Bixi Project Deliverable 1

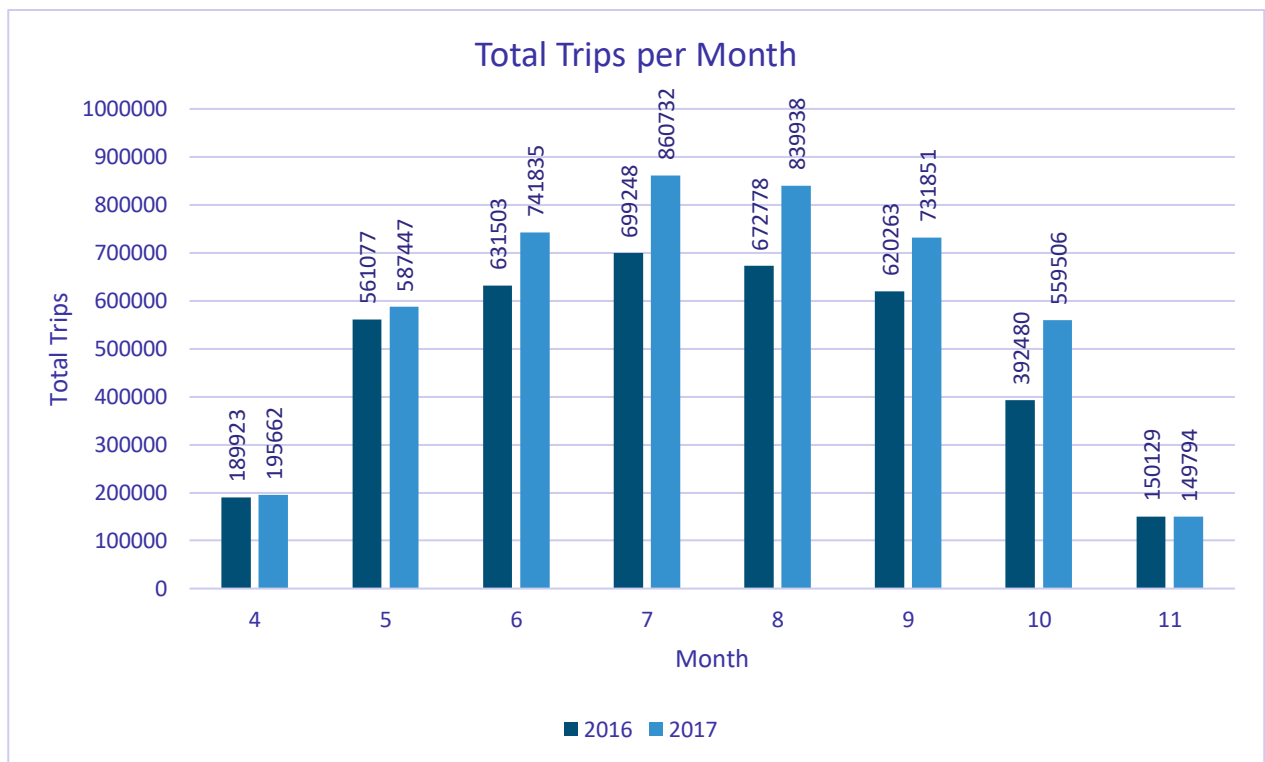OCTOBER 4, **2020**

BRAINSTATION

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Appendix

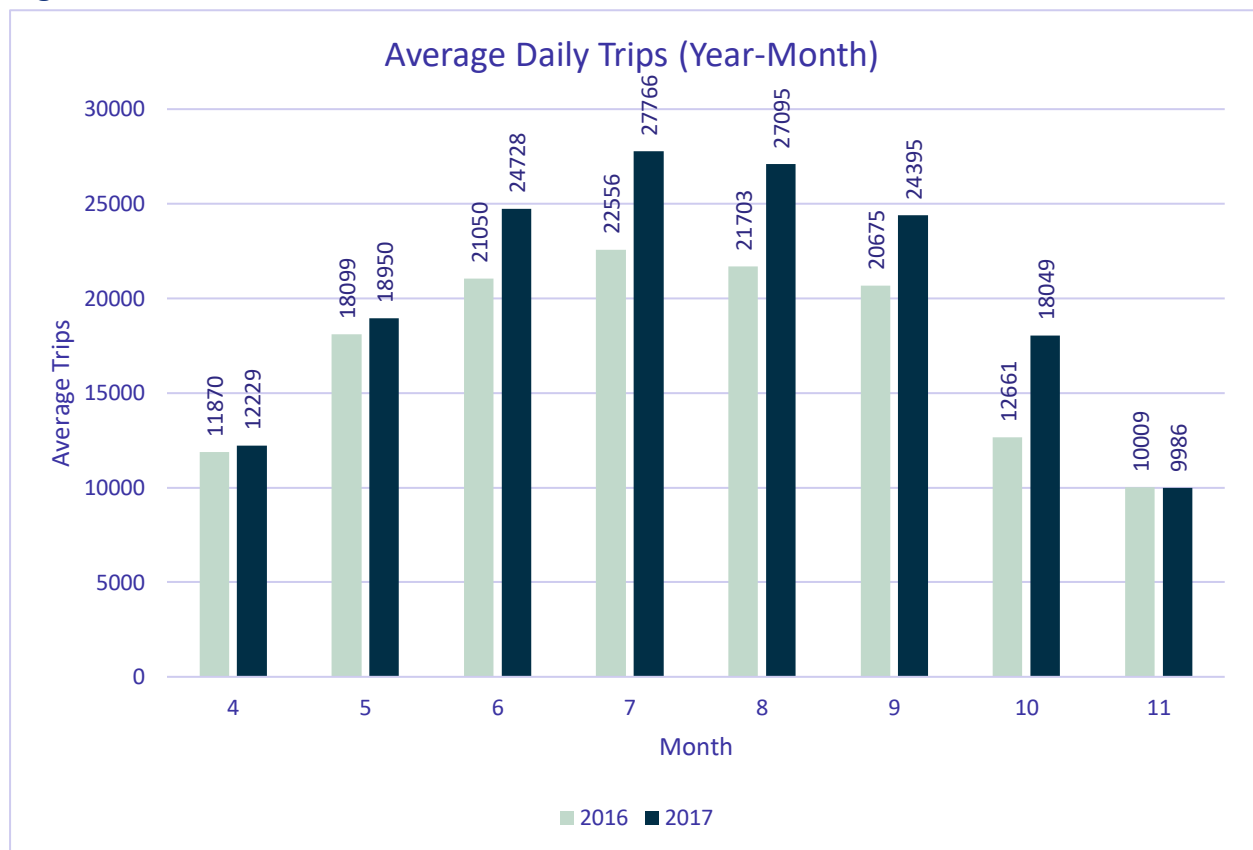# Question 1

Totals and Averages of Trips

1. The total number of trips for the year of 2016 was 3917401.
2. The total number of trips for the year of 2017 was 4666765.
3. The total number of trips for the year of 2016 broken-down by month are as expected, with trips increasing as temperatures rise in the warmer months and peaking at a total of 699,248 trips in July. (See Figure A.)
4. The total number of trips for the year of 2017 broken-down by month are also as expected, with trips increasing as temperatures rise in the warmer months and peaking at a total of 860,732 trips in July. An increase of 161,484 from previous year. (See Figure A.)

Figure A.

Total Trips per Month

Month	2016	2017
4	189923	195662
5	561077	587447
6	631503	741835
7	699248	860732
8	672778	839938
9	620263	731851
10	392480	559506
11	150129	149794

5. The average number of trips a day for each year-month combination in the dataset also increase as temperatures rise, peaking in July for both 2016 and 2017. Average trips increased from 22,556 in July 2016 to 27,766 in July 2017, an increase of 5,210. (See Figure B.)
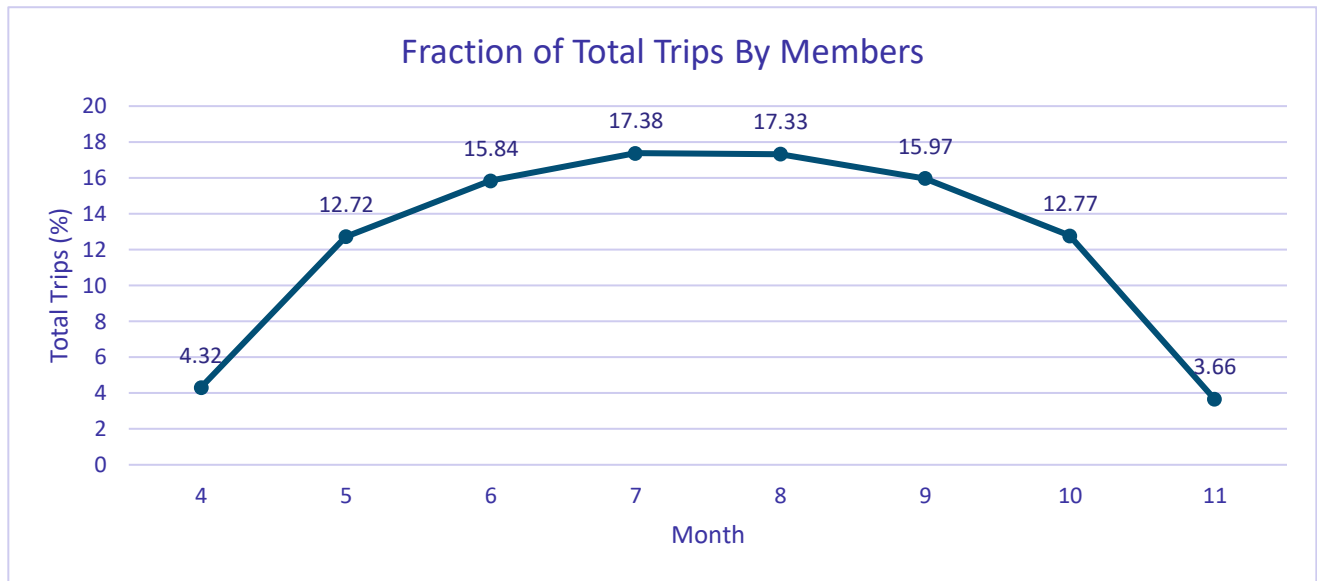
Figure B.

Average Daily Trips (Year-Month)

Question 2

Membership

1. The total number of trips in the year 2017 broken-down by membership status is 882,083 trips by non-members and 3,784,682 by members.
2. The fraction of total trips that were done by members for the year of 2017 broken-down by month with the same rise in warmer months. (See Figure C.)

Figure C.

Fraction of Total Trips By Members

(y-axis: Total Trips (%), x-axis: Month)

Data points:
- Month 4: 4.32
- Month 5: 12.72
- Month 6: 15.84
- Month 7: 17.38
- Month 8: 17.33
- Month 9: 15.97
- Month 10: 12.77
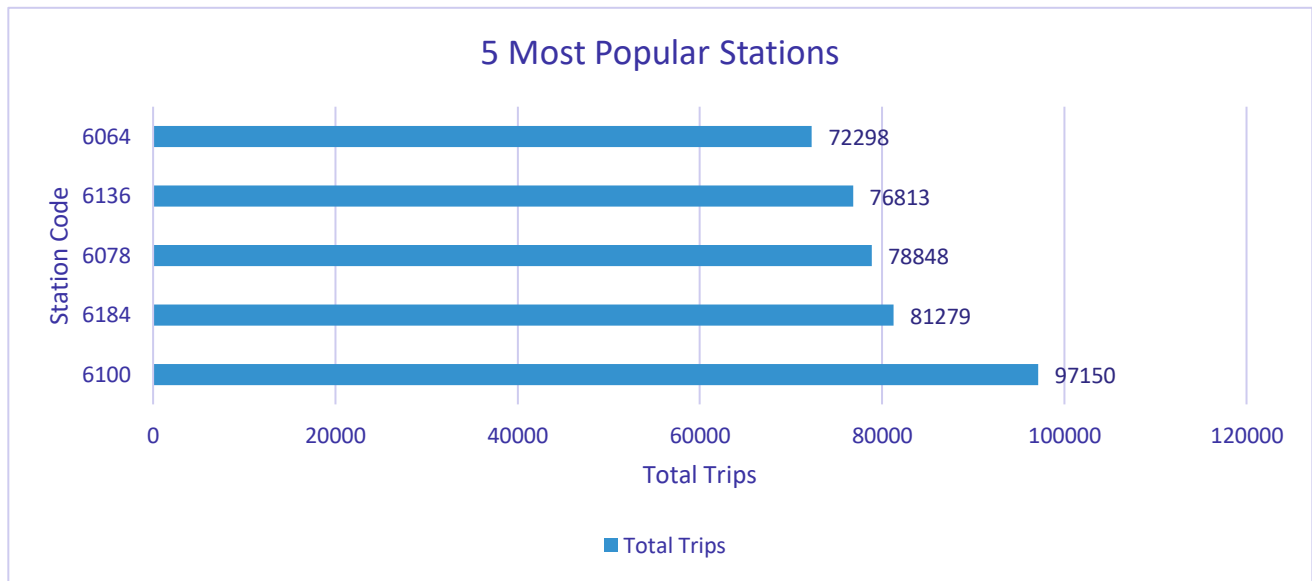- Month 11: 3.66

Question 3

Analysis and Recommendation

1. Based on my analysis, Bixi bike demand was at its peak in the month of July.

2. My recommendation is to offer non-members a special promotion in the month of July in an attempt to convert them to members as this is the peak month with the most amount of traffic of non-members.
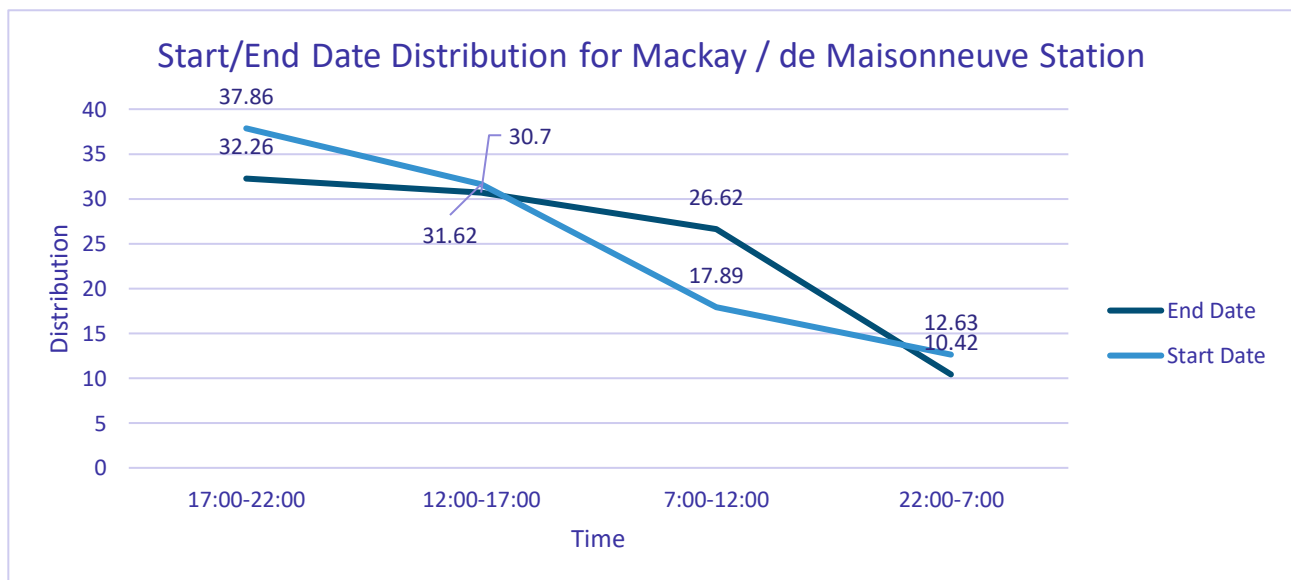
Question 4

Most Popular Stations

1. The 5 most popular starting stations are:

   I.   Mackay / de Maisonneuve (Station Code: 6100)
   II. Métro Mont-Royal (Rivard / du Mont-Royal) (Station Code: 6184)
   III. Métro Place-des-Arts (de Maisonneuve / de Bleury) (Station Code: 6078)
   IV. Métro Laurier (Rivard / Laurier) (Station Code: 6136)
   V.   Métro Peel (de Maisonneuve / Stanley) (Station Code: 6064)

5 Most Popular Stations

Station Code	Total Trips
6064	72298
6136	76813
6078	78848
6184	81279
6100	97150

■ Total Trips

Question 5

Most Popular Stations

1. The starts and ends for the station Mackay / de Maisonneuve are distributed throughout the day as follows:

Start/End Date Distribution for Mackay / de Maisonneuve Station

Time	End Date	Start Date
17:00-22:00	32.26	37.86
12:00-17:00	30.7	31.62
7:00-12:00	26.62	17.89
22:00-7:00	10.42	12.63

2. The main differences is that while both increase throughout the day from the morning. The End Dates have a higher distribution in the morning while Start Dates have a higher distribution in the evening.

Question 5

Total vs. Round Trips

1. Where would you expect to find stations with a high fraction of round trips?