2022

BIXI PROJECT – PART 1

Tanisha Consulting

TABLE OF CONTENTS

INTRODUCTION

Bixie is a non-profit aiming to manage a bike-sharing system. Many stations are spread across Montreal, Canada.

Bixie has data related to how many bikes have been rented, including the 'when' and the 'where'. Further analysis with the metadata associated with the bike trips can help uncover insights into "why" the data is the way it is.

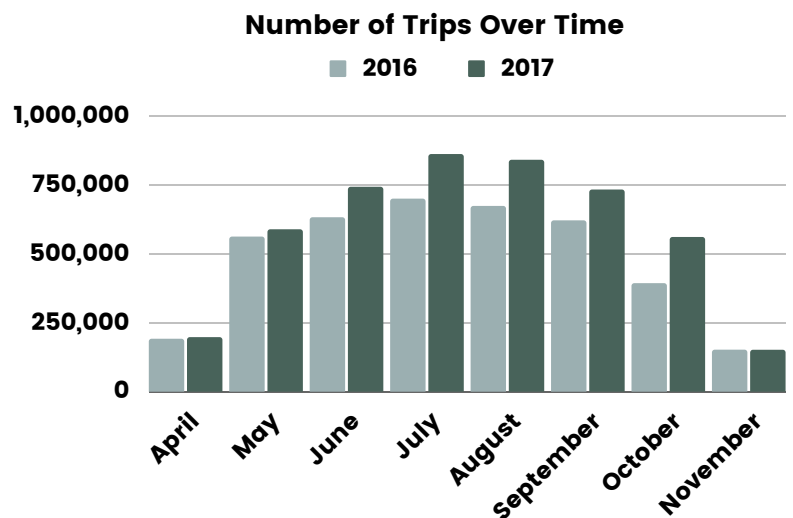This report aims to better understand Bixie users and their behavior.

Exploratory Analysis

3 917 402
Number of trips in 2016

4 666 765
Number of trips in 2017

Number of Trips Over Time

■ 2016　■ 2017

time_ym	trips
2016-04 April	189923
2016-05 May	561077
2016-06 June	631503
2016-07 July	699248
2016-08 August	672778
2016-09 September	620263
2016-10 October	392480
2016-11 November	150129

time_ym	trips
2017-04 April	195662
2017-05 May	587447
2017-06 June	741835
2017-07 July	860732
2017-08 August	839938
2017-09 September	731851
2017-10 October	559506
2017-11 November	149794

THE AVERAGE NUMBER OF TRIPS A DAY FOR EACH YEAR-MONTH COMBINATION IN THE DATASET

MEMBERSHIP AND DEMAND

Recommended Promotion

Offer a heavily discounted rate during colder months - namely October and November - since members ride less during this time.
This will incentivize more bikers to rent during slower months - and encourage non-members to become members which is great because members ride more overall.
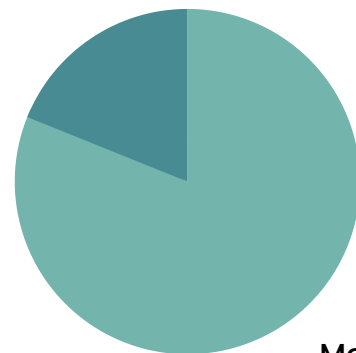
4 666 765
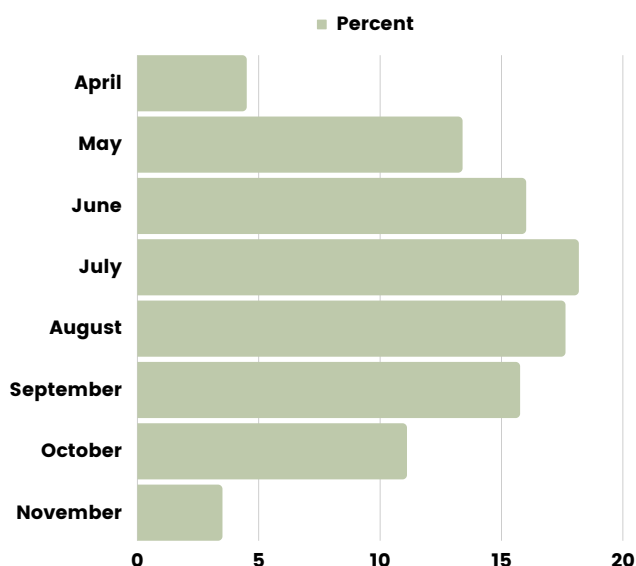
Number of trips in 2017

3 784 682

By members

882 083

By non-members

Non-Member
18.9%

Member
81.1%

% of Trips by Members in 2017

■ Percent

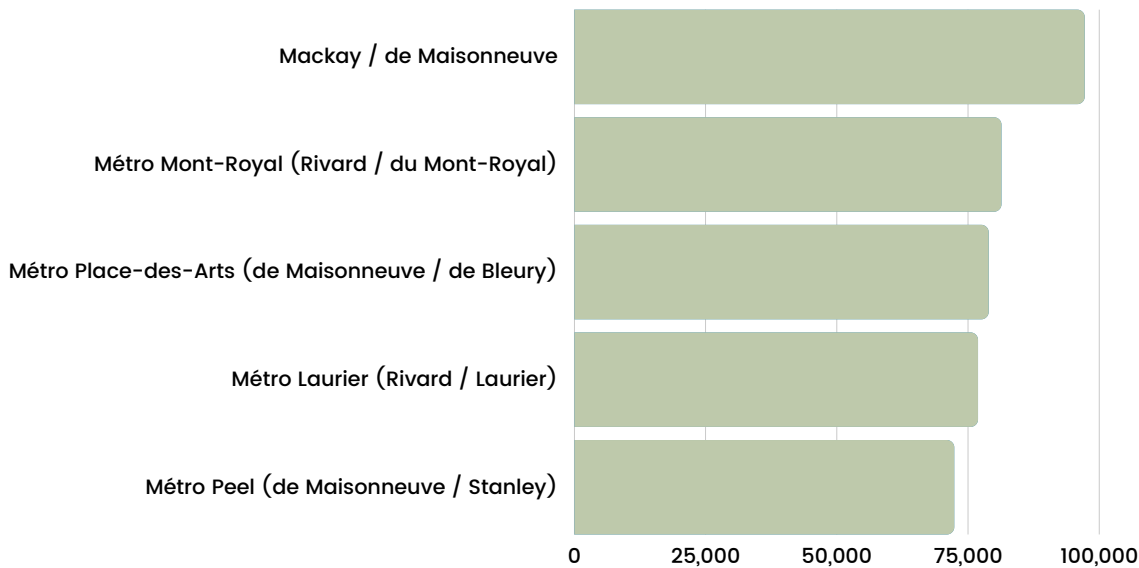| Month	
April	
May	
June	
July	
August	
September	
October	
November	

0   5   10   15   20

Most of the riders in 2017 were members riding in hot summer months

STATION POPULARITY

No. 01 — **5 most popular Starting Stations**

|	
Mackay / de Maisonneuve	
Métro Mont-Royal (Rivard / du Mont-Royal)	
Métro Place-des-Arts (de Maisonneuve / de Bleury)	
Métro Laurier (Rivard / Laurier)	
Métro Peel (de Maisonneuve / Stanley)	

0   25,000   50,000   75,000   100,000

Developer's Note: Using a subquery lead to a much faster execution time. This is because the all the grouping by name and ordering happened on a subset of the data, which is much smaller than the overall dataset. Less data to parse through means faster results!

No. 02 — **Distribution of Starts and Ends for the station Mackay / de Maisonneuve throughout the day from 2016-2017**
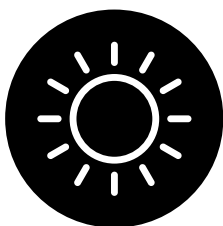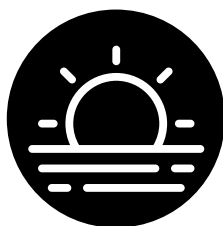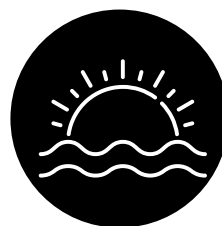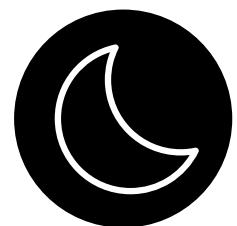
7am-12pm	12pm-4pm	4pm-11pm	11pm-7am
2 072 485	1 014 707	2 867 522	1 014 707

Over the span of 2 years, more people bike in the morning and evening time. This is likely because between the hours of 12-4pm, most individuals are working. In the nighttime, people are usually sleeping.

At the most popular bike station, people have over the years biked more in the morning and afternoon.

SPECIAL STATIONS

Objective	**Output**

Stations with
- **at least 500 trips** originating from them -
- at least **10% of their trips are round trips**.

Highlighting
- the **fraction of round trips to the total number** of starting trips for each station.

name	fraction
Métro Jean-Drapeau	0.3020
Métro Angrignon	0.2331
Berlioz / de l'Île des Soeurs	0.2043
LaSalle / 4e avenue	0.2006
Basile-Routhier / Gouin	0.1932
Parc Plage	0.1846
Gare Canora	0.1792
LaSalle / Sénécal	0.1473
Casino de Montréal	0.1437
Quai de la navette fluviale	0.1376
de la Commune / Place Ja...	0.1106
Jacques-Le Ber / de la Poi...	0.1103
Place du Commerce	0.1082
Collège Édouard-Montpetit	0.1001

After taking the average latitude and longitude of the top 10 stations with the highest fraction of round trips, I would expect to find stations with a high fraction of round trips between an approximate

- ## latitude of 45.5 and
- ## longitude -73.54

Approximate location of stations with a high fraction of round trips in present-day Montreal,

Powered by MI Map Tools: GeoPlotter (mobisoftinfotech.com)
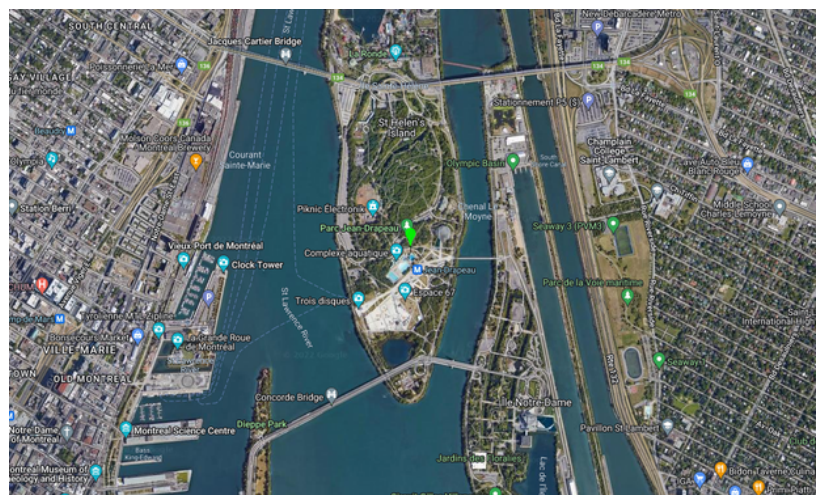
CONCLUSION

The 8+ million users of Bixie's services have emerging patterns in their overall use of the service. It is important to note the analysis has been limited to the years of 2016-2017, during the months when users can enjoy Bixie's services.

Most people using Bixie's services are members, and in 2017 members mostly ride during the summer months.

People use the most popular station (Mackay / de Maisonneuve) most frequently in the morning and the evening.

Stations with at least 500 trips, with at least 10% of them being round trips are likely around a latitude of 45.5 and longitude -73.54. The top station fitting this criteria was was Métro Jean-Drapeau.

Pleased see attached SQL file for more specific assumptions. All photos are Creative Commons or licensed.