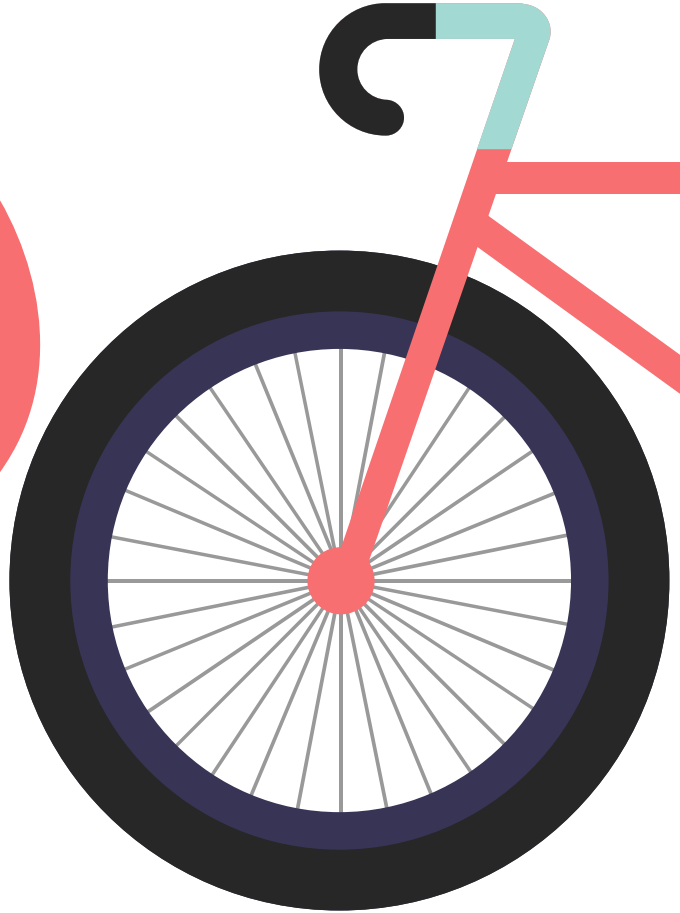
Capital Bike Share
Data Analysis

Project By
Arunraj



01

INTRODUCTION

- Capital Bike Share
- Dataset

02

Data Analysis

- Exploratory Data Analysis
- KPI Insights

03

Model Implementation

- Machine Learning Model
- Flask App

04

CONCLUSIONS

- Findings
- Future enhancements

01

INTRODUCTION

- Capital Bike Share
- Project Objectives

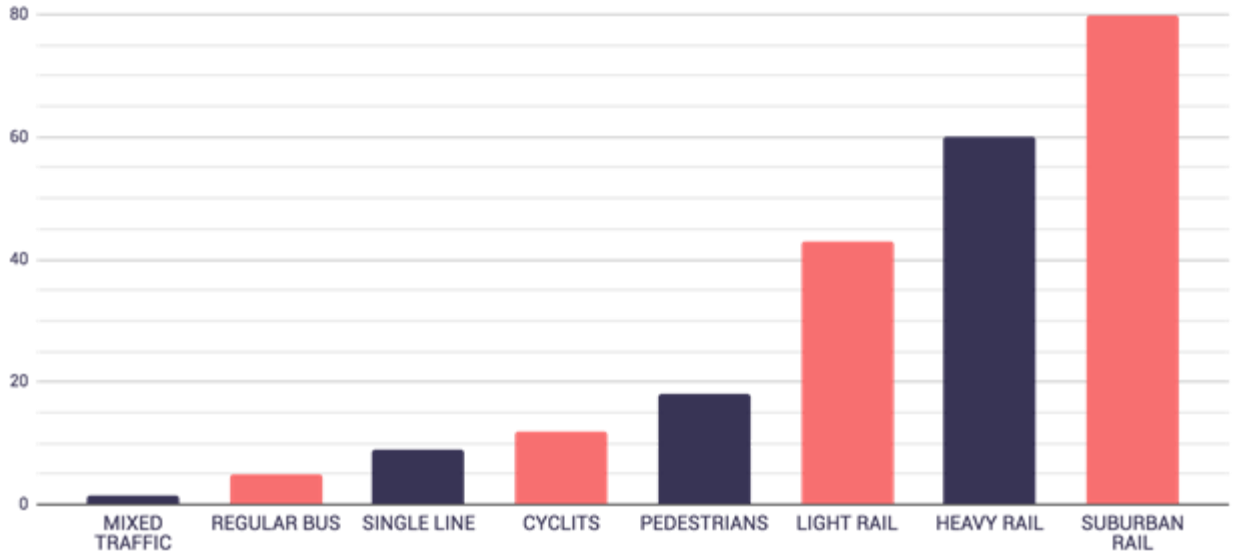
Capital Bike Share

Capital Bikeshare is metro DC's bikeshare system, with more than 4,300 bikes available at 500 stations across six jurisdictions around Washington, DC in USA.Capital Bikeshare provides residents and visitors with a convenient, fun and affordable transportation option for getting from Point A to Point B.

- We are using the recorded data of the bike trips which were used in Capital Bike share website.
- The objective of this project is to determine the peak hours, days, months in which bikes are mostly occupied by the subscribers / customers during Covid Situation.
- We have chosen this project as it provides insights into the factors which affects the bike sharing on the basis of weather conditions, days or locations. We can use this analysis to predict future consumption of these bikes.

PASSENGER CAPACITY

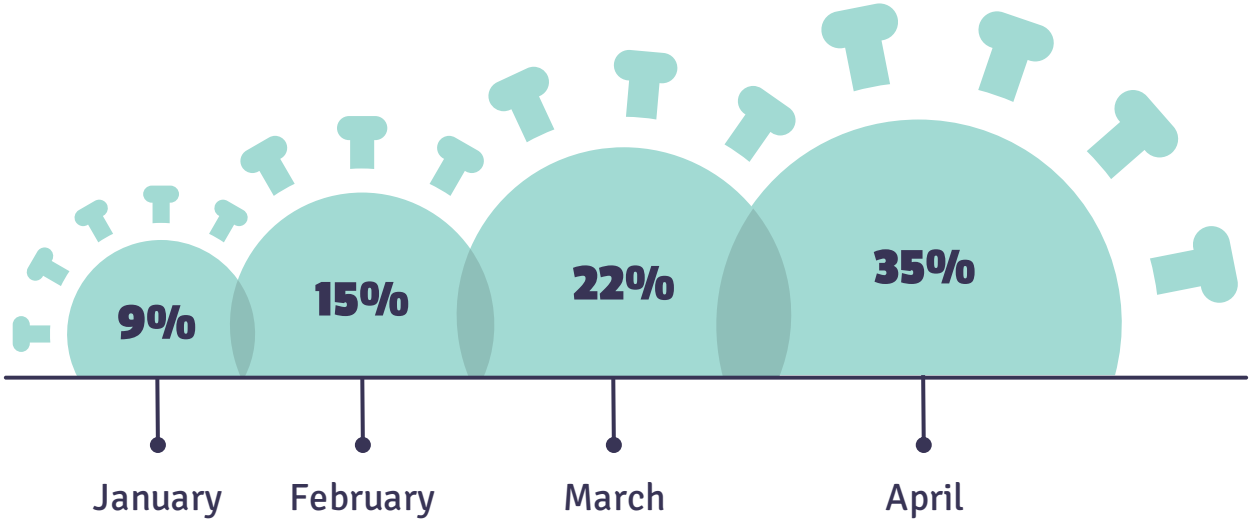
Different Transport Modes



Washington DC,USA – Passenger information – 2019 (Millions)

CORONAVIRUS GROWTH

In Public Transport effect during 2020



Dataset

The dataset publically shared on the Capital bike share website

We have used 2020 year data from Capital bike share website

We have used the weather data of washington D.C from the website www.freemeteo.de

Dataset Features Considered

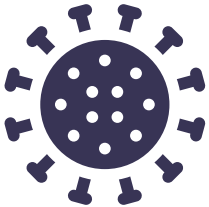
- Date – date of the trip
- Time – Time of the trip
- Station Number
- Station Name – Location Name
- Member Type – user type(Registered/Casual)
- Count – Number of Ride Count
- Temperature
- Capacity – Station Dock Capacity

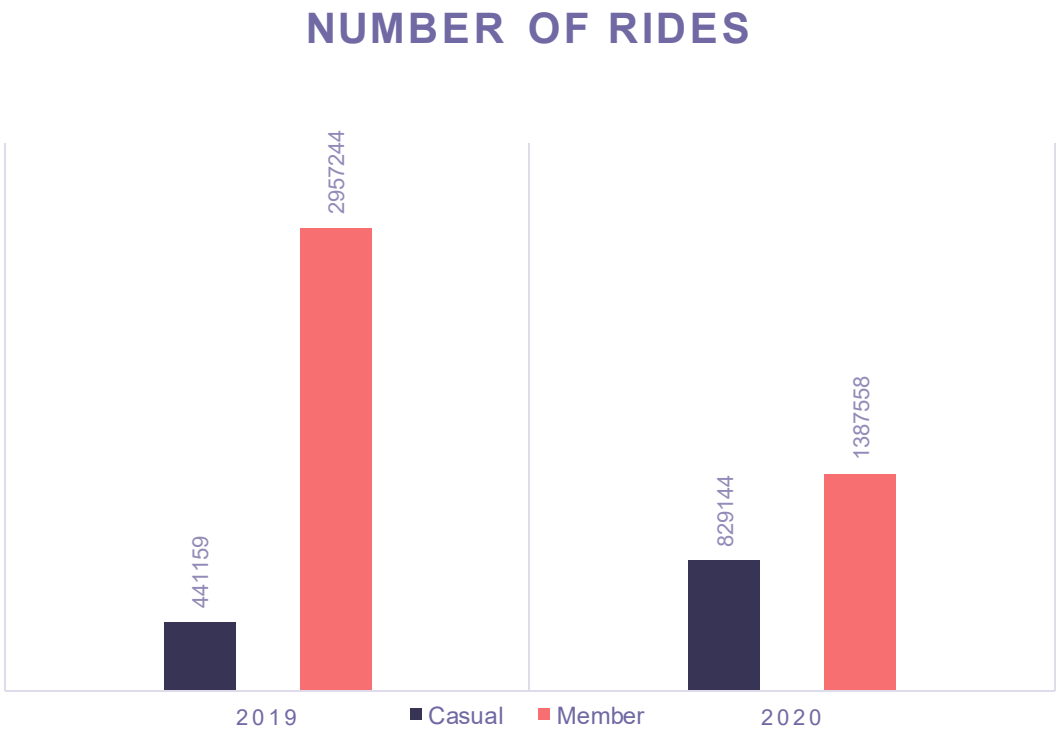
02

Data Analysis

Exploratory Data Analysis
Analysis Findings

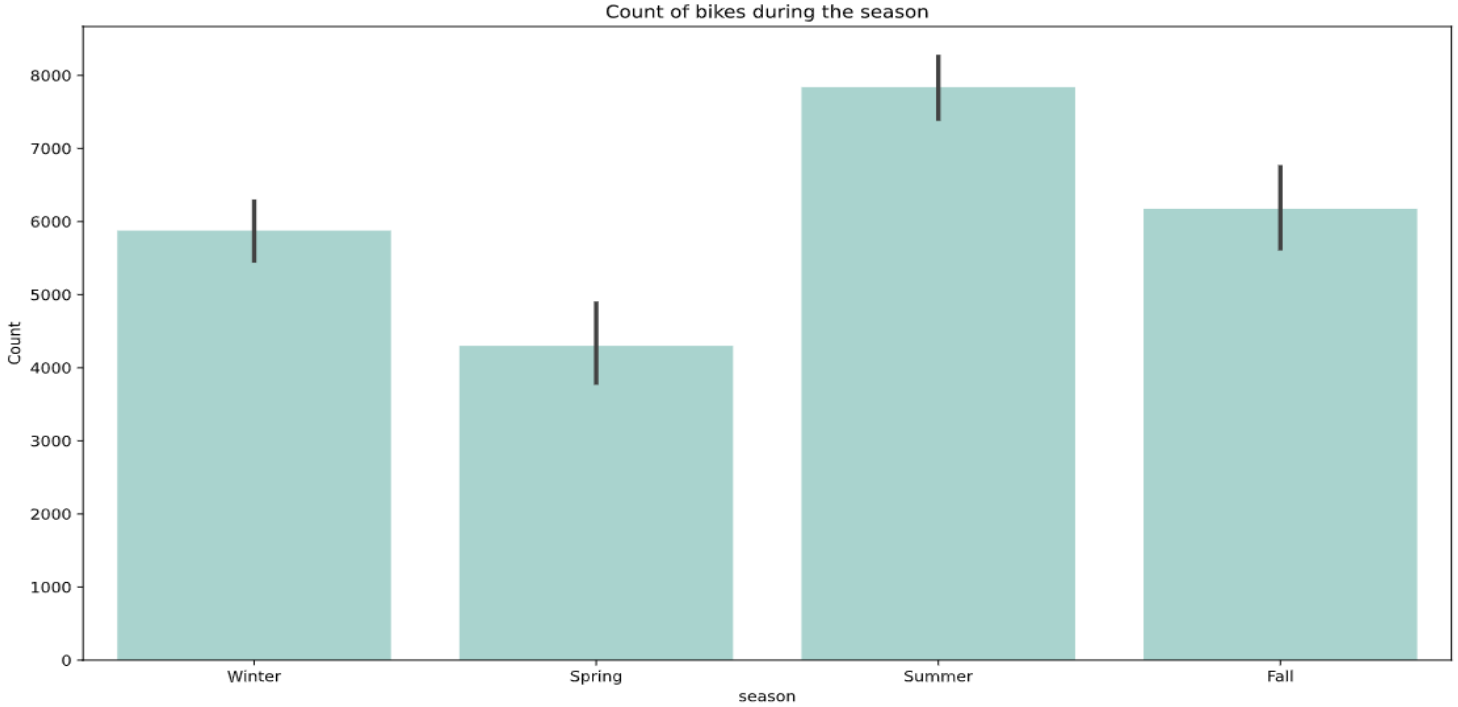
Covid impact on users





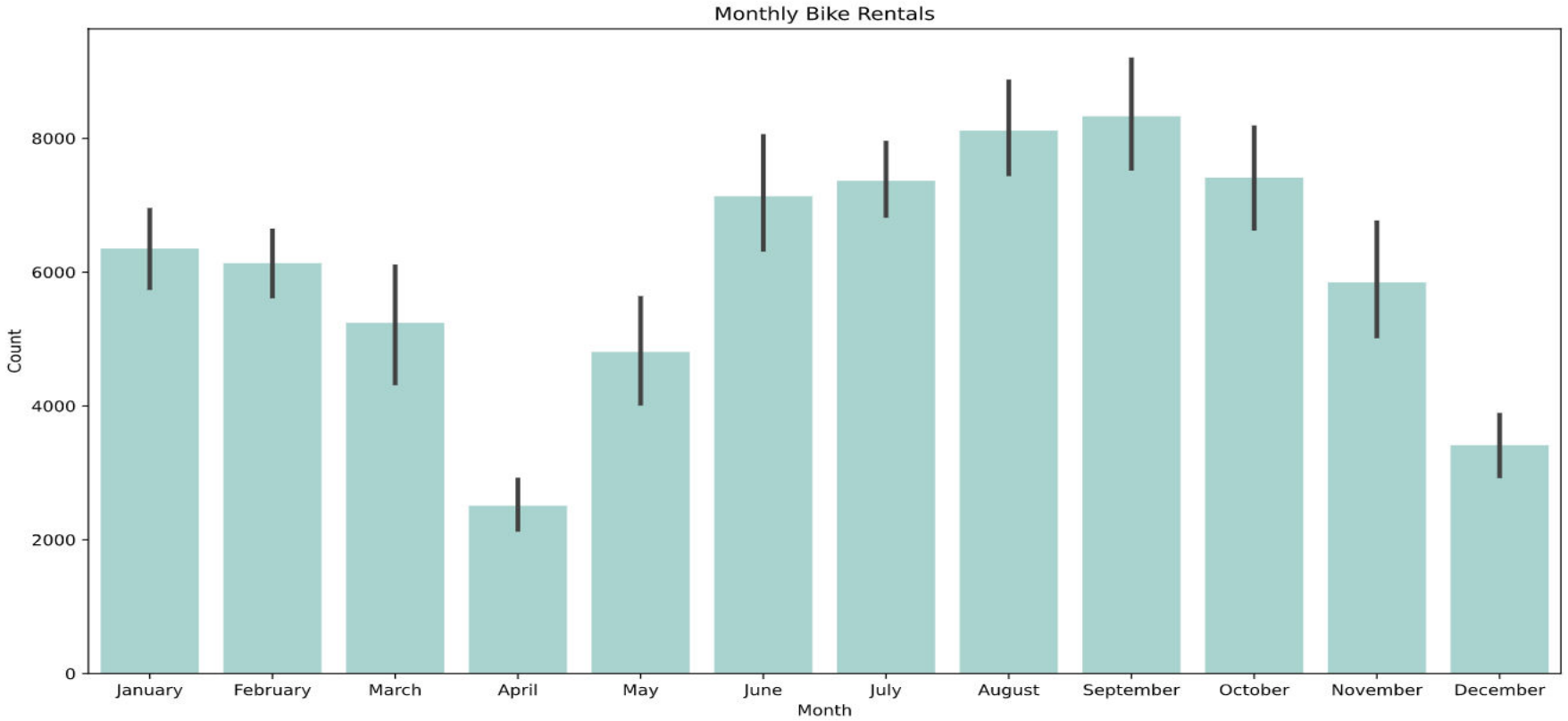
Bike Share Rentals

Season wise Bike share rentals during covid - 2020



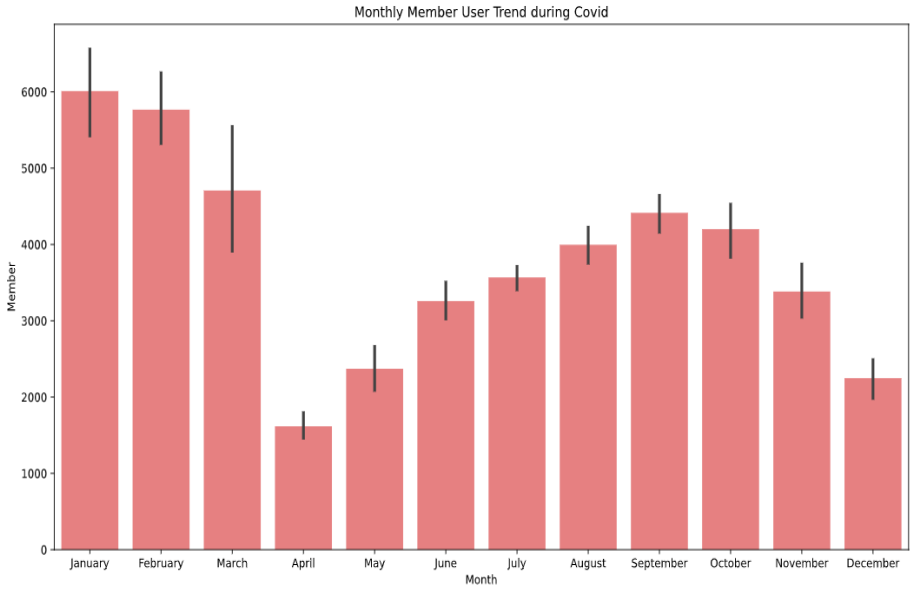
Monthly Bike share rentals

During Covid - 2020

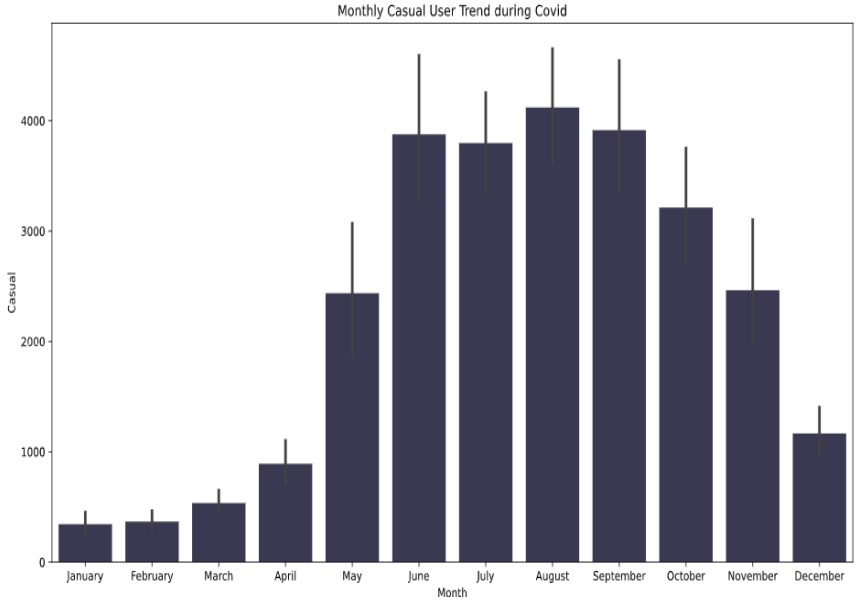


Bike Share User Usage during Covid

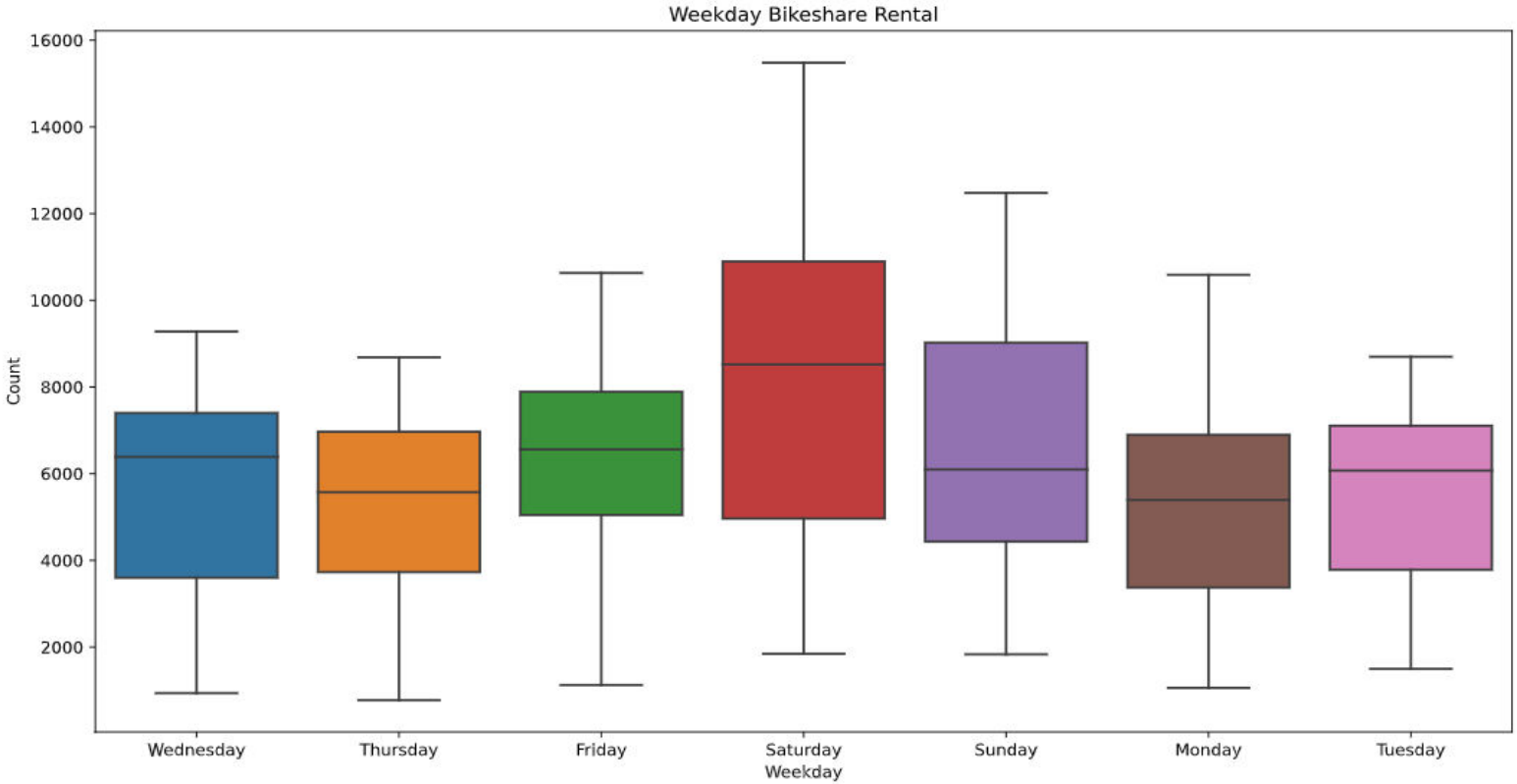
Registered Member



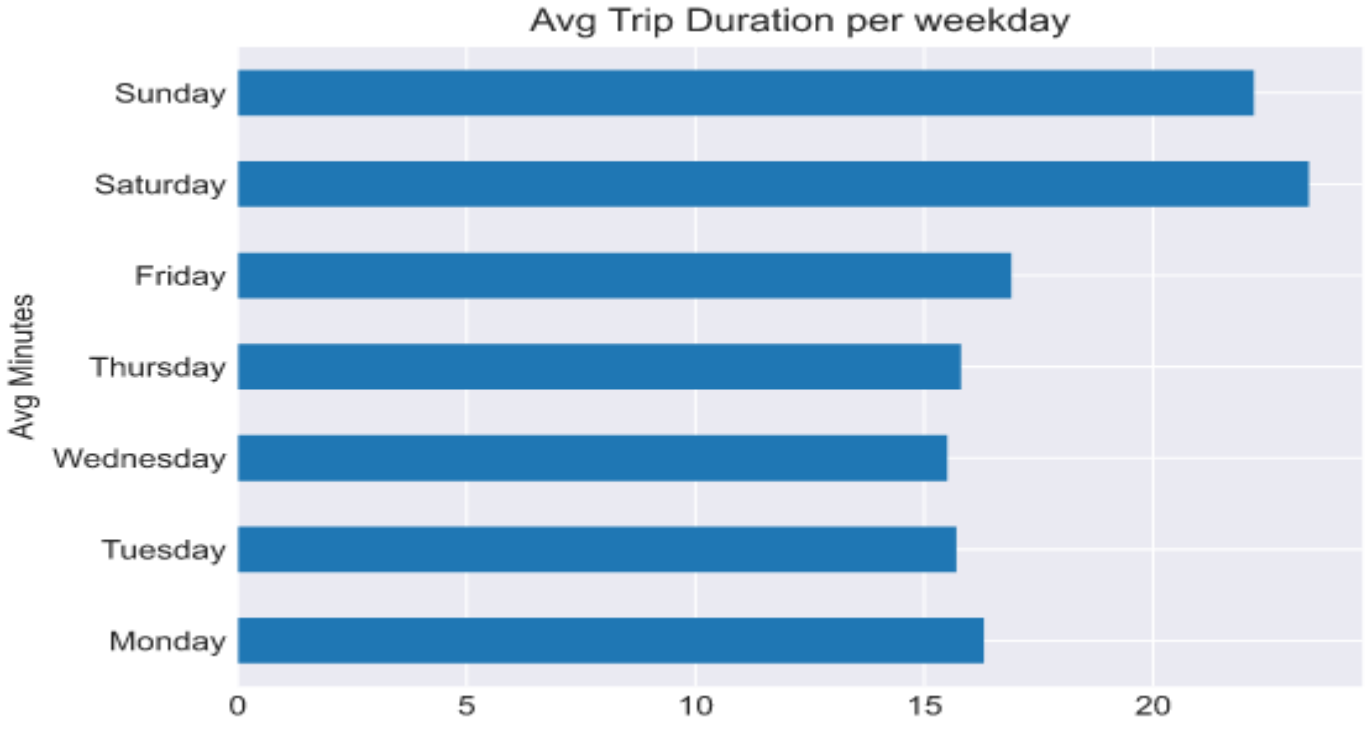
Casual Member



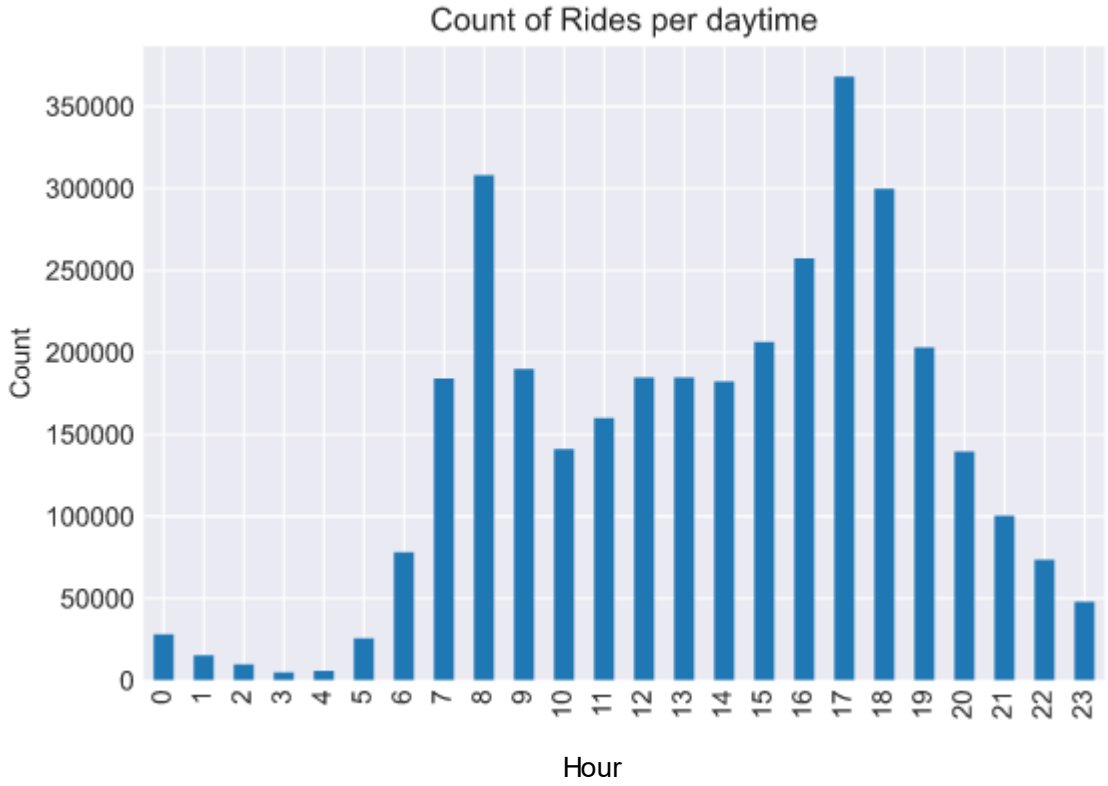
Weekday Bike Share Rentals During Covid-2020



Average Trip Duration on Weekdays

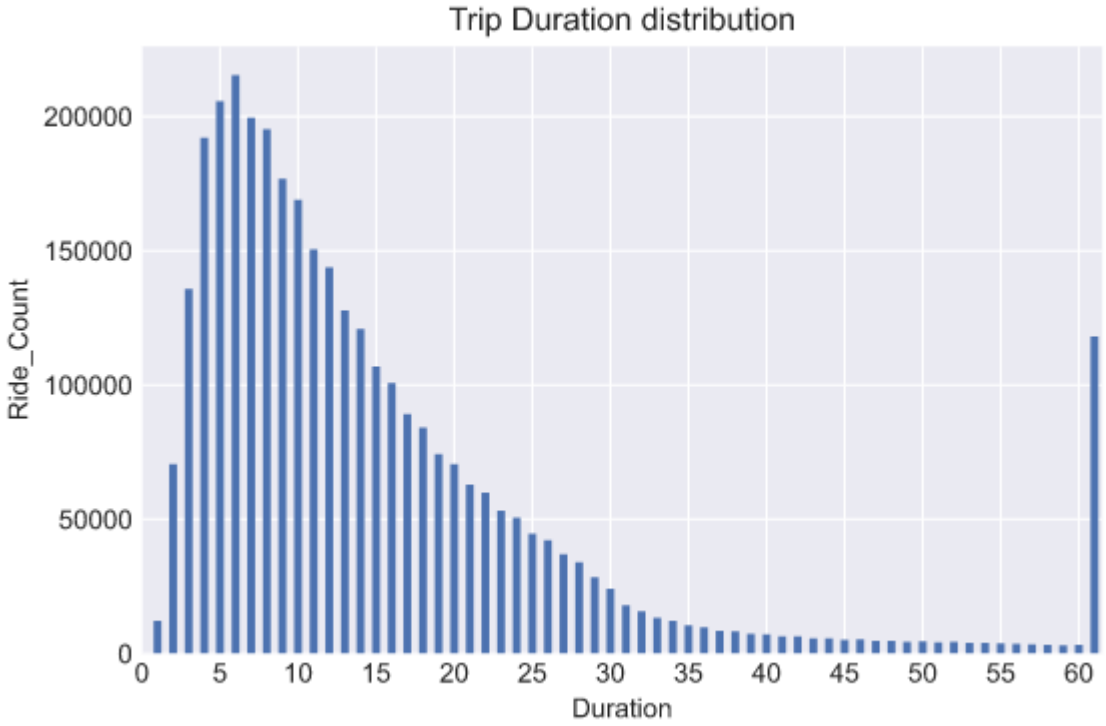


Peek hours



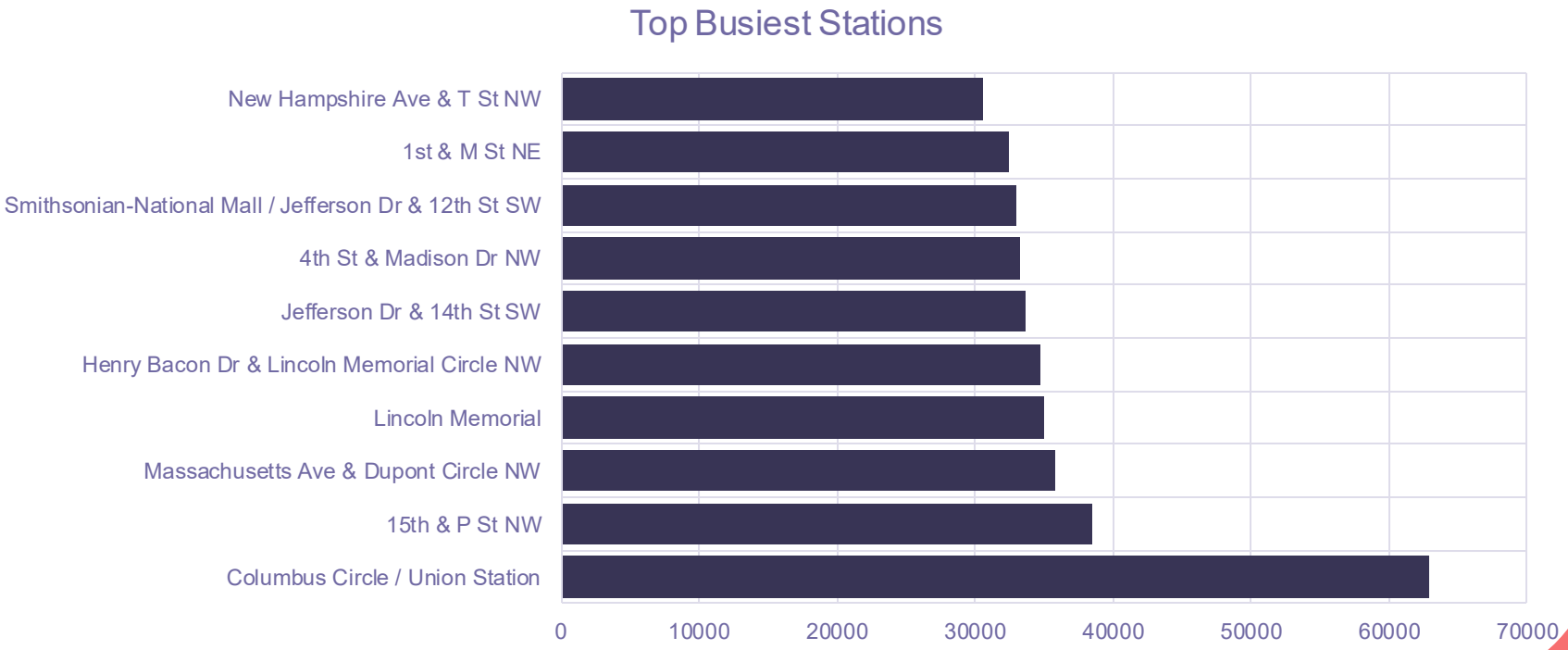
- The Busiest time which is 8:00AM in the morning and 5:00PM in the evening
- Least bike rental is done at 12:00 AM to 5:00PM

Trip Duration of Rides

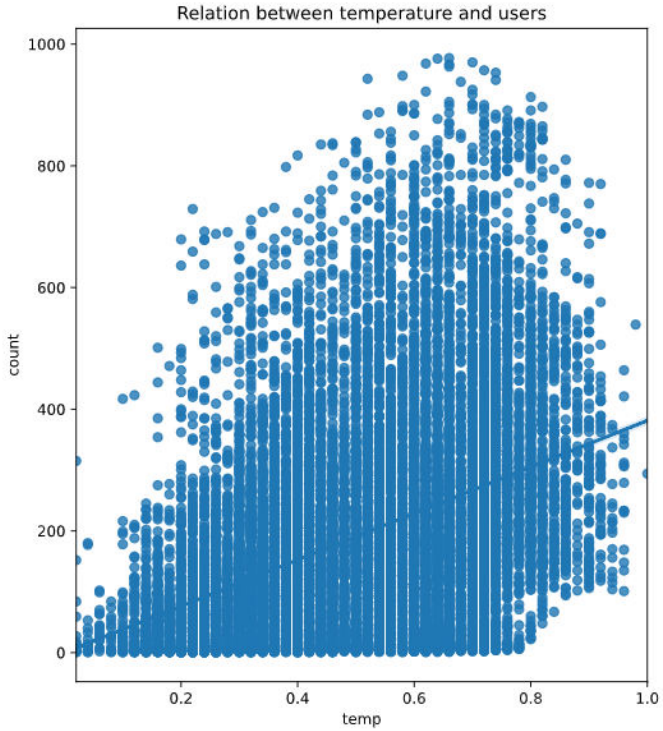


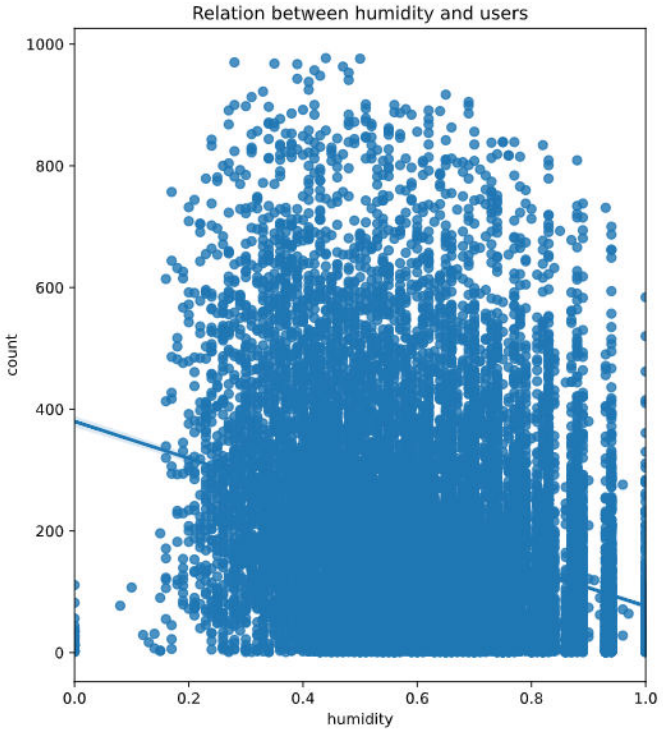
- Average duration of bike trip is around 10 minutes

Top Busiest Stations



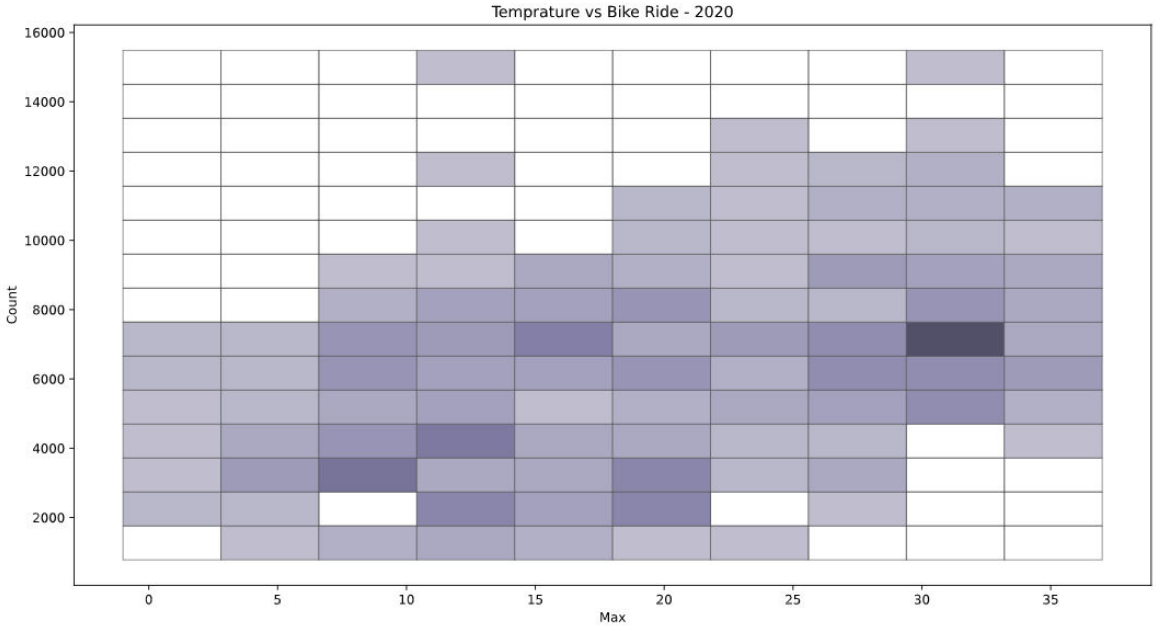
Relationshiop Users and Temperature and Humidity





Temprature vs Bike Share Counts

- Temprature plays a important role on riding the bike .
- Most Trips are recorded when temprature is between 20 – 30C



03

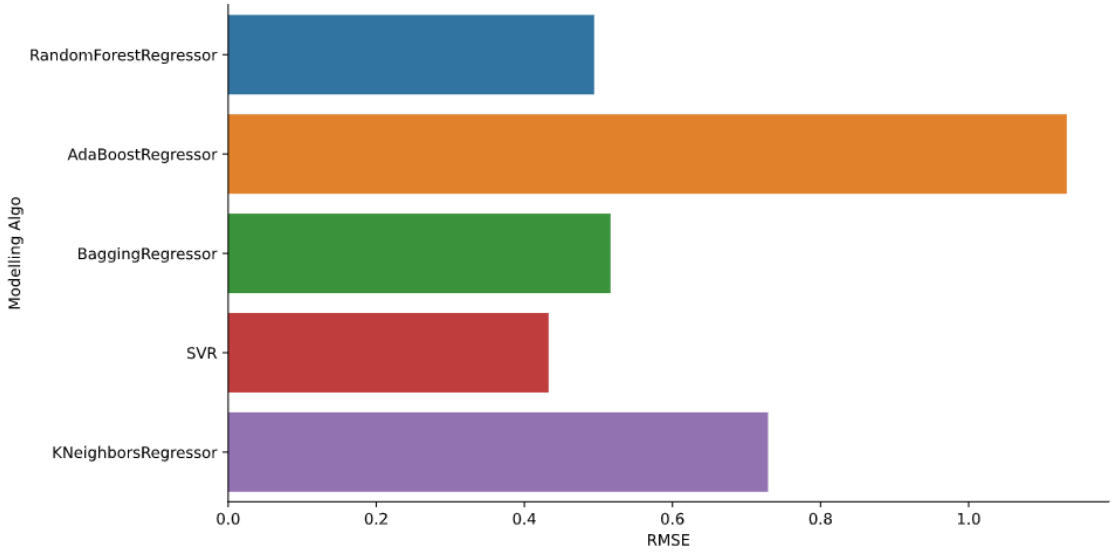
Machine Learning Model

Machine Learning Model Implementation

Train Dataset

We have Taken trained dataset of 2020 based on the features Temrature,Humidity and ride count data

Machine Learning Model Accuracy



Machine Learning Model implementation

- Based on the trained data – the app will be developed in order to predict the bike prediction
- We use flask app to create the app

04

Conclusion

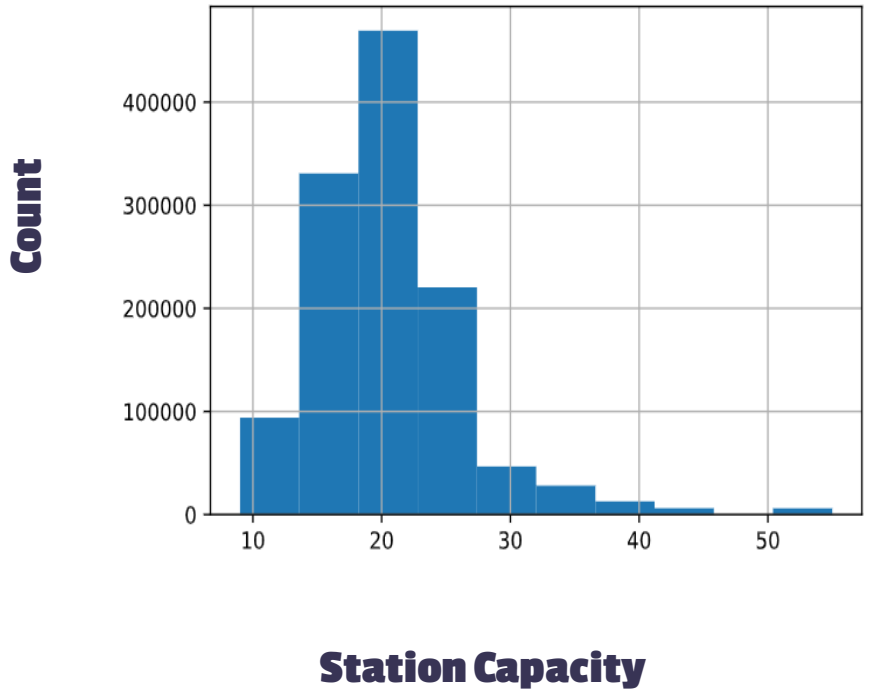
Findings
Future work of Data Analysis

Conclusion

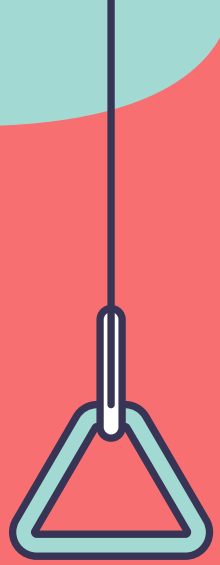
- We have found insights peak hours, days, months in which bikes are mostly occupied by the subscribers / customers during Covid Situation.
- We have found insights into the factors which affects the bike sharing on the basis of weather conditions, days or locations. We can use this analysis to predict future consumption of these bikes.
- We can use the Station and user importance based on capacity of each station and focus on reducing the operation expenses.
- Focus on discounts with related to casual users and registered users to sustain the business
- Reducing the operation costs by removing the not used station and working on maintenance

Station Capacity

- Temprature plays a important role on riding the bike .
- Most Trips are recorded when temprature is between 20 – 30C



THANKS!



Do you have any questions?