscribers are primarily daily commuters, having short trips to and from work, who rent a bike on weekdays at 8-9am and 5-6pm. Customers are usually tourists or occasional riders who use the system mainly on weekends to explore the Bay Area. In 2019, some commuter subscribers seem to withdraw their membership and tend to use the bike service as non-member customers as indicated in customer vs subscriber proportion and rush hour patterns by user type and start day graphs.

For more details and code, check the *explanatory_data_analysis.ipynb* notebook.