

Bixi Project Deliverable 2

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BRAINSTATION

Authored by: Krzysztof Rafalont



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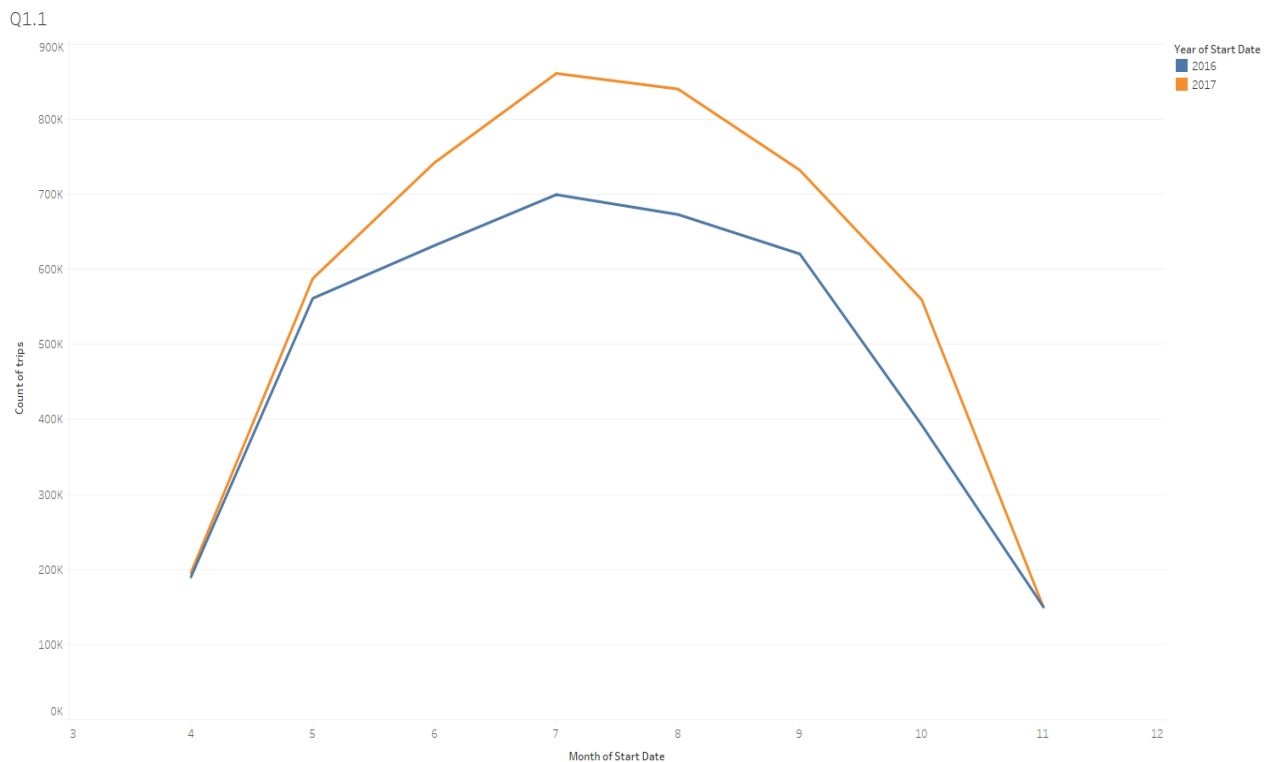
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Question 1

1.1 Totals Trips 2016 vs 2017

While the number of trips for both 2016 and 2017 begins at about relatively the same amount, 2017 trips in April were slightly greater than that of 2016. However, May is where a larger disparity grows between 2016 and 2017, with May having an increase of about 25,000 trips from previous year. The disparity significantly increases onward from there between 2016 and 2017, with the number of trips increasing significantly throughout June 2017 and peaking July 2017 with a difference of about 160,000 more trips compared to July 2016. 2017 continues on with a larger number of trips throughout the remainder of the year until November when both 2016 and 2017 end off with about 150,000 trips each. (See Figure A.)

Figure A.

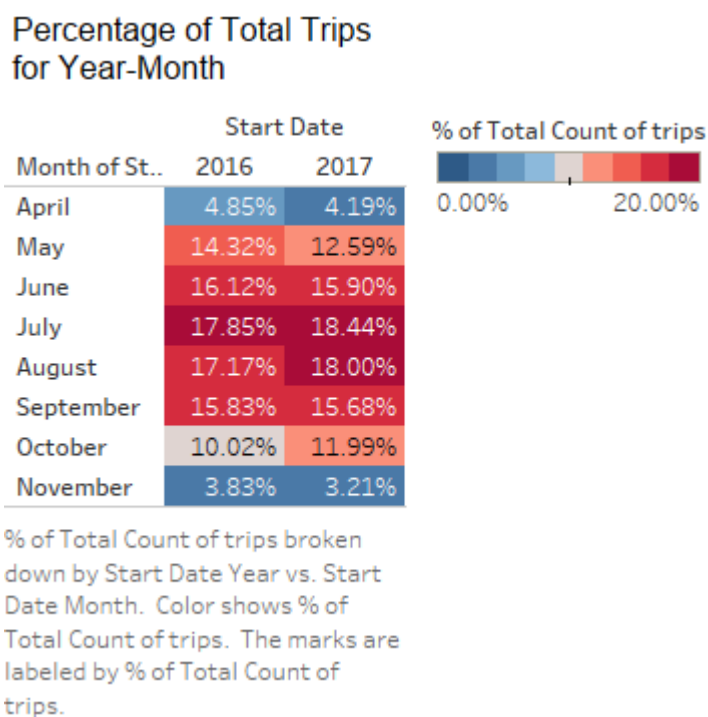


The trend of count of trips for Start Date Month. Color shows details about Start Date Year.

1.2 Percentage of Trips (Year-Month)

As per the analysis, 2016 had a higher proportion of monthly usage at the start of the year, with a higher percentage of trips in April, May, and June compared to year 2017. However, in July 2017 proportions of monthly usage overtake 2016 by a difference of about 0.59 % higher in 2017 than in 2016. And a difference of about 0.83 % higher in August 2017. It is also evident that 2017 appears to have a smaller sloping decline from its peak in July till end of year than that of 2016. (See Figure B.)

Figure B.

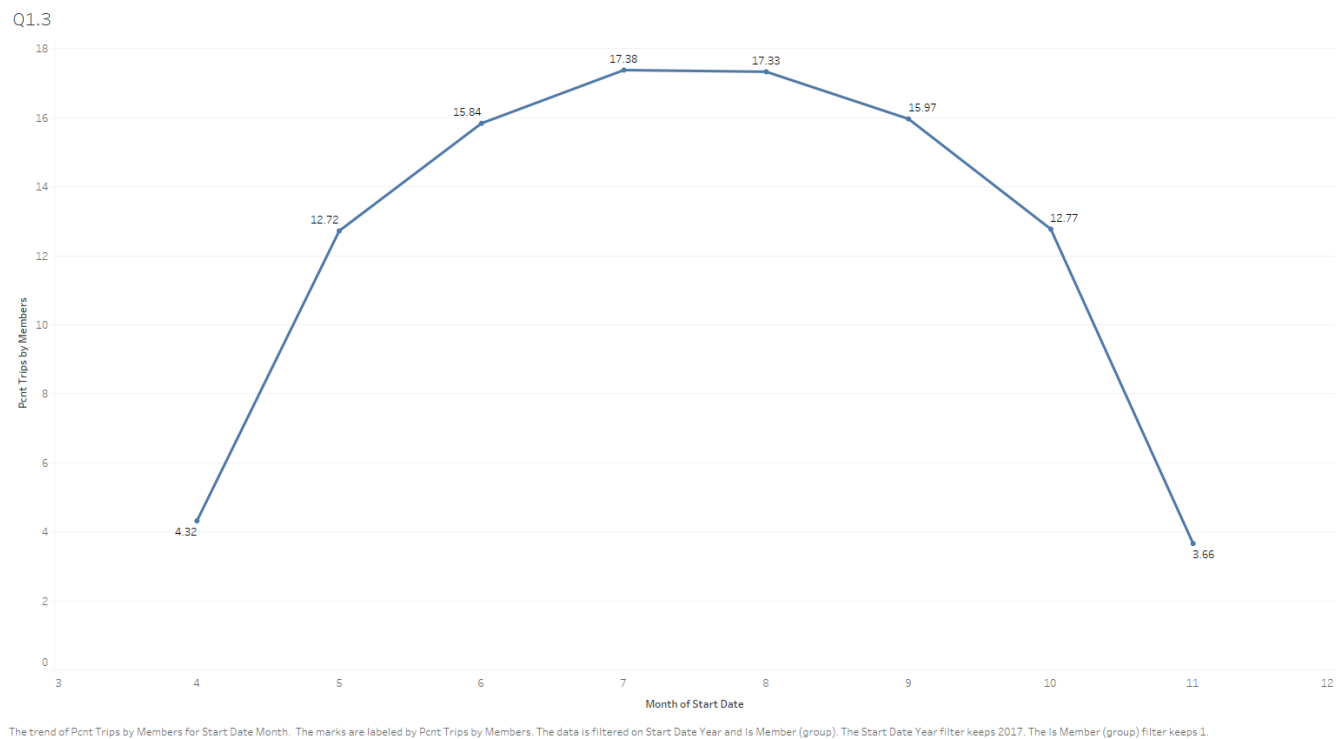


1.3 Percentage of Trips by Members in 2017

The percentage of trips that were done by members per month for the year 2017 is very low at both the start and end of the seasonal year (April and November), the outcome of what is probably caused by colder weather conditions. The percentage of member trips increases significantly from the low April percentage and continue to increase throughout the remaining months, peaking in July of 17.38 % and closely followed by August with 17.33%. (See Figure C.)

This however is a great contrasting indicator of how many non-members are using Bixi services, the information of which can be used to target non-members in the future with any promotions or membership signup offers.

Figure C.



1.4 Top 10 Stations by Percentage of Round Trips

There is a large percentage disparity between the top station (4.69%), the second (3.15%) and third (2.31%) stations, and the remaining 7 stations (totaling 7.42% altogether) in the top 10 list. (See Figure D.)

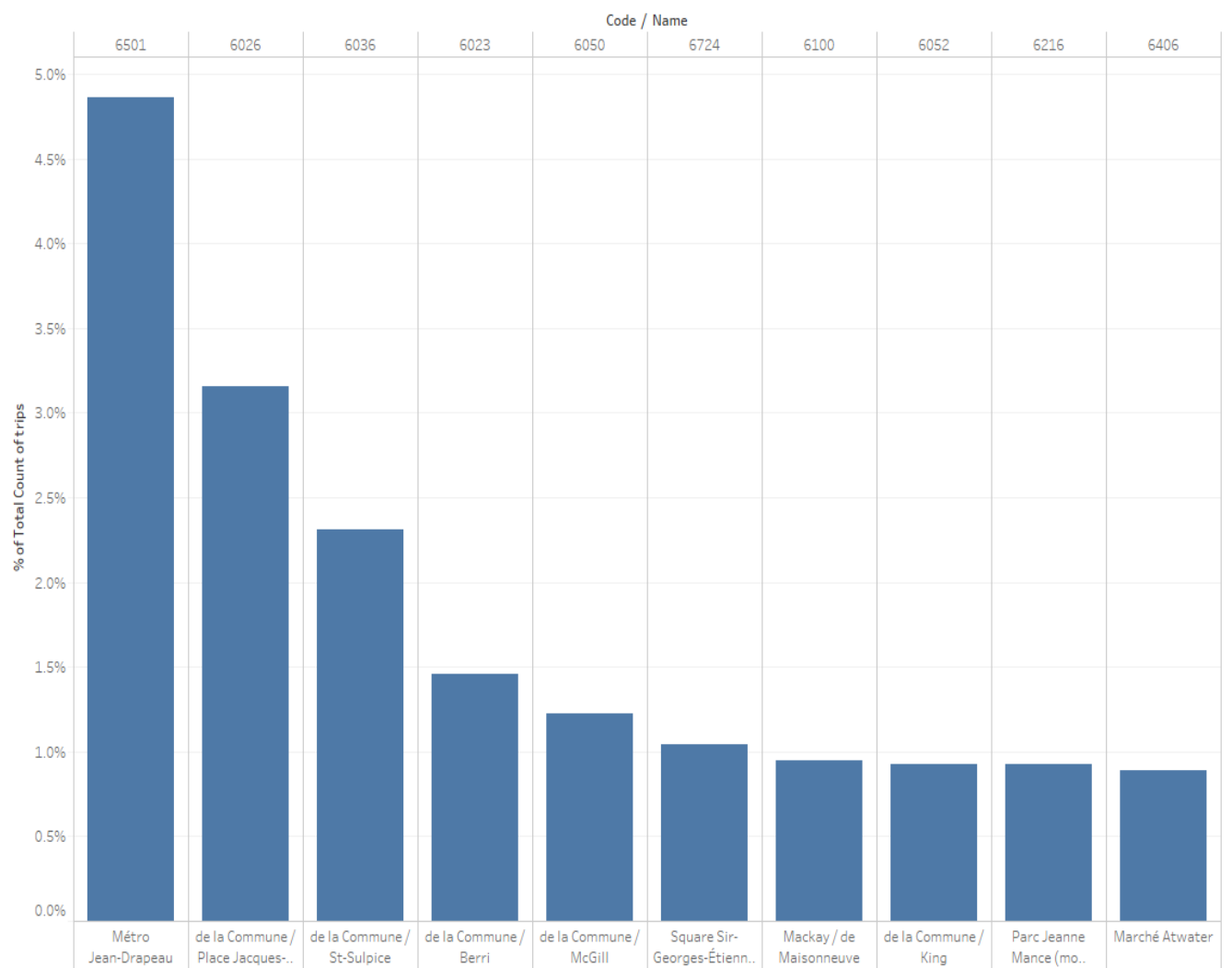
The top 10 stations by percentage of round trips is as follows:

1. Métro Jean-Drapeau (6501)
2. de la Commune / Place Jacques-Cartier (6026)
3. de la Commune / St-Sulpice (6036)
4. de la Commune / Berri (6023)

5. de la Commune / McGill (6050)
6. Square Sir-Georges-Étienne-Cartier / Léa Roback (6724)
7. Mackay / de Maisonneuve (6100)
8. de la Commune / King (6052)
9. Parc Jeanne Mance (monument à sir George-Étienne Cartier) (6216)
10. Marché Atwater (6406)

Figure D.

Q1.4



% of Total Count of trips for each Name broken down by Code. The data is filtered on Round Trips and Top 10 Stations. The Round Trips filter has multiple members selected. The Top 10 Stations filter keeps True.

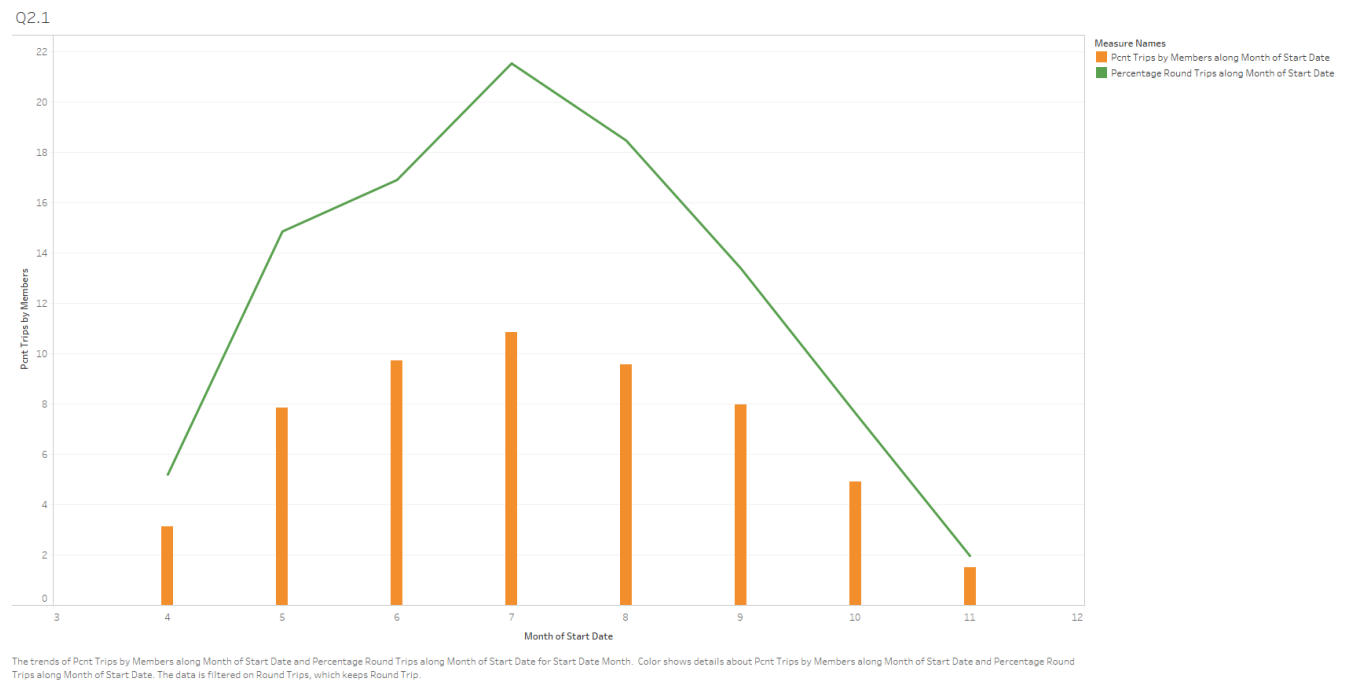
Question 2

2.1 Percentage of Round Trips vs Percentage of Member Trips

When it comes to member and non-member use of Bixi services specifically in regards to round trips, the data has shown that most trips fall in between about 10 minutes and just over 18 minutes in duration. Based on my analysis of the data, people mainly take longer trips during the warmer months between May and September with its peak in July.

The relationship between round trips and member trips at the station level is very strong with a direct correlation between member trips and round trips as shown below. With percentage of round trips increasing as percentage of trips by members increases. (See Figure E.)

Figure E.



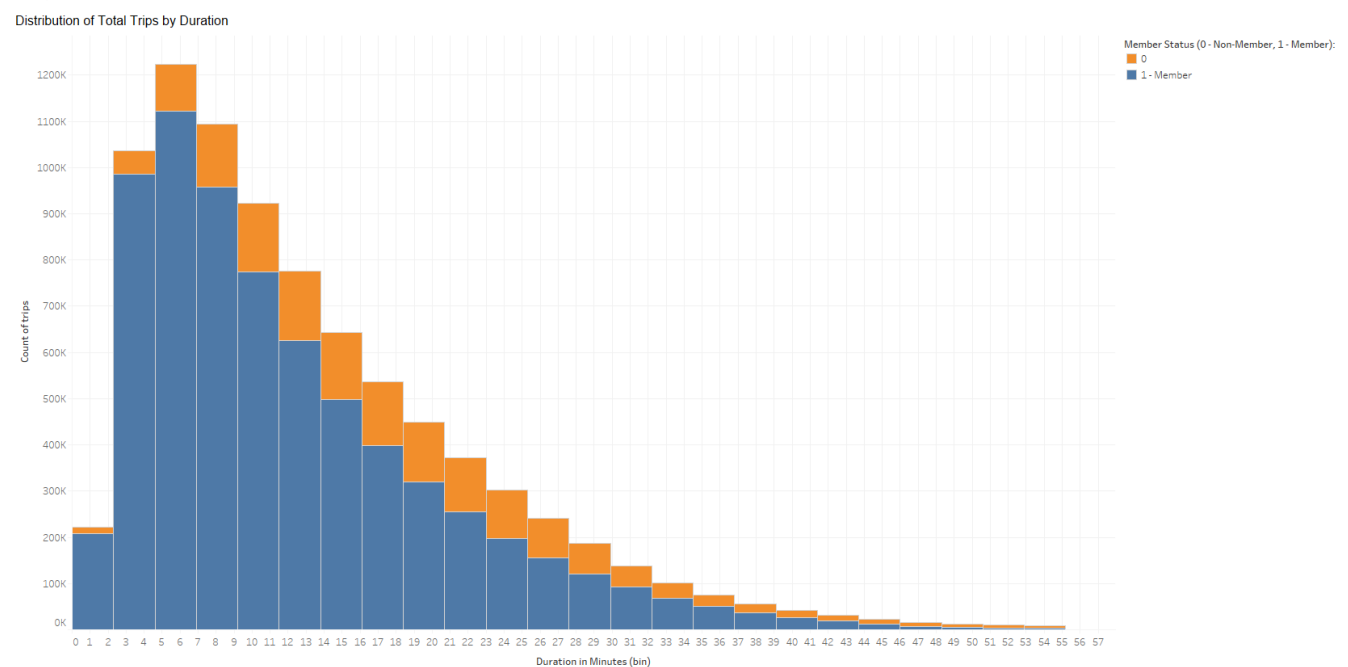
2.2 Member Trips vs Non-Member Trips by Duration

The number of trips for members increases substantially after the 2-minutes duration mark and spikes between the 4.5-minute and 7-minute mark with approximate total of 1,122,264 trips for that duration. The number of trips by members declines steadily after the 7-minute duration mark by approximately 150,00 trips every 2.5 minutes.

On the other hand, the number of trips for non-members is very low compared to that of members and increases very slowly as the duration increases, with its highest number of trips occurring between 11.5-minute mark and 14-minute mark in duration before steadily declining in number of trips as duration increases.

Interestingly trips by non-members surpasses that of trips by members after 46-minutes duration. (See Figure F.)

Figure F.

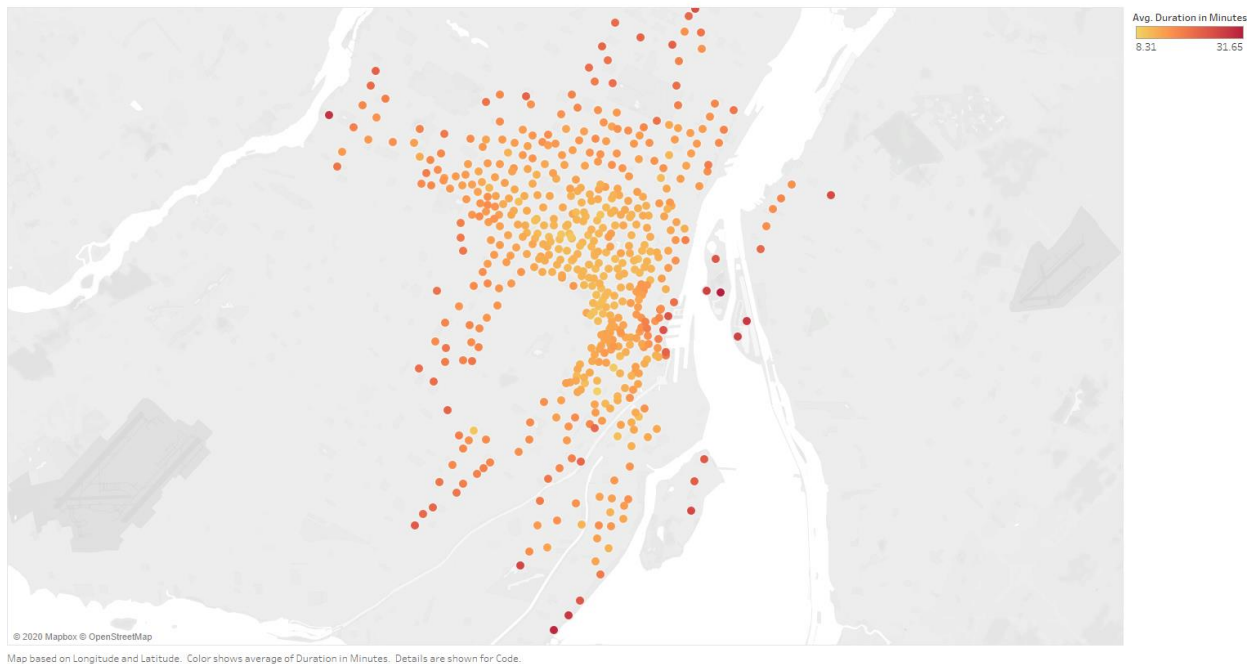


2.3 Average Trip Duration per Station

The map below highlights the average trip duration per station and as expected, the average trip duration increases as the distance of the station from the populous city centre increases. This can be shown by the light-yellow marks on the map highlighting the populated city centre station location versus the dark red colors found further away from the city. This can be due to members and non-members alike traveling in and out of the city whether for leisure, work, or any other purposes. (See Figure G.)

Figure G.

Q2.3



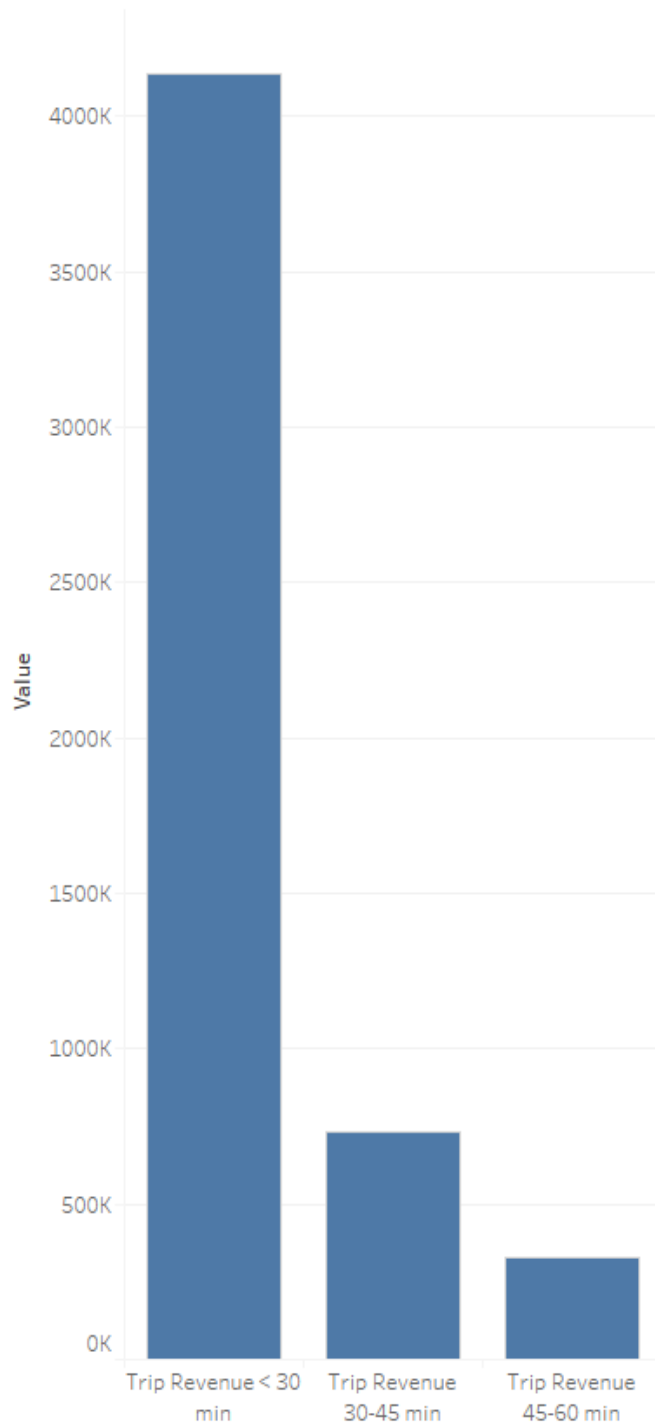
Question 3

3.1 Single Trips Revenue per Pricing Bucket

The flat rate fee of \$2.99/trip appears to be most popular among non-members, contributing 79.5 % of the total revenue for a total of \$4,134,452. This can be due to non-members not willing to pay the extra fees after the 30 minute duration hence taking advantage of the small flat rate fee as shown below. (See Figure H.)

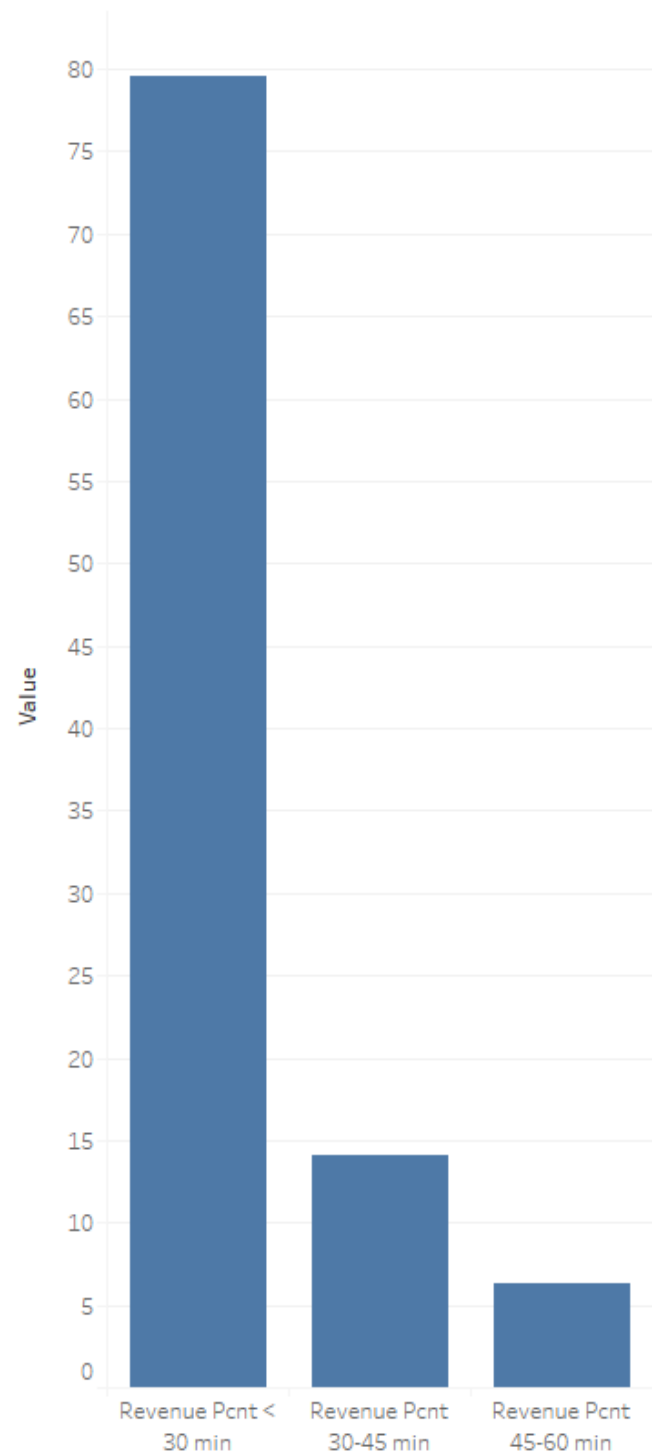
Figure H.

Q3.1.2.3.4P1



Trip Revenue 30-45 min, Trip Revenue 45-60 min and Trip Revenue < 30 min. Details are shown for Trip Revenue 30-45 min, Trip Revenue 45-60 min and Trip Revenue < 30 min. The data is filtered on Is Member (group), which keeps 0.

Q3.4P2



Revenue Pcnt 30-45 min, Revenue Pcnt 45-60 min and Revenue Pcnt < 30 min. The data is filtered on Is Member (group), which keeps 0.

3.2 Revenue from Single Trips 30 Minutes or Less

The most revenue from single trips 30 minutes or less generating the most revenue from their flat rate charge occurs almost daily, typically around 4:00 PM EST and 5:00 PM EST. The top five highest generated revenue amounts occurred on the 20th, 23rd, 27th, 28th, 29th, and 30th day.

Question 4

Analysis and Recommendation

Based on my analysis, my recommendations for the future would be to target non-members with effective member sign-on promotions. As there is a high volume of non-members using Bixi services, I would recommend targeting high volume stations where non-members frequent. An example of this can be shown in the map below highlighting the top 10 station with the highest volume of non-members. As depicted, most of these areas are within the city centre where it is known that traffic is very high and also where effective marketing can prove to be very successful. (See Figure I.)

Figure I.

Top 10 Non-Member Stations

