

# Exploratory Data Analysis on DIVVY Bike Rental Data

Team White



# ABSTRACT

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- In 2016, Divvy launched a successful bike-share offering. Since then, the program has grown to a fleet of 5,824 bicycles that are tracked and locked into a network of 692 stations across Chicago. The bikes can be unlocked from one station and returned to any other station in the system at any time.
- Divvy has released its historical system trip data for public usage.
- With the historical data, our team will help the company to design a new marketing strategy in order to increase the customer base.
- By running exploratory data analysis on the available insights, we can find the trends and strategies to make DIVVY bike rentals stand out of the crowd.

SOURCE : <https://divvy-tripdata.s3.amazonaws.com/index.html>

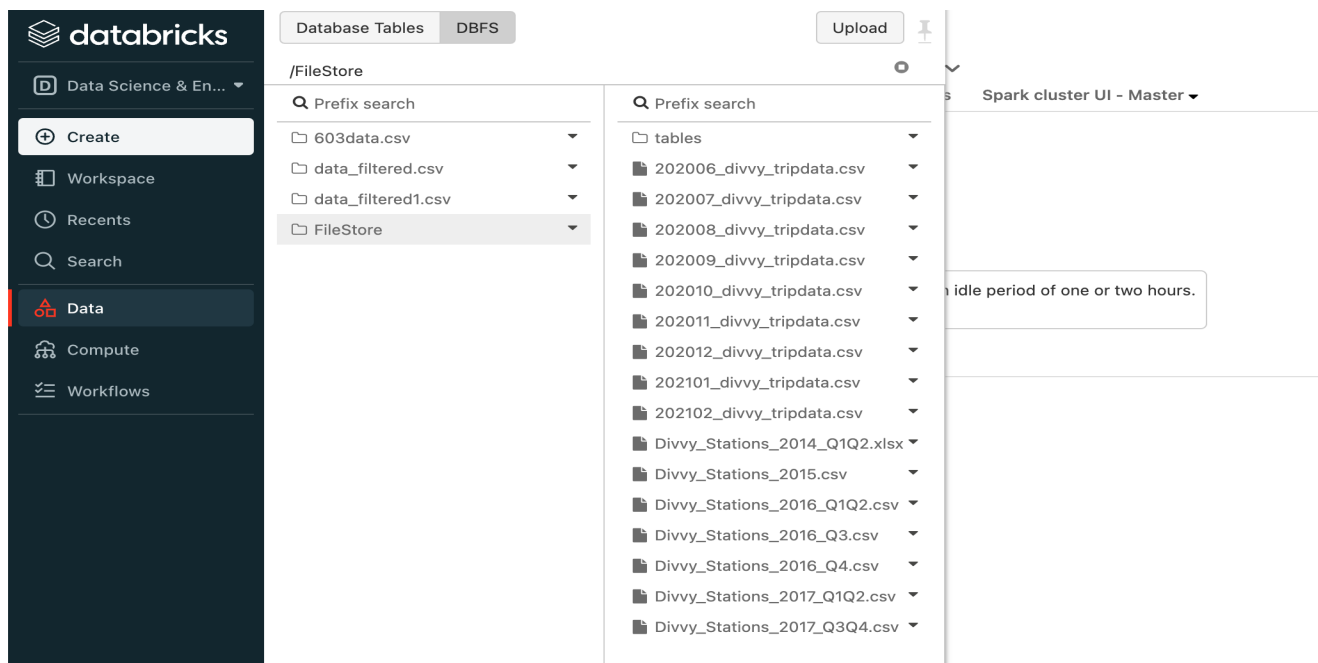


# DATA ATTRIBUTES

- trip\_id
- rideable\_type
- started\_at
- ended\_at
- start\_station\_name
- start\_station\_id
- end\_station\_name
- end\_station\_id
- start\_lat
- start\_lng

- end\_lat: string
- end\_lng: string
- usertype: string
- tripduration: string
- bikeid: string
- gender: string
- birthyear: string
- Start\_Hour
- Start\_Month
- Start\_Day
- Ride\_year

# Data Storage



# Data Sample

1

display(data)

Python

▶ (1) Spark Jobs

Table ▼ +

	trip_id ▲	rideable_type ▲	started_at ▲	ended_at ▲	start_station_name ▲
1	0D904FEC5F84A538	classic_bike	2021-06-04T07:29:18.000+0000	2021-06-04T07:45:34.000+0000	Orleans St & Elm St
2	C4185F300D6B552B	classic_bike	2021-06-23T08:39:36.000+0000	2021-06-23T08:41:37.000+0000	Desplaines St & Kinzie St
3	60F97090AC85F55E	classic_bike	2021-06-27T12:26:58.000+0000	2021-06-27T12:34:45.000+0000	Clark St & Grace St
4	FBC7B1F0160AA304	classic_bike	2021-06-01T12:30:24.000+0000	2021-06-01T12:33:02.000+0000	Kingsbury St & Kinzie St
5	37A52001AEEFA4E5	classic_bike	2021-06-01T11:32:17.000+0000	2021-06-01T11:34:43.000+0000	Desplaines St & Kinzie St
6	E49E5426F0B74023	classic_bike	2021-06-17T17:55:12.000+0000	2021-06-17T17:58:50.000+0000	Kingsbury St & Kinzie St

⬇ ▼

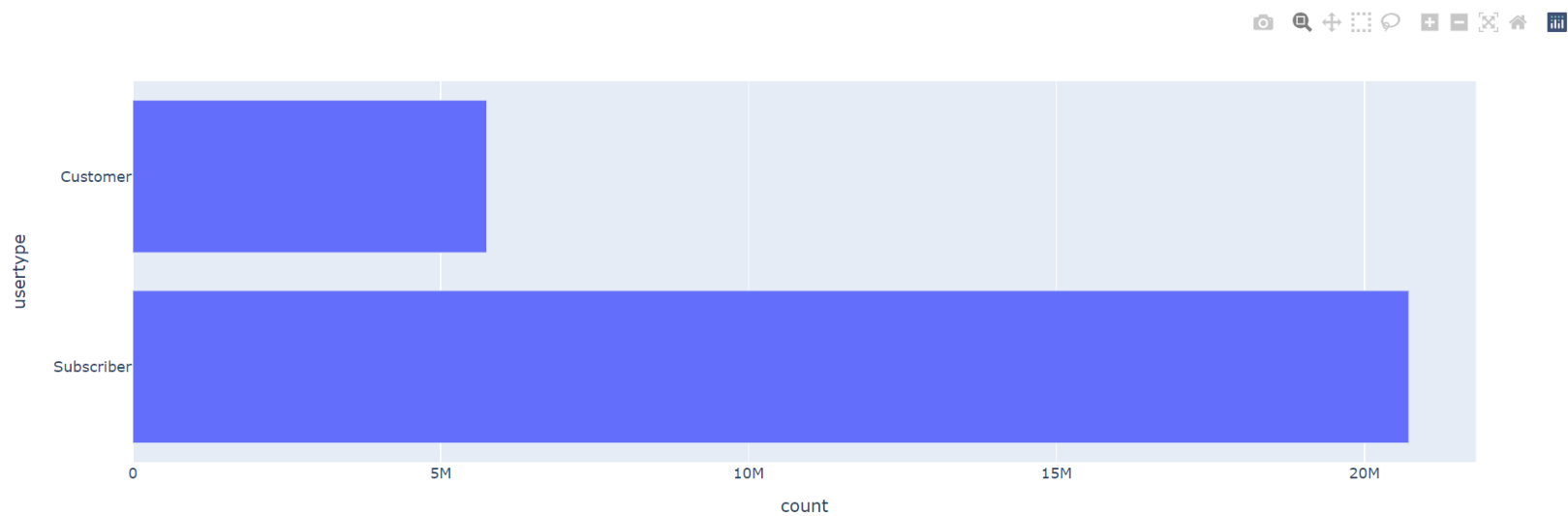
7,213 rows | Truncated data ▼ | 2.29 seconds runtime

Refreshed 2 minutes ago

Command took 2.29 seconds -- by ciwofo8011@fectode.com at 5/16/2023, 4:42:49 PM on My Cluster

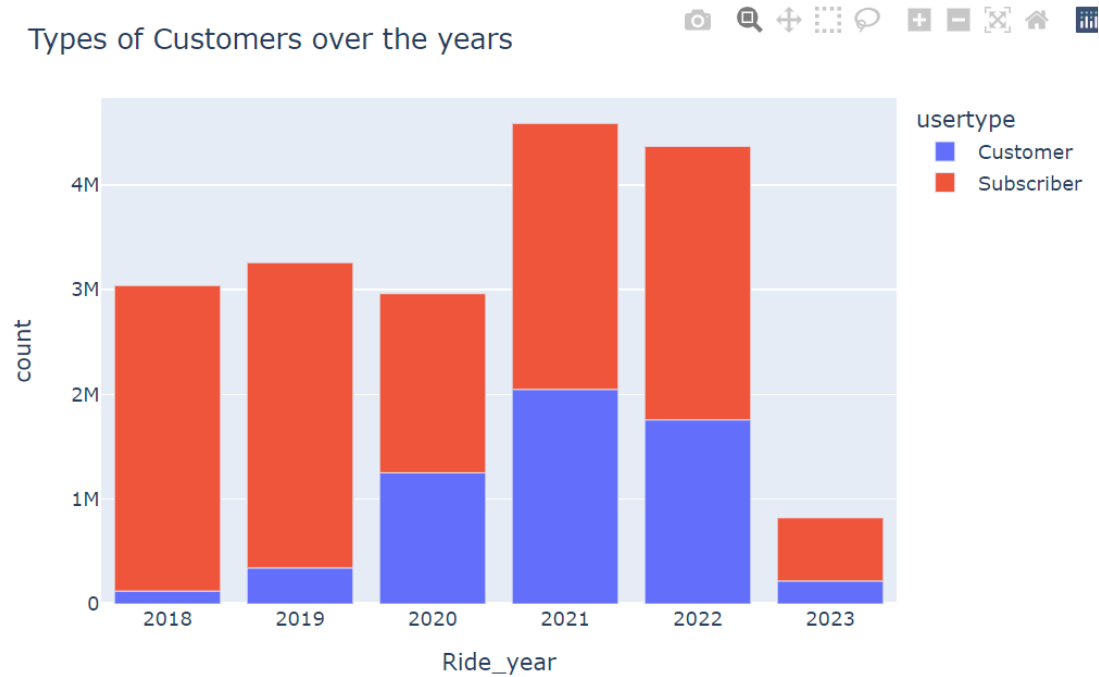
# Types Of Customers

We have two different types of customers: Floating Customers and Subscribers



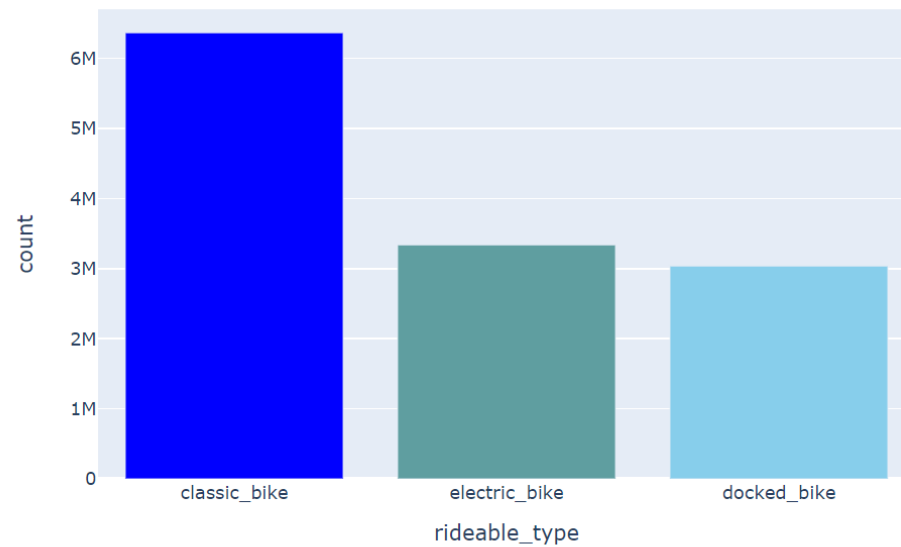
# Types Of Customers Over The Years

Variation in the type of customers over a period of 6 years



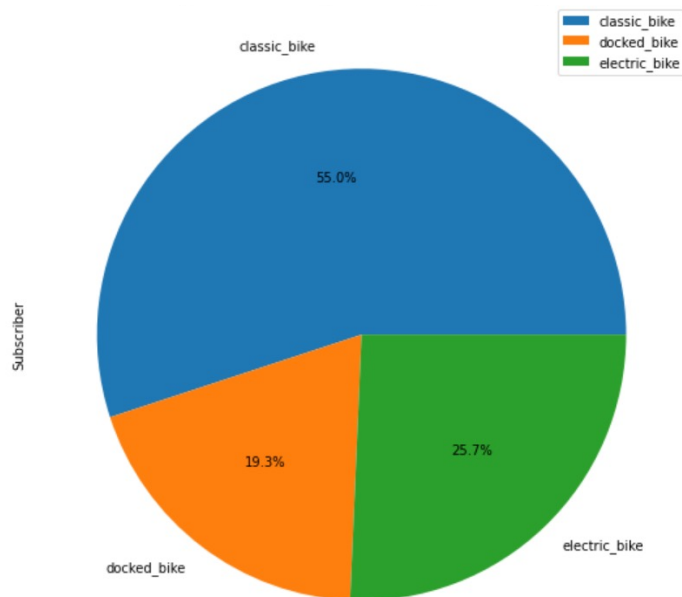
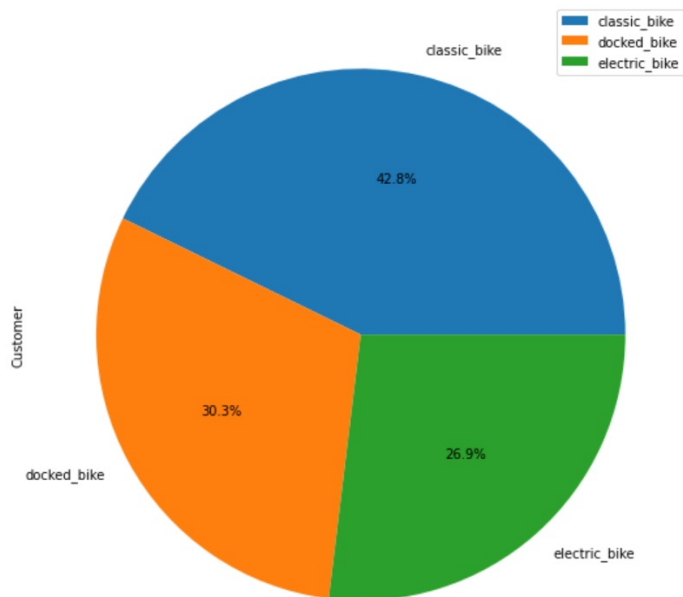
# Most Commonly Used Bike Type

We Have 3 Different Types Of Bikes: Classic, Electric And Docked





# Types Of Bikes Based On Customer Types

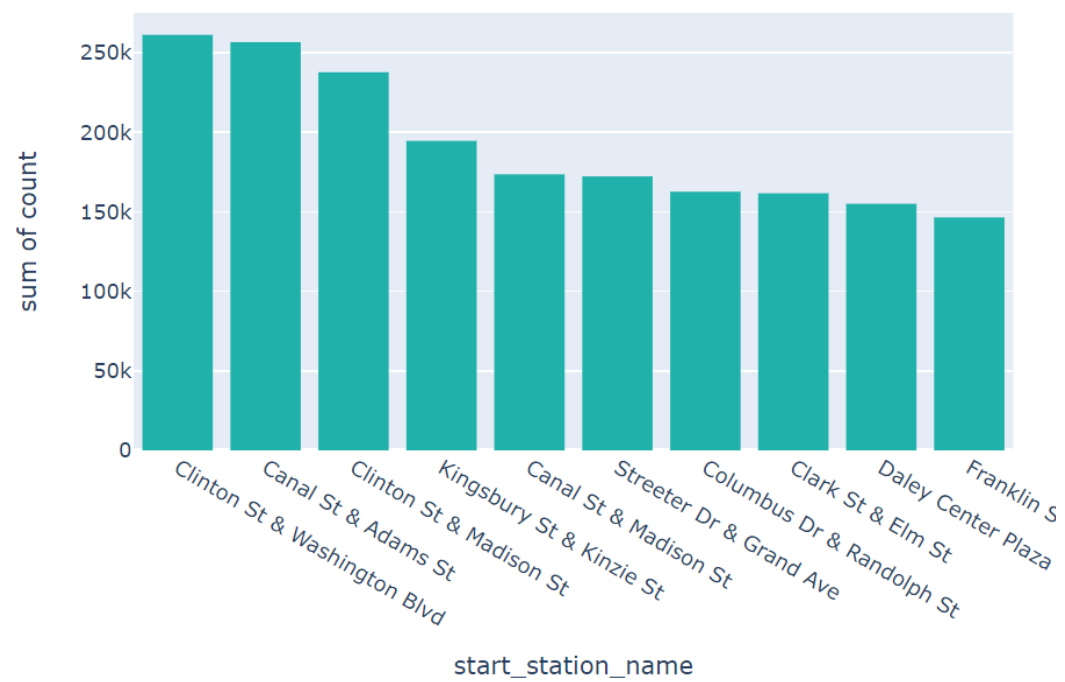


# Relation Between Stations

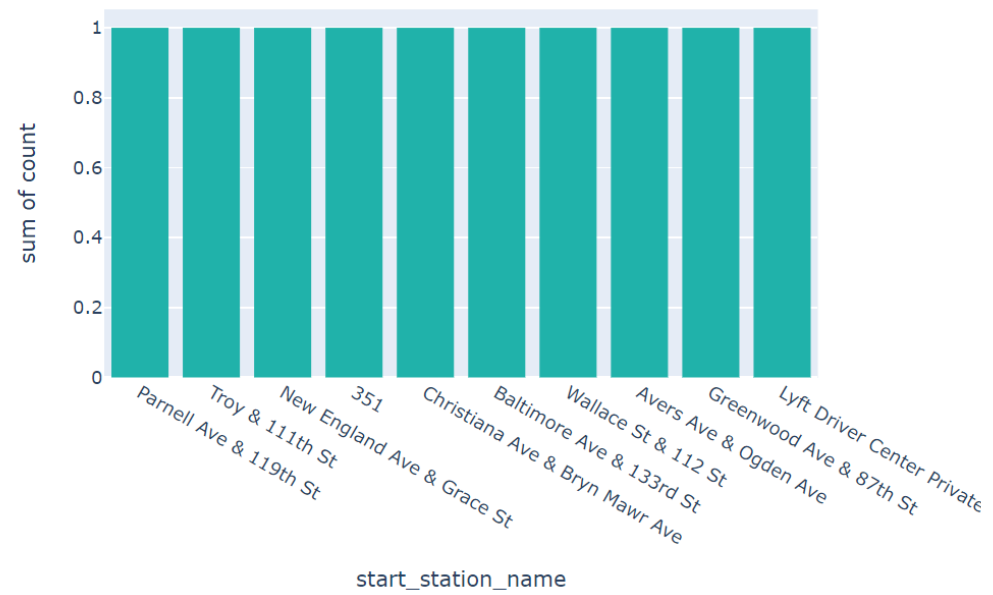


	start_station_name ▲	end_station_name ▲	count ▲
1	Streeter Dr & Grand Ave	Streeter Dr & Grand Ave	38134
2	Michigan Ave & Oak St	Michigan Ave & Oak St	20118
3	Ellis Ave & 60th St	Ellis Ave & 55th St	20082
4	Ellis Ave & 60th St	University Ave & 57th St	19213
5	Ellis Ave & 55th St	Ellis Ave & 60th St	18534
6	Millennium Park	Millennium Park	17826
7	University Ave & 57th St	Ellis Ave & 60th St	17632

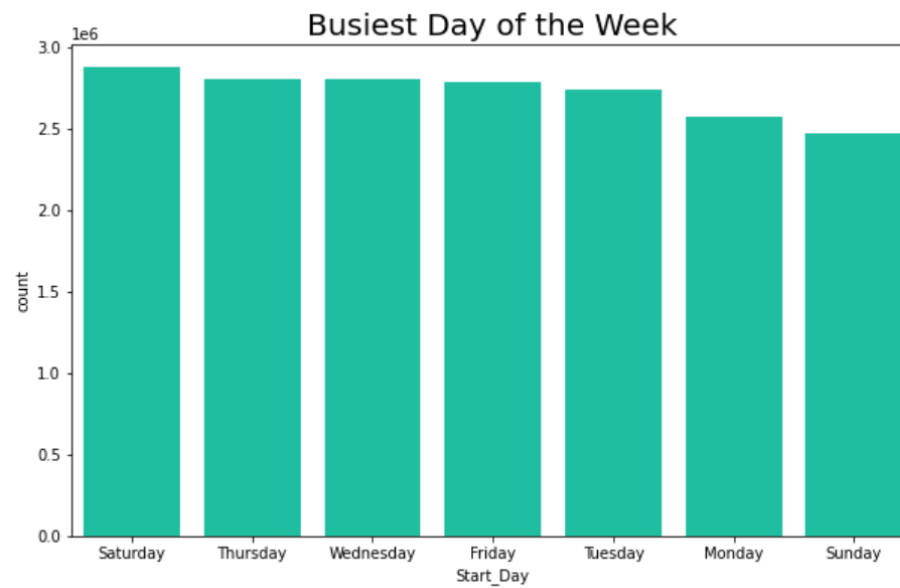
# Most Busiest Station



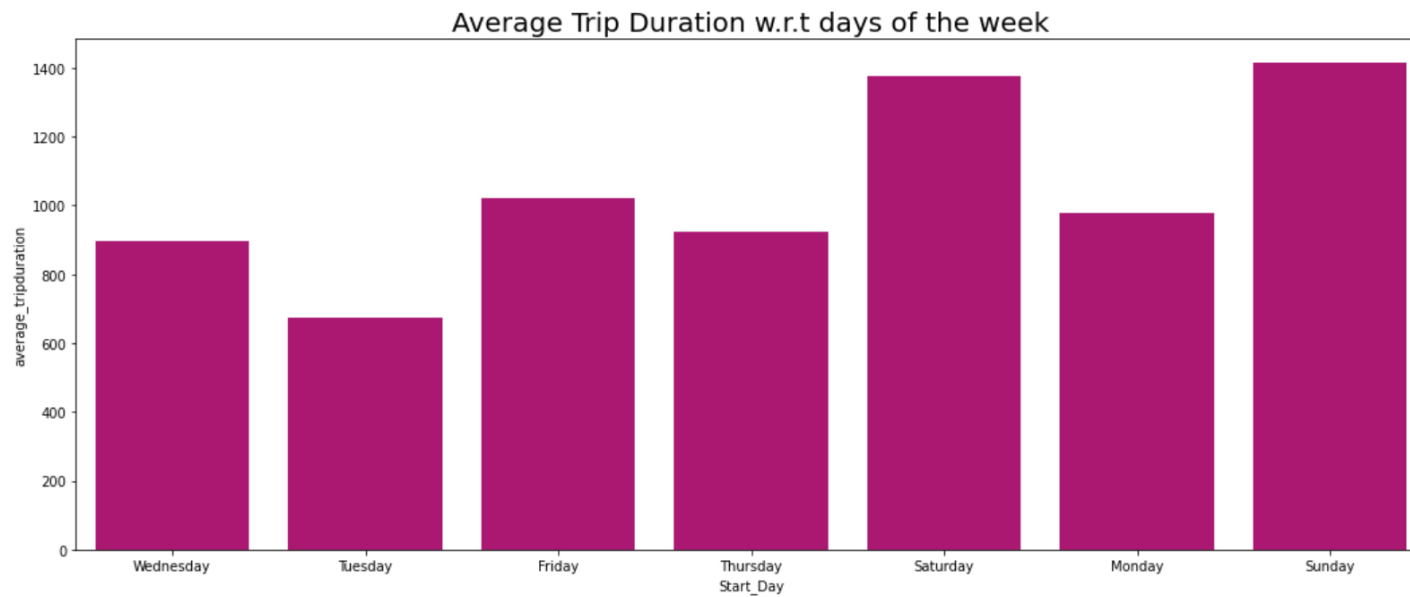
## Least Busiest Station



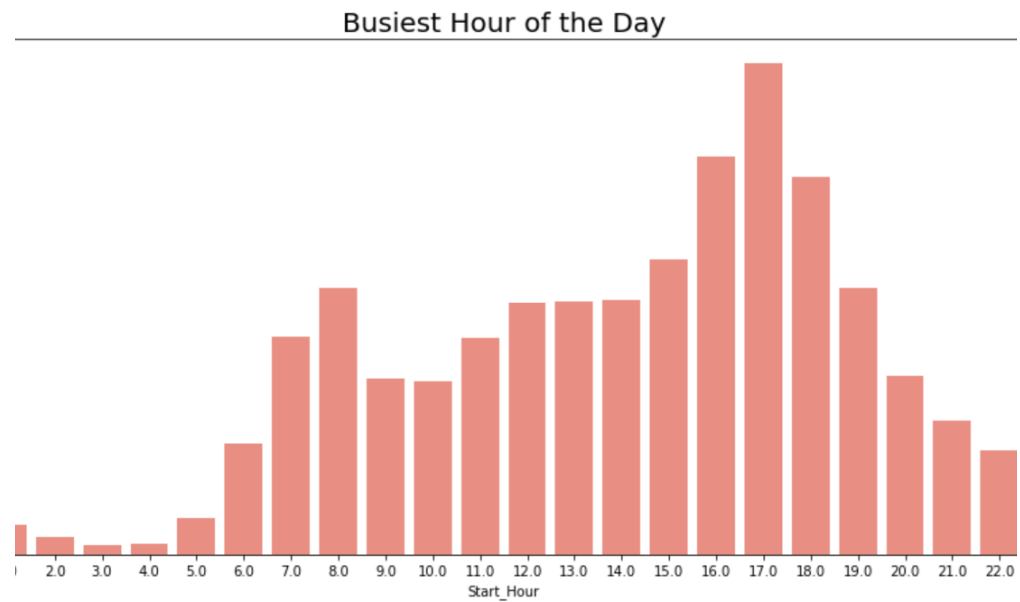
# Busiest Days Of The Week



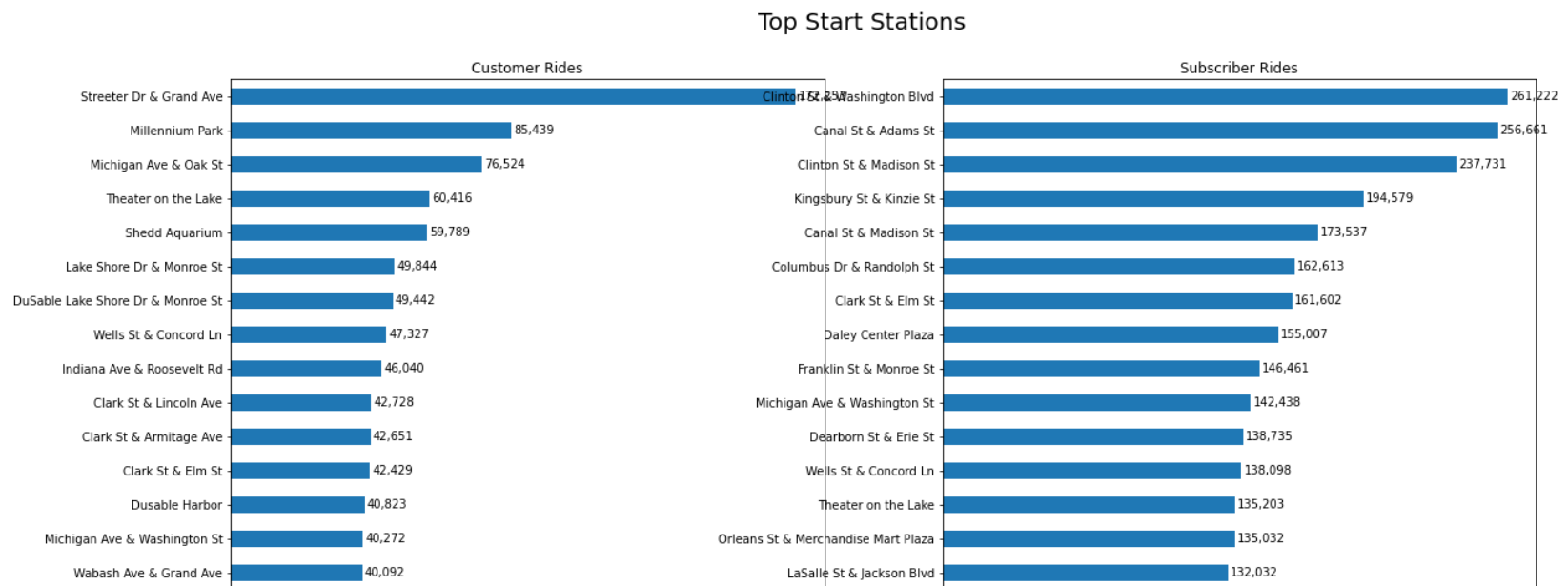
# Average Trip Duration W.R.T Days Of The Week



# Busiest Hour Of The Day

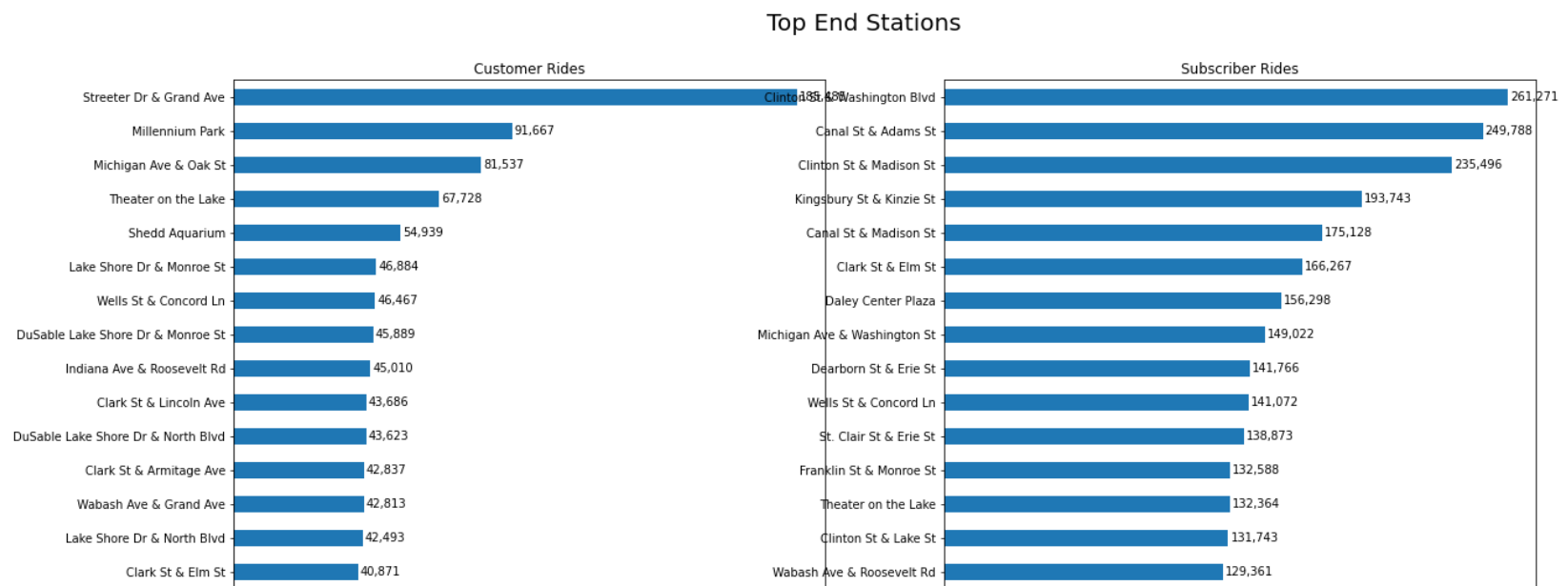


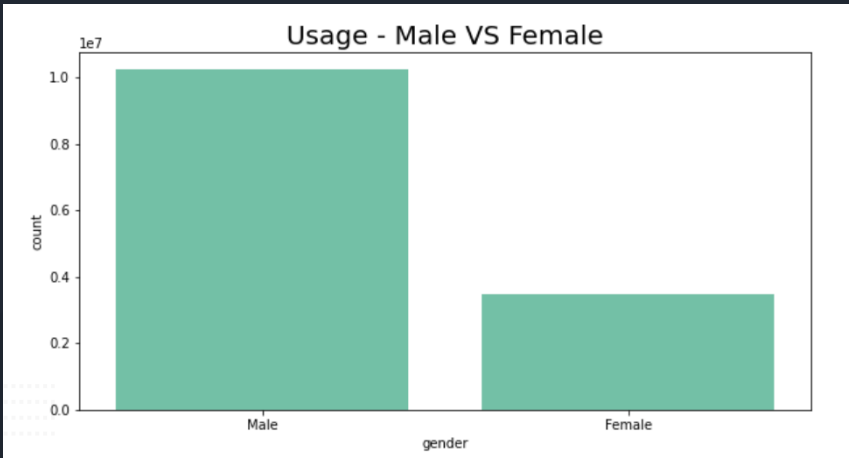
# Start Stations with respect to customer type





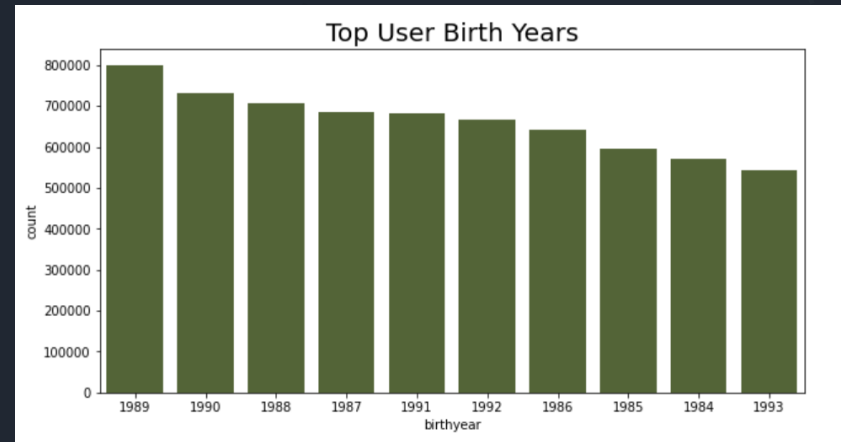
# End Station with respective to customer types





Usage comparison with respect to gender

Users On Different Age Groups



# Recommendations

Improve

Improve infrastructure: Identify stations with high ride demand and ensure adequate bike availability, docking spaces, and maintenance at those locations.



Target

Target marketing efforts: Develop targeted marketing campaigns to encourage casual customers to become subscribers. Highlight the benefits of membership, such as cost savings or access to exclusive features.



Expand

Expand service: Explore opportunities to expand the bike-sharing service to new areas or communities, considering the popularity of certain stations and user preferences.

# Thankyou

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