ILLINOIS
Gies College of Business

Cyclistic Data Analysis Case Study

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Introduction

Cyclistic bike-share is a company that shares bikes for people using, and has users and stations. The current problem we facing is how to convert the casual users into annual users. To be more detailed, we would like to know the reason why casual user would like to become annual users, and to improve the probability of Cyclistic bike-share.

Methodology

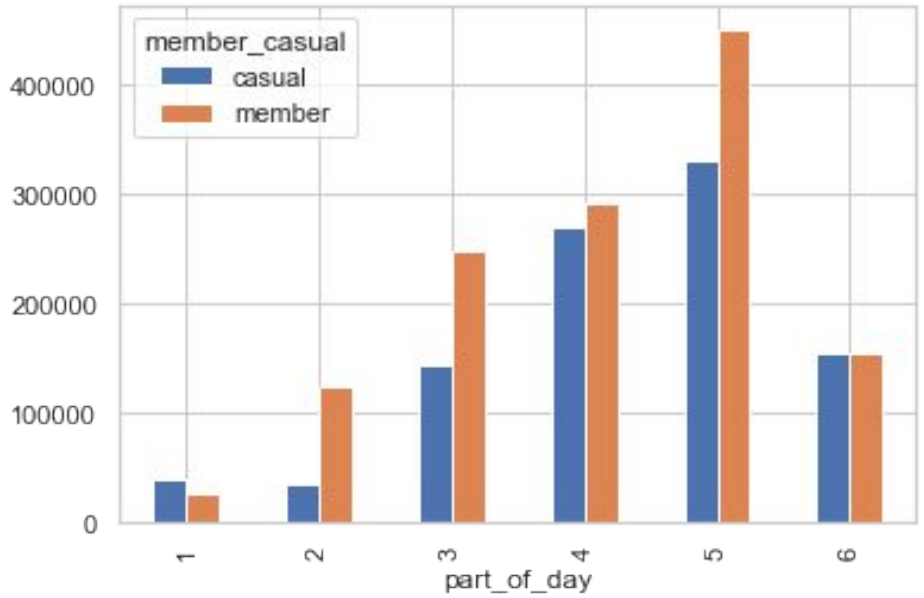
Python

Excel

Data Cleaning

1. Collected Data from https://divvy-tripdata.s3.amazonaws.com/index.html
2. Select datasets from February 2022 to July 2022
3. Combined 6 bike datasets
4. Removing missing data
5. Changed object type into a feasible object type
6. Created new columns (Ex: part_of_day, ride_duration, and hour)
7. Removed outlier (Ex: Negative ride_duration, and ride_duration>1000minutes)
8. Separated dataset in quarters

Analyze - Part of Day



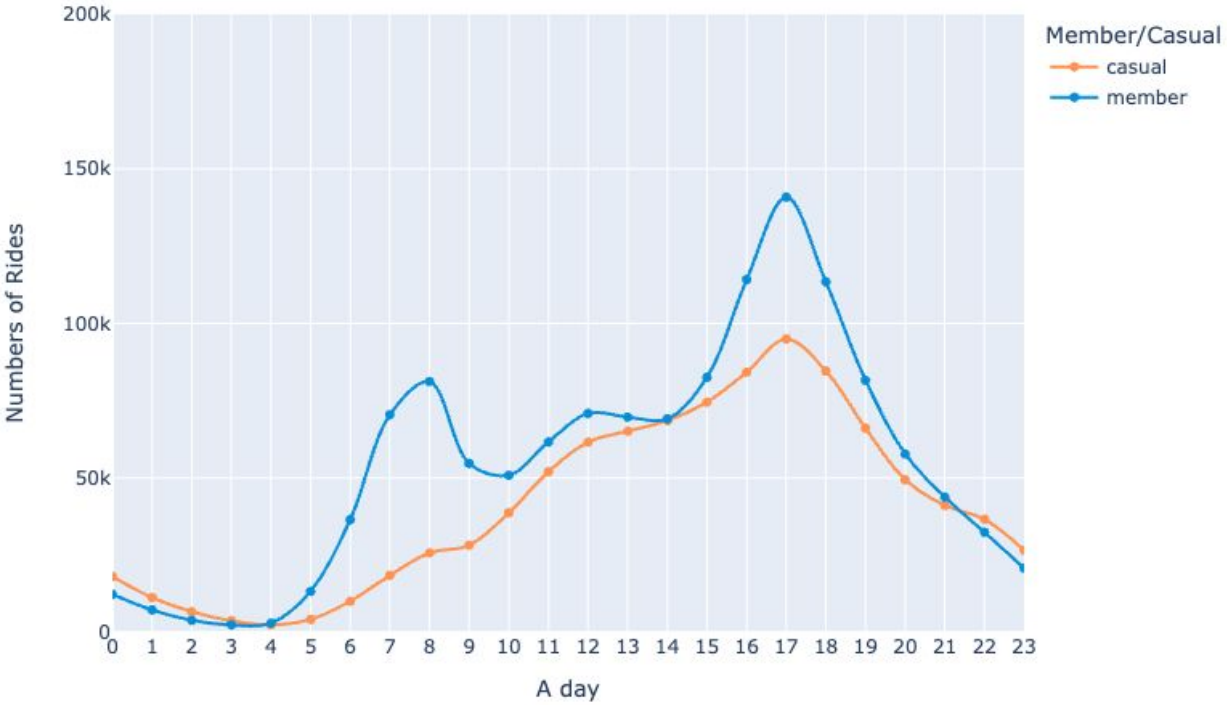
1:late nught(0~4), 2:earky morning(4~8),
3:morning(8~12), 4:afternoon(12~16),
5:evening(16~20), 6: night(20~24)

Finding:

1. Member and casual-rider frequently ride sharing bikes during the daytime
2. The peak of bike riding is in the evening(12:00 to 16:00)
3. Member and casual-rider less use sharing bikes at late night (20:00 to 24:00)
4. Member riders are more than casual riders from 4:00 to 12:00.

Insight:

Analyze - Part of Day

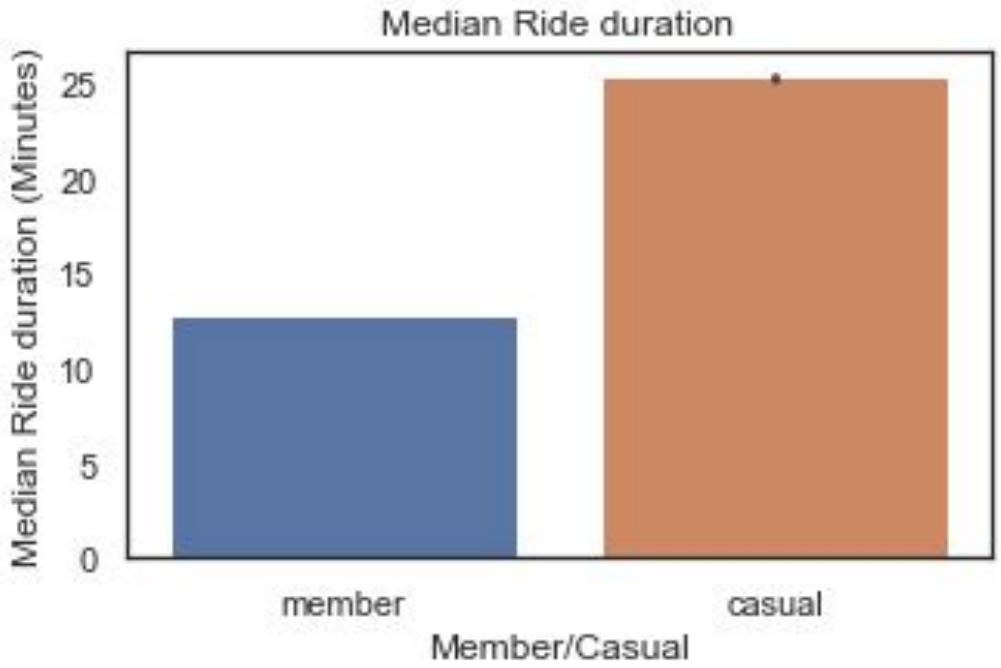


Finding:

1. The peak of member riding and casual riding is at 17:00.
2. Another peak of member riding is at 08:00.
3. The member rideing is followed by casual riding.

Insight:

Analyze - Riding Duration per Ride



Finding:

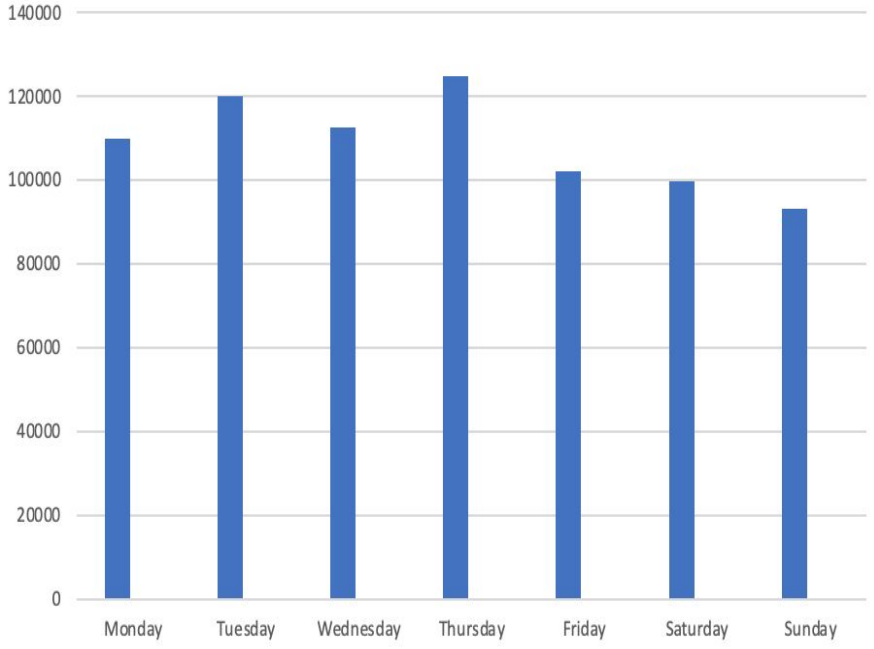
1. The median of causal riding is 24 minutes
2. The median of Member riding is 12 minutes

Insights:

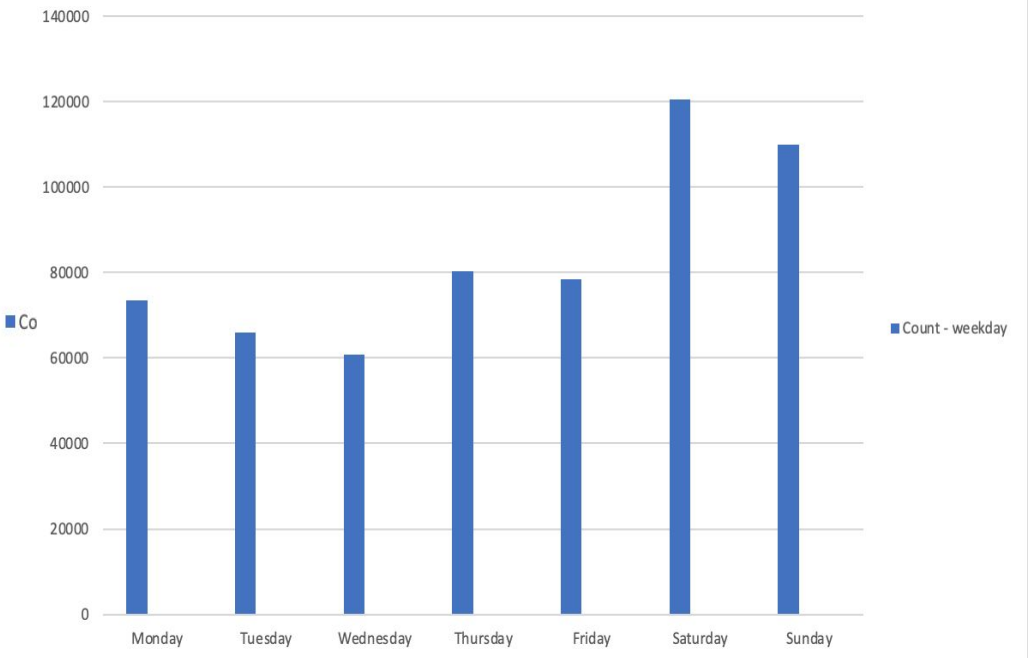
1. Member riders take sharing bikes might due to daily commute
2. Casual riders take sharing bikes might due to entertainment

Analyze - Weekday

Member

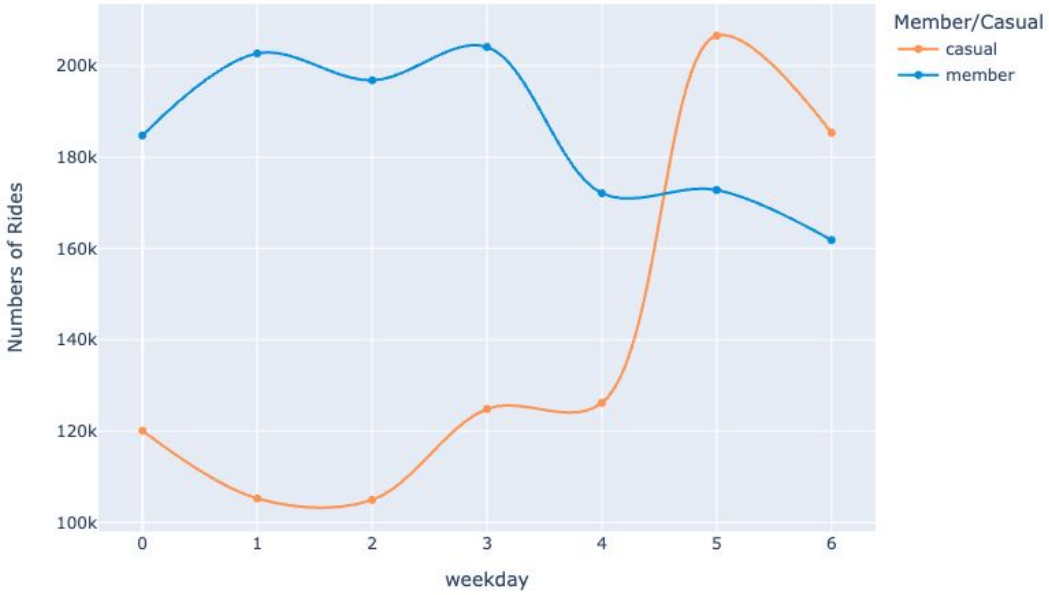


Casual



Members usually ride on weekday; Casual users more likely to ride on Weekend.

Analyze - Weekday



0: Monday, 1: Tuesday, 2: Wednesday, 3: Thursday,
4: Friday, 5: Saturday, 6: Sunday

Finding:

1. Member riders take sharing bikes in weekaday
2. Causal riders take sharing bikes in weekends

Insight:

1. Comfirm that member riders take sharing bikes for commuting
2. Comfirm that casual riders take sharing for activities

Analzye - Route

Casual

Casual users usually borrow and return the bike in the same station.

Route	Count - Route	Average- ride_duration	STD- ride_duration2
13022 13022	3177	48.88668555	44.56078408
13300 13300	2098	41.22878932	45.53978793
13300 13022	1778	28.39651294	38.12970975
13042 13042	1540	52.72922078	48.71257471
13008 13008	1130	45.4	42.24546768

Member

Member usually ride back and forth between two stations.

Route	Count - Route	Average - ride_duration	STD - ride_duration2
KA1503000014 KA1503000071	1889	3.94917946	5.367782957
KA1503000071 KA1503000014	1730	3.921965318	3.577164361
KA1503000014 KA1504000076	1315	4.478326996	4.948142981
KA1504000076 KA1503000014	1181	4.966977138	9.859251532
TA1309000037 KA1503000071	591	7.610829103	31.8995375

Analyze - Rideable Type

rideable_type	member_casual	count ride_id
classic_bike	casual	528301
	member	889450
docked_bike	casual	106864
electric_bike	casual	338023
	member	405554
total count		2268192

`Finding:

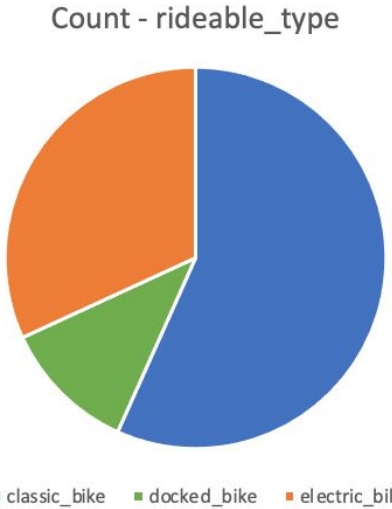
1. No member riders take docked_bikes
2. Casual riders take classic_bike most frequently

Analyze - Rideable Type

Member

Ridable_type	Average - ride_duration
classic_bike	13.54
electric_bike	11.59
Total	**12.96**

Casual



Ridable_type	Average - ride_duration
classic_bike	25.31
docked_bike	47.41
electric_bike	18.42
Total	**25.64**

Member v.s. Casual

	Member	Casual
Ride time	Weekday	Weekend
Average riding duration	12 min	24 min
Route	Travel between 2 points	Same station
Peak Time	8AM & 5PM	5PM
Bike type	Classic bike	Classic bike
Docked Bike	No	Yes

Recommendation

1. As the data analysts in the Marketing team, we recommend that we can promote how beneficial classical bike and electric bike are to causal riders.
2. Target casual riders who have the demand for daily commutes.
3. Target casual riders who have the demand for afternoon entertainment.
4. Through Instagram, Twitter, and Facebook, we can promote activities and benefits during the weekday, so we can attract casual riders to become members.