

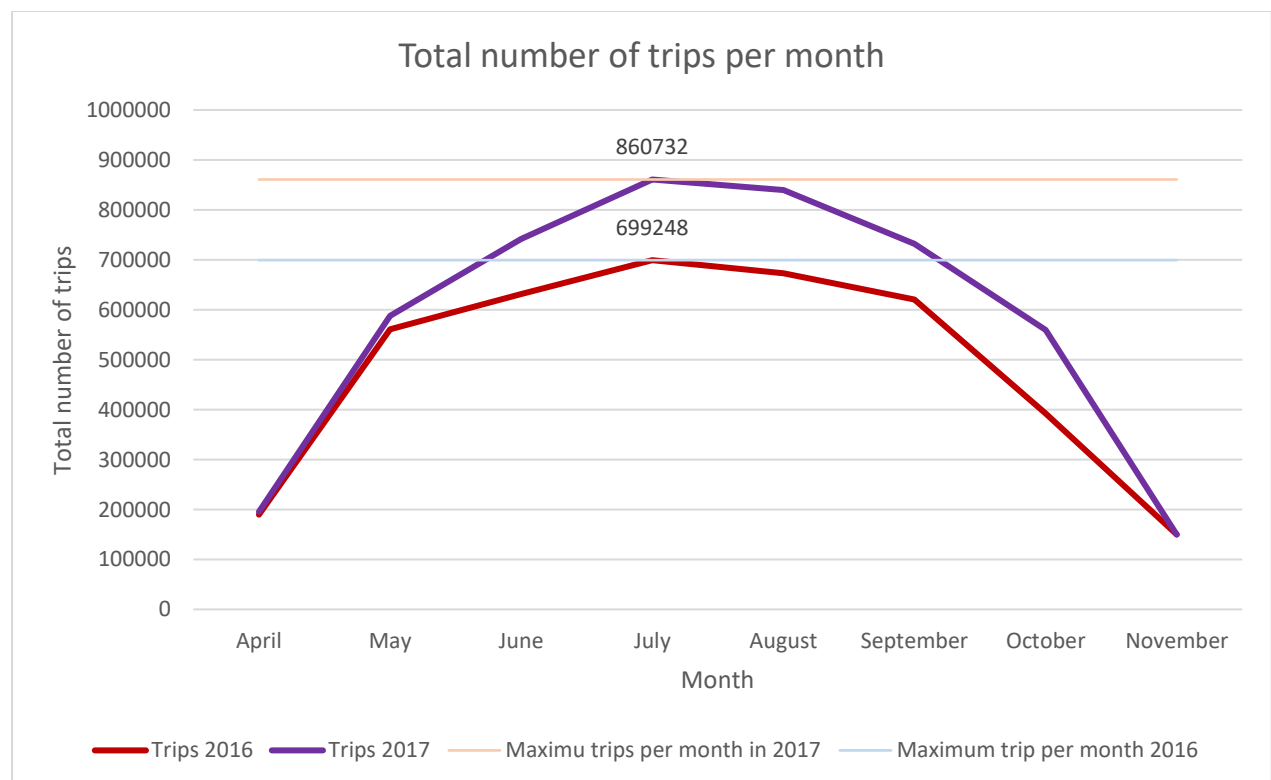
ANALYSYS ON BIXI BIKES: USAGE TRENDS, POPULAR STATIONS, BUSINESS GROWTH

Introduction: The 'Bixi Bikes' is a public bike rental system of Canada that allows you to borrow a bicycle from a station and return it to any other station in the network.

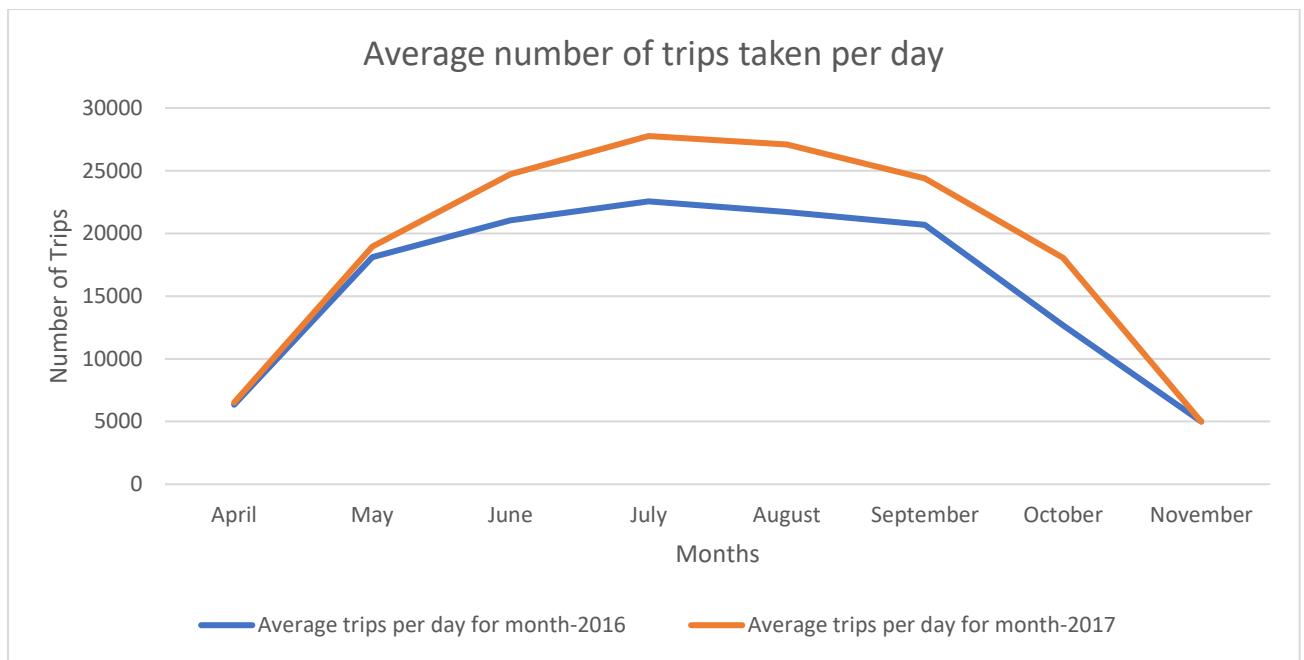
We have been provided with data of Trips taken by members and non-members and the Station's data where Biki bikes service is available for the year 2016 and 2017. We have analysed the data using SQL and will see what are the usage trends, popular stations, business growth for year 2017.

We have a total of **8584166** trip records for the analysis across a total of **540** stations as of year 2017. When we calculated the number of trips taken in year 2016 and 2017, we found that there is an **8% overall increase** in the usage of Bixi bikes in 2017 as compared to 2016 where the total trips taken were 3917401.

When we see how many trips were taken each month, we found that the Bixi bikes are popular in Summers from June to September. The maximum number of trips were recorded for the month of June. No trips were recorded for December to March probably because of extreme winter or snow fall.

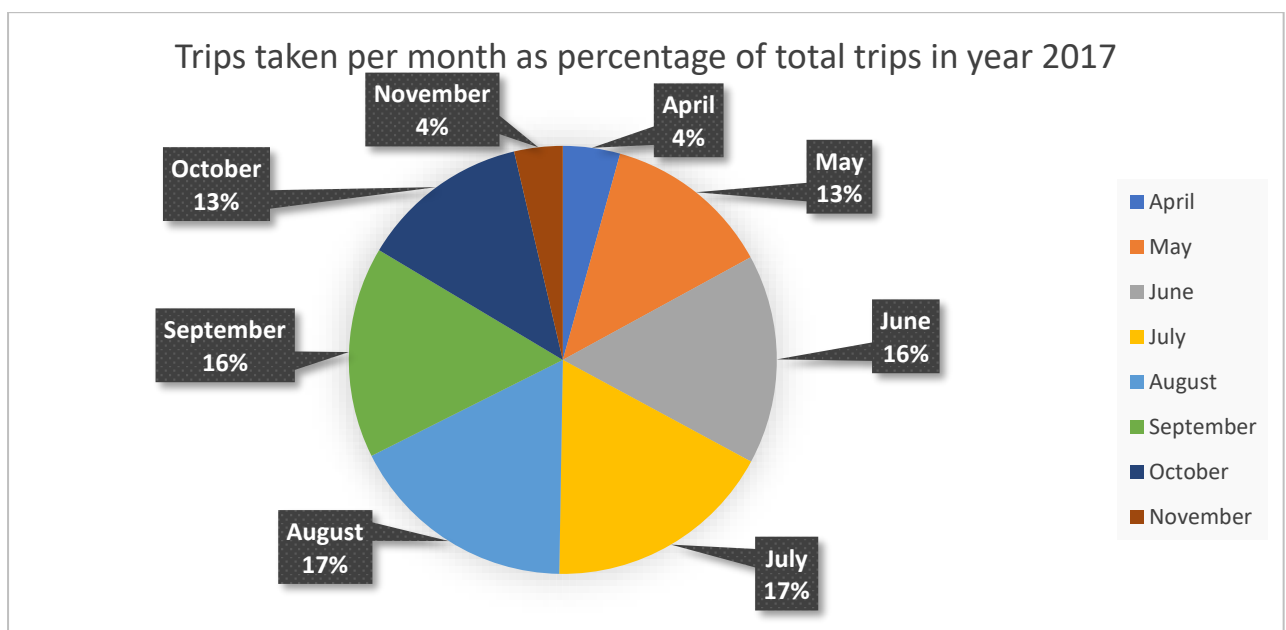


When we try to see the trend of average daily trips per month, the data resembles the same pattern as total trips per month for both years.



Let us see how this trend varies for members and non-members.

In 2017 a total of 3784682 trips were taken by members while 882083 trips were taken by non-members. Members takes maximum trips during the summer months mainly in June, July, August.



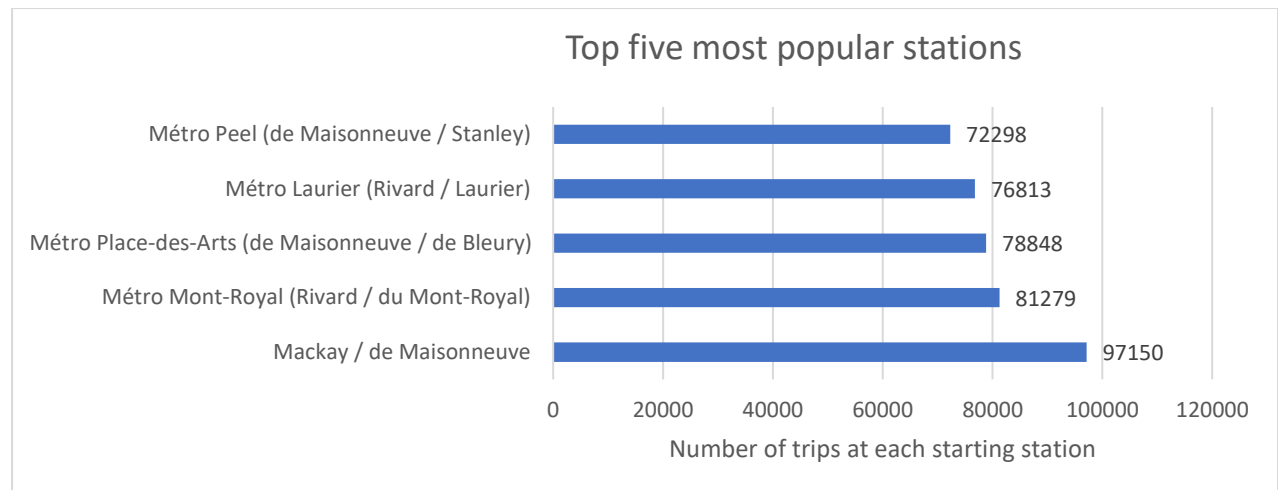
The month of July has recorded the most number of trips both in years 2017 (**860732 trips**) and 2016 (**699248 trips**).

It is obvious that both members and non-members enjoy using bikes in the summer season. If we were to offer promotions to non-members to convert them into members, the best time to offer promotions would be:

The months before the summer season i.e., May and April because for both months the usage of bikes is less (for both members and non-members). If we could offer special membership discounts during these months, we can attract a good number before the summer and could maintain the bikes inventory for the peak season.

Let us see, which is the most popular starting station?

The most popular starting station is Mackay/ de Maisonneuve with 97150 starting trips.

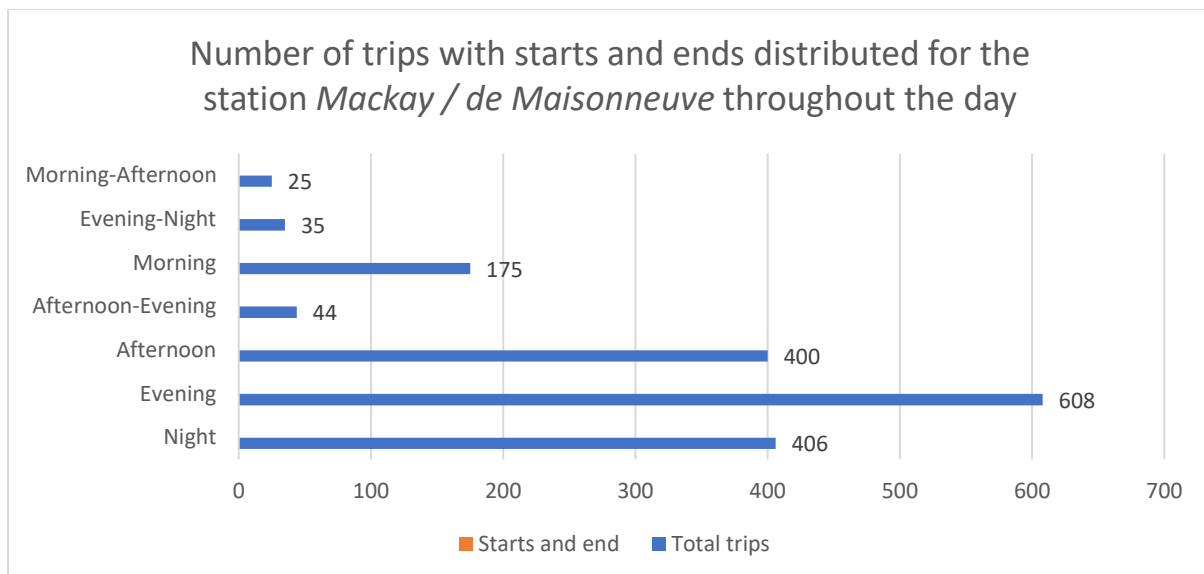


If we were to consider location to attract non-members to become members, we can offer membership discounts:

- **In the peak season for less popular locations** like CHSLD Éloria-Lepage (de la Pépinière / de Marseille), CHSLD Benjamin-Victor-Rousselot (Dickson / Sherbrooke), Place Longueuil, Nazareth / William, CHSLD St-Michel (Jarry / 8e avenue).
- **In off season for most popular locations** like 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).

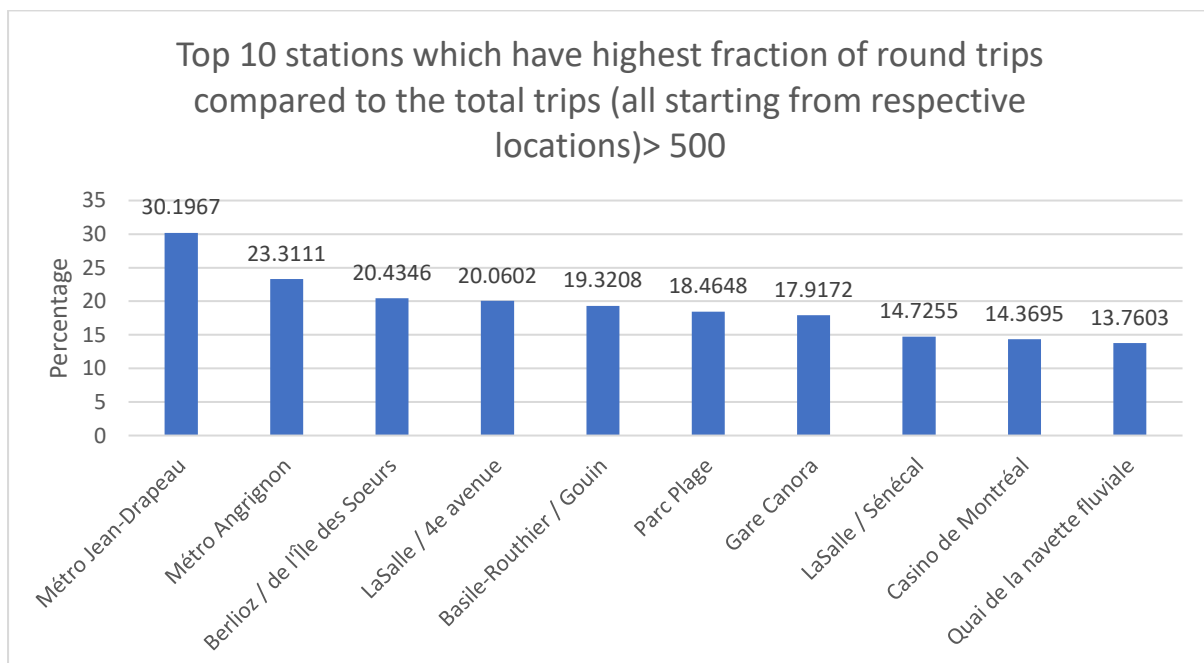
Let us see how the starts and ends is distributed for the station Mackay / de Maisonneuve throughout the day. We are considering morning, afternoon, evening and night between following times to query our data.

- 7AM to 12AM – Morning
- 12PM to 5PM – Afternoon
- 5PM to 10PM – Evening
- 10PM-7PM – Night



Upon looking the location of Mackay/ de Maisonneuve online on google we found that it is in downtown Montreal and perhaps that is the reason that it is most popular. It being situated in the downtown is the reason that this station is in close vicinity to restaurants, shopping areas and would be busy during **afternoon, evening, and night** therefore people taking more round trips during this time.

When we tried to see which stations has at least 10% of trips as round trips, **we found that Métro Jean-Drapeau has highest fraction i.e., 30.2% (8658) round trips of all the trips (28672) emerging from this station.**



In the above graph we can see the list of top 10 stations with maximum percentage of round trips and upon checking these stations online we find these stations are primarily falling under the below categories:

1. **Metro stations** i.e., Métro Jean-Drapeau and Métro Angrignon,
2. **Bus station** i.e., Berlioz / de l'Île des Soeurs,
3. **Train station** i.e., (Gare Canora),
4. **Visitor centre** (Basile-Routhier / Gouin), or
5. **Tourist attraction** i.e., Beach (Parc Plage) and Casino (Casino de Montreal).

People prefer these stations as they are associated with means of public transportation where people can reach from different locations pick up bikes and drop off to same stations to go back to their respective destinations. Tourists prefer to use Bixi bikes to explore the nearby area and return back to same station.

We covered the usage of Bixi bikes on yearly, monthly, and daily basis. We also observed which are popular starting stations and round-trip stations. There are lots of prospects of business growth in year 2018 if we can focus on converting non-members to members, and can attract people in off season or in less popular locations by organising events or by offering promotions.