2023

Data Analysis

Bixie Insights

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Visualization in Tableau

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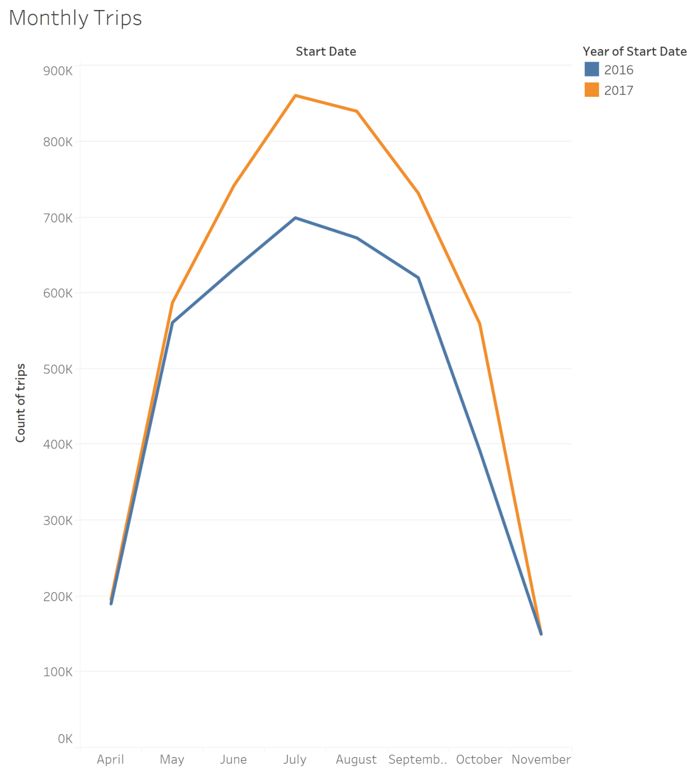
Introduction

Bixie is a non-profit that provides bike-sharing services. Many stations are spread across Montreal, Canada.

This report aims to uncover vital insights for the business intelligence, marketing and finance departments of Bixie. Visualizations aim to help key players at Bixie understand the users and their behavior.

The report is divided into insights required by the business intelligence manager, marketing team and Director of Finance. A specially curated dashboard for the operations team supplements this report.

Business Intelligence



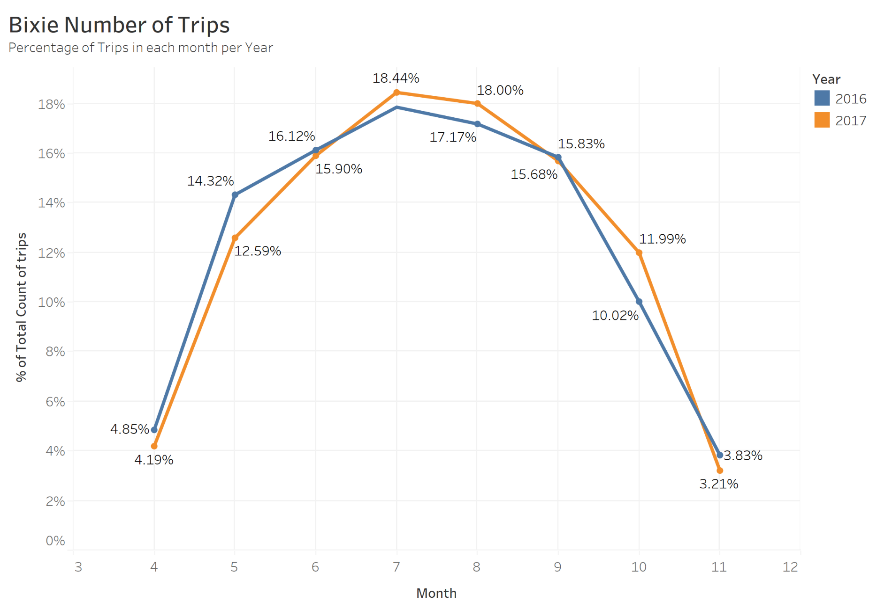
The trend of count of trips for Start Date Month. Color shows details about Start Date Year.

2017 was more successful than 2016, especially in the summer months

2017 had more trips by month, especially in the summer months of June, July and August

In April and May, the number of trips in 2017 and 2016 were almost the same

In both years, ridership peaked in July with a sharper decline in October and November



The trend of % of Total Count of trips for Month. Color shows details about Year. The marks are labeled by % of Total Count of trips.

In early months of biking season, 2016 had a greater percentage of bikers compared to 2017

In 2017, there is a lower percentage of riders in April, May, June and September compared to 2016

The monthly distribution for percentage of trips is relatively similar in both years - following a distribution of more riderships in summer months and less in spring and fall

Members ride more in the summer and less in the fall and spring (2017)

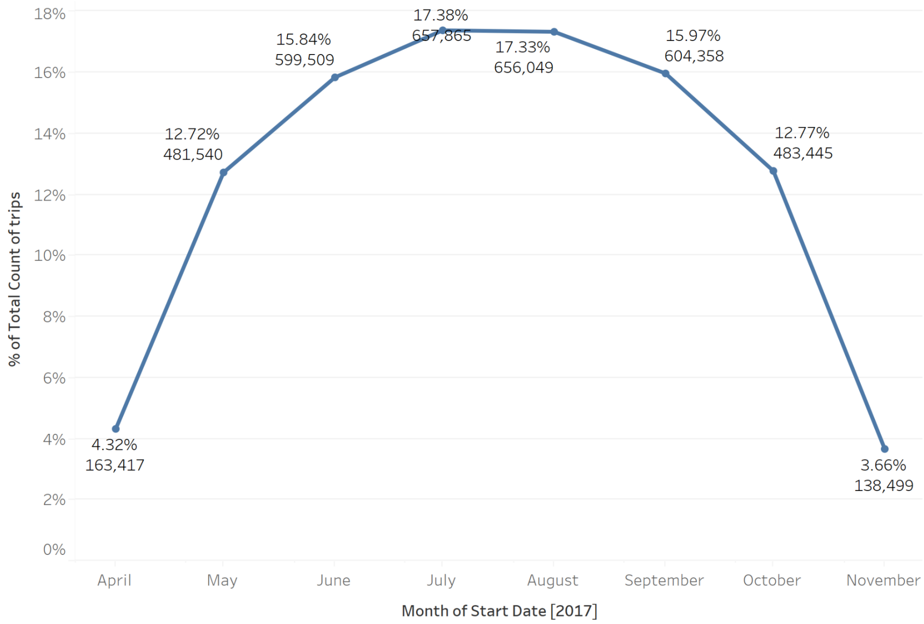
Members rode more in the middle of the biking season, and the least in April and November

The percentage of member riders were almost the same in July and August

After August, there is a decline of ridership in the colder fall months

Trips by Member in 2017

Percentage of Trips by member per month in 2017

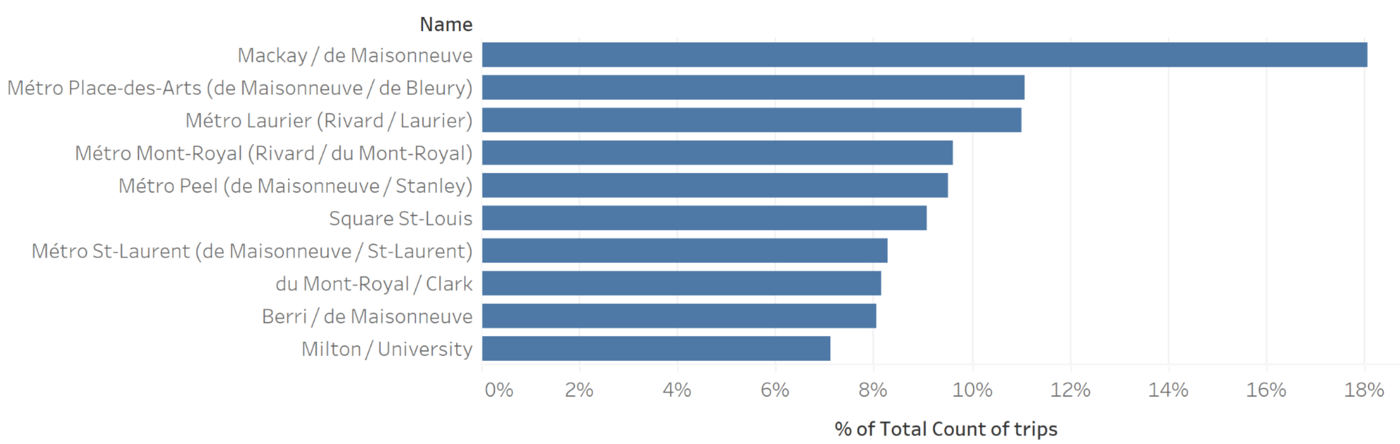


The trend of % of Total Count of trips for Start Date Month. The marks are labeled by Calculation2 and count of trips. The data is filtered on Start Date Year and Is Member. The Start Date Year filter keeps 2017. The Is Member filter ranges from 1 to 1.

Bikers took the most round trips via the Mackay / de Mainsonneuve Stations

Top 10 Stations by Round Trips

Top 10 Stations by Percentage of round trips

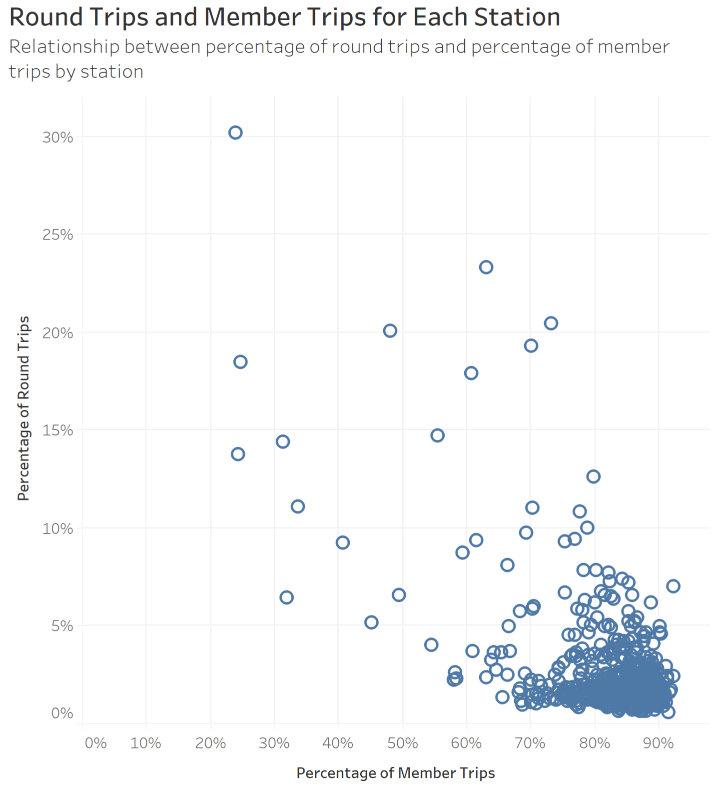


% of Total Count of trips for each Name. The data is filtered on Round Trips, which keeps 1. The view is filtered on Name, which has multiple members selected.

Mackay / de Maisonneueve stations overtakes other popular stations by over 6% for total round trips

The second most popular station by number of round trips is Métro Place-des-Arts (de Maisonneuve / de Bleury)

Marketing Team



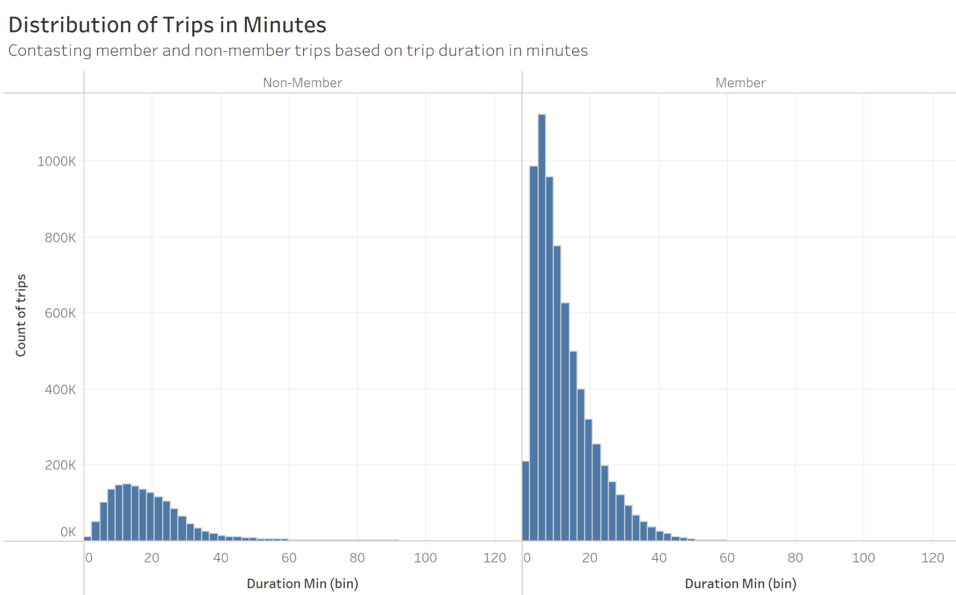
MemberTripsPercent vs. RoundTripsPercent. Details are shown for Name.

Many trips made by members are not round trips

Most round trips are made by members

Stations that are mostly visited by members usually have a lower percentage of round trips

For many stations with greater than 70% of member trips, the percentage of round trips is low (often lower than 10%)



The plot of count of trips for Duration Min (bin) broken down by Is Member.

Non-members tend to take longer trips

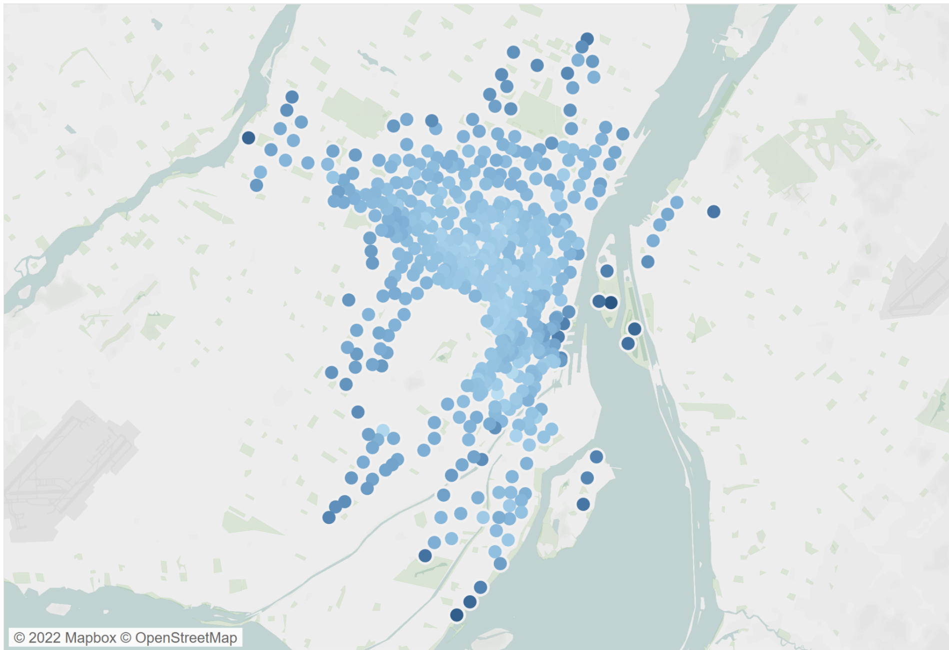
Members take more trips than non-members

Non-Members have a slightly more dispersed distribution in terms of ride duration, whereas members mostly go on trips of shorter durations

Stations at the outskirts have users who take longer trips

Trip Duration for stations across Montreal

Average trip duration pers station across the city



Map based on Longitude and Latitude. Color shows average of Duration Min.

Average Duration in Mi..

8.31 31.65

The average duration of trips increases with stations on the perimeter of where most stations are clustered in the city

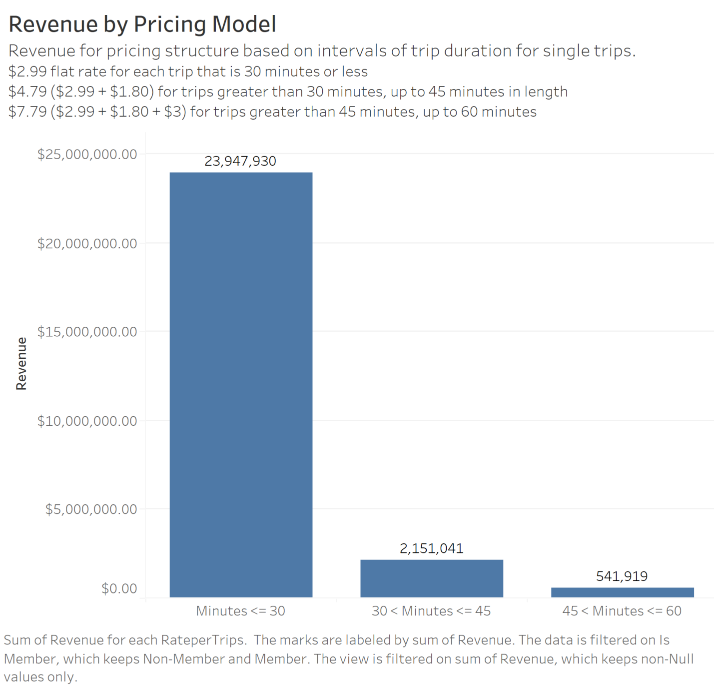
Stations along the river have a greater average trip duration whereas stations in more central areas have a lower trip durations

Director of Finance

Pricing Model for a Single Trip*

- $2.99 flat rate for each trip that is 30 minutes or less
- $4.79 ($2.99 + $1.80) for trips greater than 30 minutes, up to 45 minutes in length
- $7.79 ($2.99 + $1.80 + $3) for trips greater than 45 minutes, up to 60 minutes

*assuming non-members make the single trips

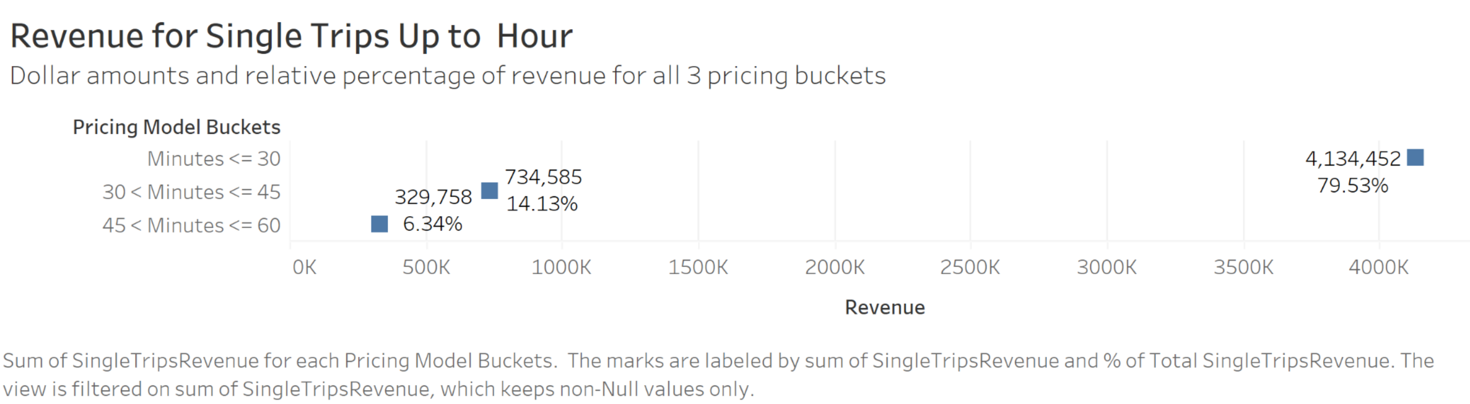


Trips less than 30 minutes long gave the most revenue

Trips more than 45 minutes up to 60 minutes provided the least revenue - less than $6000

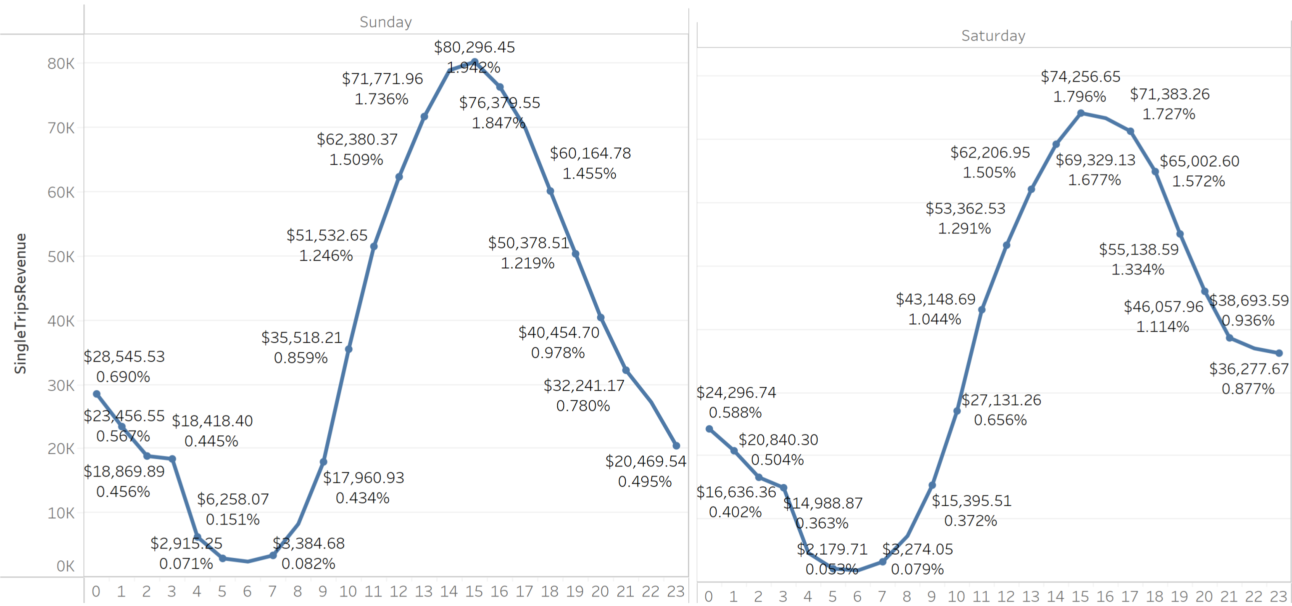
The revenue for trips less than 30 minutes is over $20 000 more fruitful than any other bucket of time in the pricing model

Trips more than 30 minutes make up less than 25% of revenue

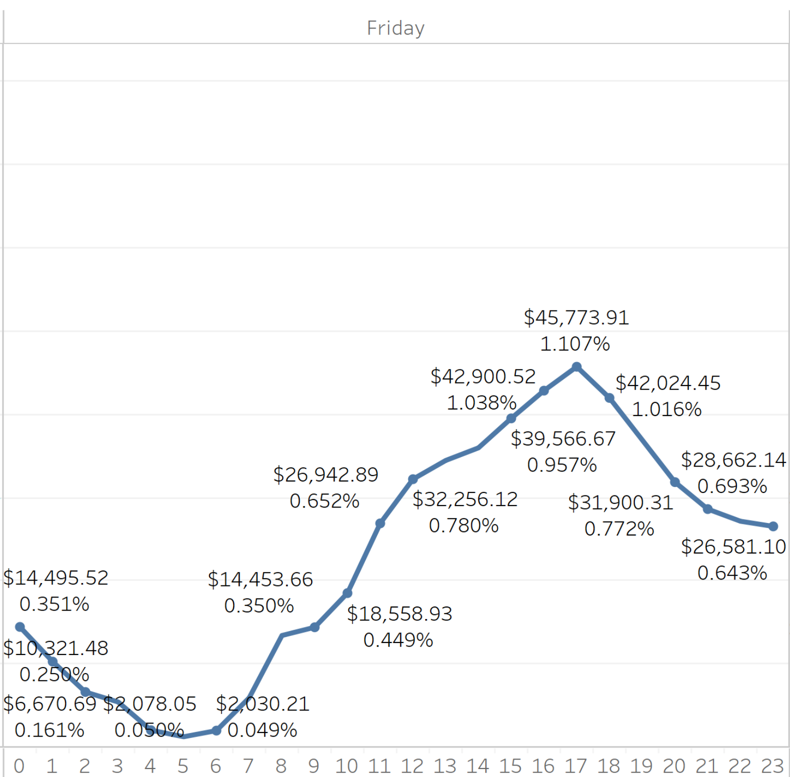


Nearly 80% of all revenue comes from trips that are less than 30 minutes

Most revenue is generated on weekends afternoons



On Sunday and Saturday, most revenue is generated at 3pm and then declines



On weekdays, the maximum revenue generated is on Fridays, and that too an amount at least $25,000 + lower than the peak revenue generated on weekends.

Conclusions

Business Intelligence

- More people ride bikes in the summer
- Bixie was more successful in 2017
- In 2017, Bixie digressed in having a greater percentage of users in early months (April, May and June)

Marketing Team

- Stations with more member trips have lesser round trips
- Members take more trips than non-members
- Non-members take longer trips
- Stations in the outskirts of the city/along rivers have longer trip durations

Director of Finance

- With the given pricing models, trips less than 30 minutes in length provide the most revenue by a vast amount
- Most revenue is generated on weekend afternoons

<u>Notes and Limitations:</u>

- Any mentioned dates refer to the start date of trips
- Data is provided in the months of April to November in 2016-2017 only