

BIXI Project Overview

BIXI is an organization in the city of Montreal that manages bike-sharing system all over Montreal. The BIXI name comes from the contraction of the words 'bicycle' and 'taxi'. BIXI established an environmentally friendly system that people can get a bicycle from one station and drop it in other stations. The stations are spread all over the city of Montreal. We have a cleaned version of data with 540 stations and 8584166 trips. In this challenge we want to gain a high-level understanding of the data, find the factors that influence the usage volume, popular stations, and overall business growth.

Analytical Process

In this dataset we can see that only 8 months are evaluated. It can be seen that we do not have data for January, February, March and December. That is because of the cold weather of Montreal and people are unable to ride a bike in that weather conditions. The total number of trips had a growth of 16 % in 2017 compared to 2016 and if we look at the number of trips broken down by month, we will notice that in warmer seasons, people are more likely to use BIXI bikes, especially on summers. People have an average of 27K trips per day in peak summer months of 2017.

Membership is a decisive factor in our dataset and 76% of the total trips were taken by members in 2017 and members have taken 50% of the trips on summer. On summer, especially on July the 7th month of the year the demand for BIXI bikes is at its peak.

Mackay, Metro Mont-Royal, Metro Place-des-Arts, Metro Laurier, and Metro Peel are the top 5 stations that people started their trips from. Mackay / de Maisonneuve station is our top starting station and is one of the busiest places and streets in Montreal. The Montreal Museum of Fine Arts, Concordia

University, Hall Building Auditorium and many popular buildings and offices are located here.

In the dataset we can see that the number of starting trips from Mackay in the mornings are relatively low comparing to ending trips. It is expected because people are traveling all over the city to Mackay, so low starting trips and high ending trips is reasonable in Mackay. In the evenings and at nights the number of starting trips from here are more than ending trips. The reason is because people are going back to their places and homes from Mackay station. In the afternoons the number of starting trips and ending trips are the same because people maybe go for lunch or commute near that neighborhood for meetings and then return back to their works.

While comparing total numbers, the number of both starting and ending trips in evenings and afternoons are higher than mornings and nights. It is maybe because of the weather conditions. evenings and afternoons have warmer weather than nights and early mornings, especially in a city like Montreal with cold weather. Another reason is that evenings and afternoons are rush hours and people commute more, especially in a busy place like Mackay.

Metro Jean-Drapeau, Metro Angrignon, Berlioz, LaSalle and Basile-Routhier are top 5 stations with highest fraction of round trips to starting trips. This means that the number of round trips in these stations are more than any other stations in Montreal. The reason they have so many round trips is because they are all subway stations. With having this in mind, it can be imagined that people get out of the station, ride BIXI bikes to their destination (their workplace for example), ride back from the destination to the train station, and then go back to their homes by the train again.

So, main Metro stations have the highest number of round trips because so many people are using BIXI bikes for round trips starting from train stations for short distances, and then they get back to train stations to use trains for traveling long distances.

Final Business Recommendation

For overall business growth I would like to offer a promotion to non-members on the 4th and 5th months of the year (April and May). Since on July the 7th month of the year the demand for BIXI bikes is at its peak, it is a good opportunity to encourage people to use BIXI bikes on 4th and 5th months of the year when the weather is going to get warm, knowing that because of the cold weather, they did not have the opportunity to ride a bike for almost half a year. After that promotion, the company should try to convert them to members before the peak season on July and August (7th and 8th month of the year).

The promotion can be a three partial discounts in one week (for example 20%, 15% and 10%) for their first three rides in one week, and after that winning a free ride if they become a member.

This type of promotion would increase the total number of users at the beginning of the season when the demand on riding BIXI bikes is low. In this way, people are encouraged to try BIXI bikes and after that, with promoting one free ride, they are more likely to become a member before seasonal peak.