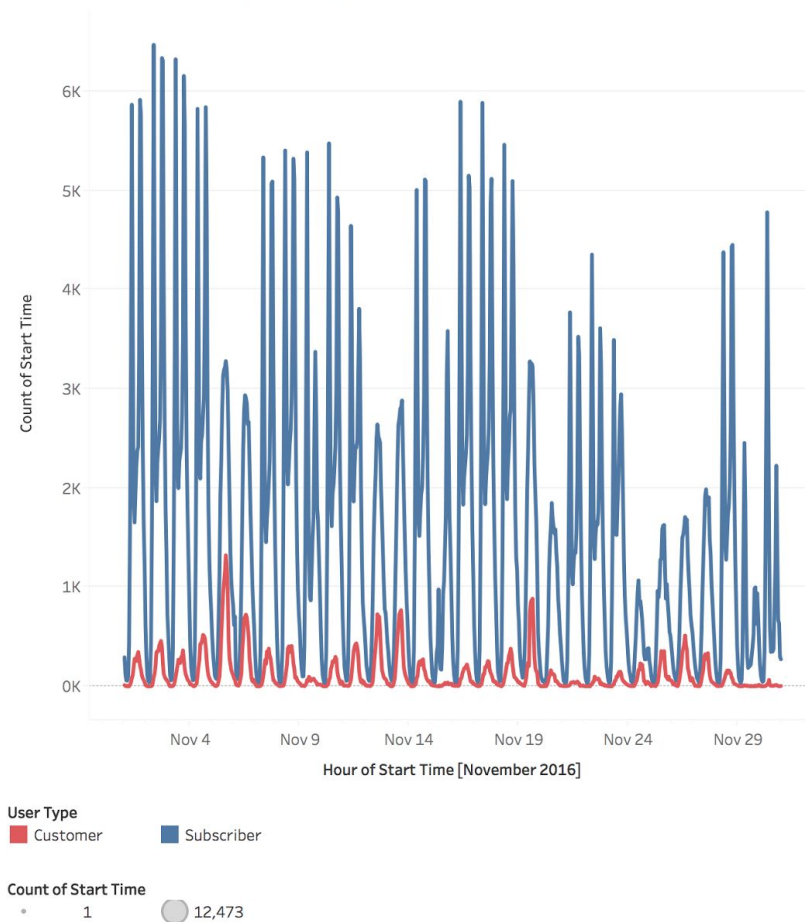


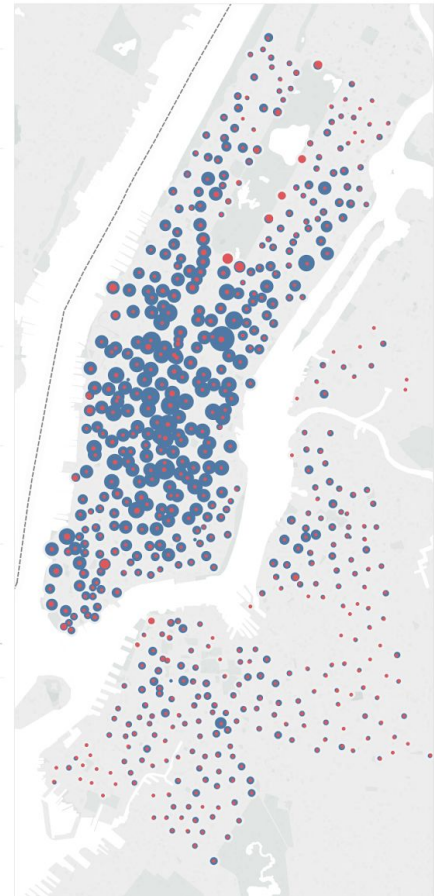
A. Comparing Subscribers and Customers

I. Dashboard comparing bike utilization by hour and by geography:

Hourly Utilization by User Type in Nov 2016



Geographic Comparisons by User Type



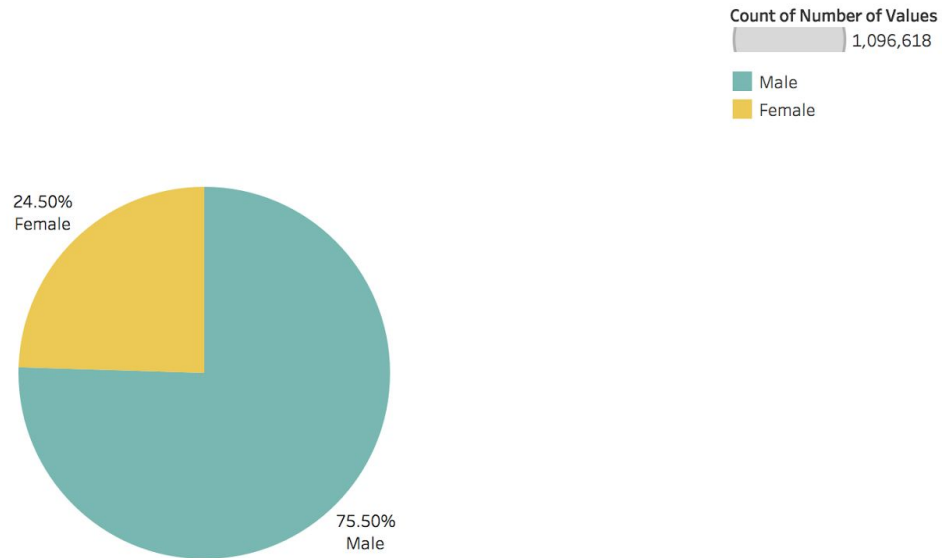
II. Analysis:

The **hourly utilization visualization** shows that subscribers use Citi Bikes much more than customers. For both user types, peak hours during the day are at 8AM and 5PM. In general, Citi Bike use is greater in the beginning of the month and drops greatly towards the end of November (around the time of Thanksgiving). The **geographic visualization** shows that for both user types, bike usage is greatest in midtown and downtown Manhattan (around touristy locations). Among subscribers, bike usage is more densely clustered in Manhattan. Among customers, bike usage is more evenly distributed between different boroughs.

B. Gender and Citi Bike Use

I. Fraction of rides:

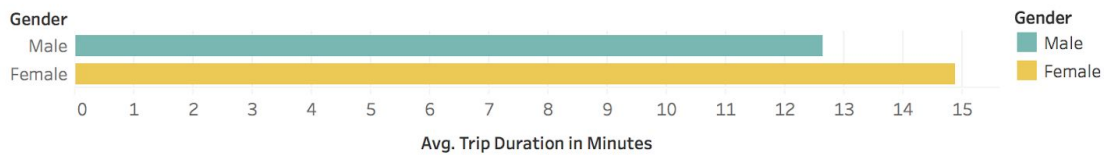
Percentage of Total Rides by Gender



% of Total Count of Number of Values and Gender. Color shows details about Gender. Size shows count of Number of Values. The marks are labeled by % of Total Count of Number of Values and Gender. The view is filtered on Gender, which keeps Male and Female.

II. Duration of trips:

Average Trip Duration by Gender

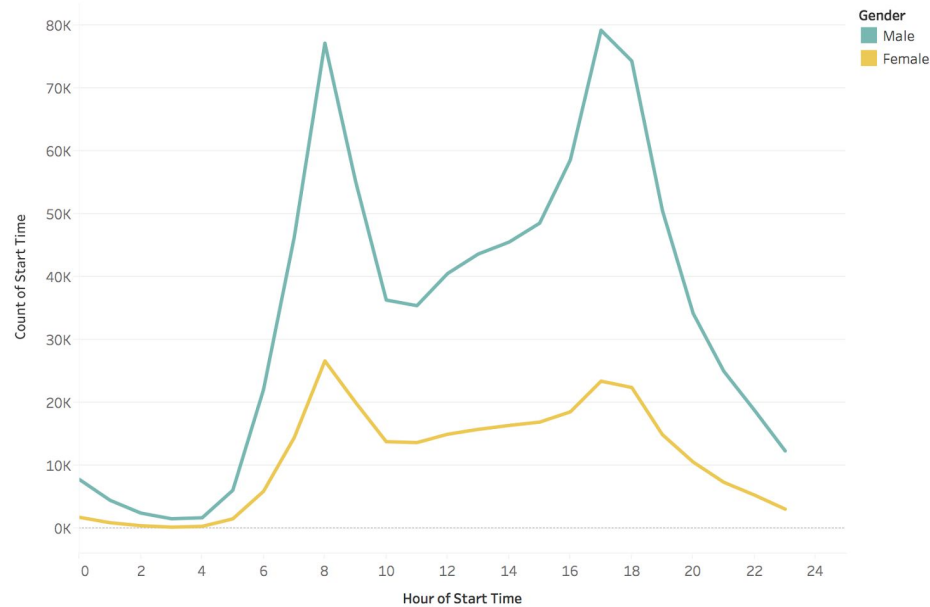


Average of Trip Duration in Minutes for each Gender. Color shows details about Gender. The view is filtered on Gender, which keeps Male and Female.

III. Hour of day when they pick up bikes:

A. Hourly pickup over a 24-hour period

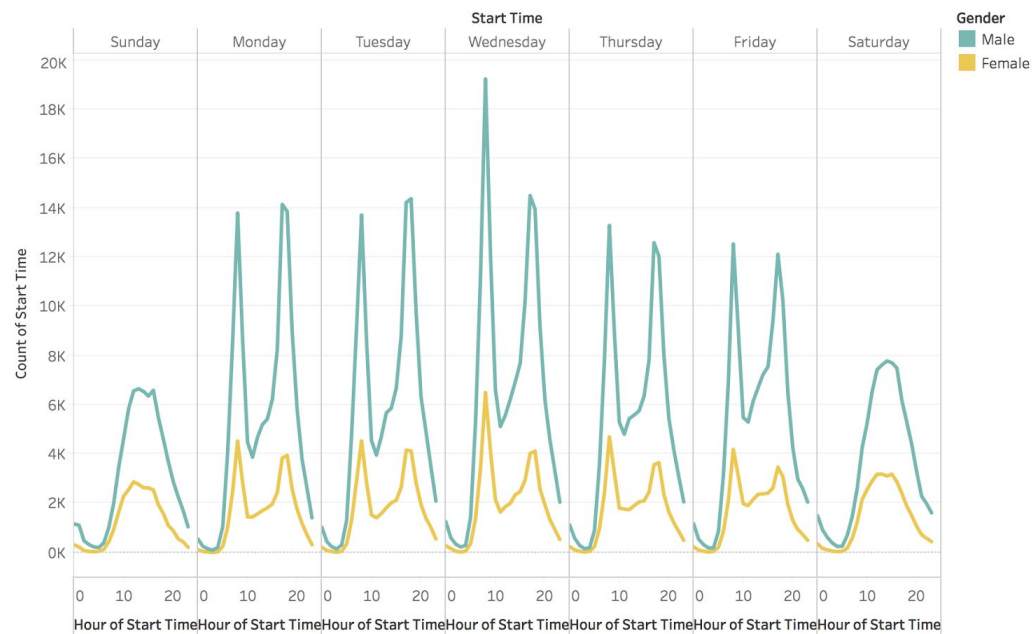
Hour of Day When People Pickup Bikes by Gender



The trend of count of Start Time for Start Time Hour. Color shows details about Gender. The view is filtered on Gender, which excludes 0.

B. Hourly pickup by day of the week

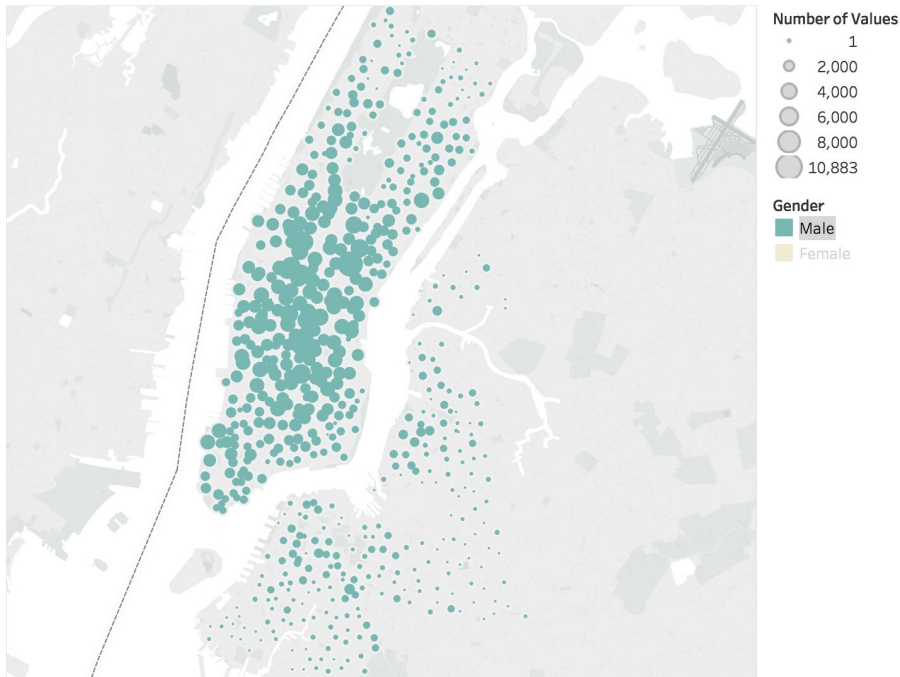
Hour of Day When People Pickup Bikes by Gender



The trend of count of Start Time for Start Time Hour broken down by Start Time Weekday. Color shows details about Gender. The view is filtered on Gender, which excludes 0.

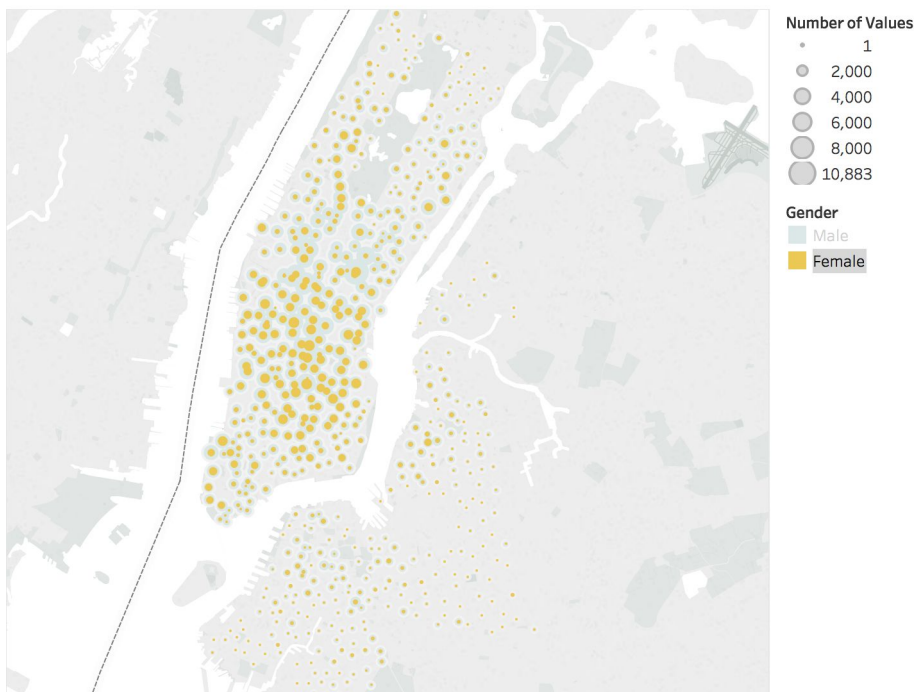
IV. Where they pick up bikes:

Location of Bike Pickups by Gender



Map based on Start Station Longitude and Start Station Latitude. Color shows details about Gender. Size shows sum of Number of Values. The view is filtered on Gender, which excludes 0.

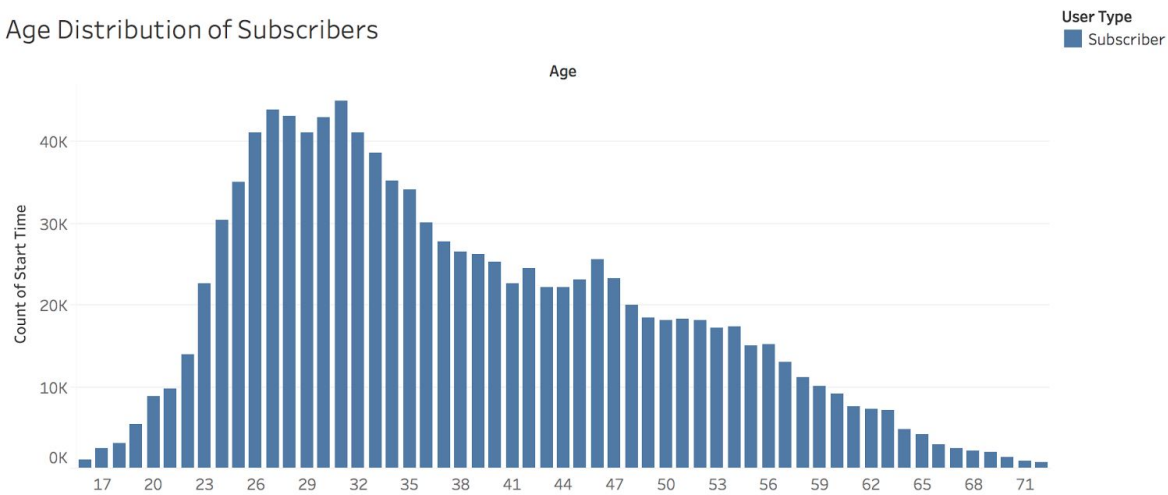
Location of Bike Pickups by Gender



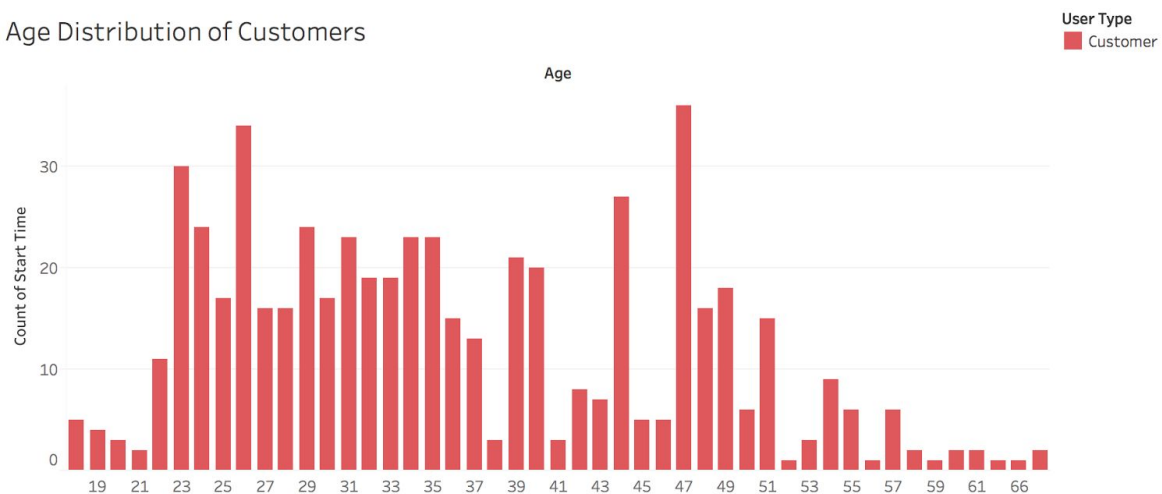
Map based on Start Station Longitude and Start Station Latitude. Color shows details about Gender. Size shows sum of Number of Values. The view is filtered on Gender, which excludes 0.

C. Data-Driven Recommendation

Age Distribution of Subscribers



Age Distribution of Customers



This visualization suggests Citi Bike's subscribers are mainly people 25-35 years old (working-class people). Among customers, there is a wider age distribution. Citi Bike should consider investing in more bike lanes, maybe by partnering with a company or with the state of New York, to increase the safety of riding in the city. This can help to increase the number of high school/college age riders (16-24) and the number of older riders (40+). Citi Bike should also consider providing free helmets attached to each bike, or offer helmets at each docking station as an add-on feature (for a fee) for those who do not already own helmets. This might increase the number of casual riders who do not necessarily want to invest in an annual subscription. It might also encourage more customers to become subscribers.