

Cyclistic Bikes

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View data structure

```
## # A tibble: 6 x 13
##   ride_id rideable_type started_at      ended_at      start_station_n~
##   <chr>   <chr>         <dtm>         <dtm>         <chr>
## 1 8CD5DE~ docked_bike   2020-06-13 23:24:48 2020-06-13 23:36:55 Wilton Ave & Be~
## 2 9A191E~ docked_bike   2020-06-26 07:26:10 2020-06-26 07:31:58 Federal St & Po~
## 3 F37D14~ docked_bike   2020-06-23 17:12:41 2020-06-23 17:21:14 Daley Center Pl~
## 4 C41237~ docked_bike   2020-06-20 01:09:35 2020-06-20 01:28:24 Broadway & Corn~
## 5 4B51B3~ docked_bike   2020-06-25 16:59:25 2020-06-25 17:08:48 Sheffield Ave &~
## 6 D50DF2~ docked_bike   2020-06-17 18:07:18 2020-06-17 18:18:14 Sheffield Ave &~
## # ... with 8 more variables: start_station_id <dbl>, end_station_name <chr>,
## #   end_station_id <dbl>, start_lat <dbl>, start_lng <dbl>, end_lat <dbl>,
## #   end_lng <dbl>, member_casual <chr>
```

Cleaned data

```
## # A tibble: 6 x 12
##   rideable_type started_at      ended_at      start_station_name
##   <chr>         <dtm>         <dtm>         <chr>
## 1 docked_bike   2020-06-13 23:24:48 2020-06-13 23:36:55 Wilton Ave & Belmont Ave
## 2 docked_bike   2020-06-26 07:26:10 2020-06-26 07:31:58 Federal St & Polk St
## 3 docked_bike   2020-06-23 17:12:41 2020-06-23 17:21:14 Daley Center Plaza
## 4 docked_bike   2020-06-20 01:09:35 2020-06-20 01:28:24 Broadway & Cornelia Ave
## 5 docked_bike   2020-06-25 16:59:25 2020-06-25 17:08:48 Sheffield Ave & Webster~
## 6 docked_bike   2020-06-17 18:07:18 2020-06-17 18:18:14 Sheffield Ave & Webster~
## # ... with 8 more variables: start_station_id <dbl>, end_station_name <chr>,
## #   end_station_id <dbl>, start_lat <dbl>, start_lng <dbl>, end_lat <dbl>,
## #   end_lng <dbl>, member_casual <chr>
```

Calculate average trip duration (mins)

```
##   rideable_type member_casual trip_duration_mins      started_at
## 1   docked_bike      casual      12.116667 2020-06-13 23:24:48
## 2   docked_bike      member       5.800000 2020-06-26 07:26:10
## 3   docked_bike      member       8.550000 2020-06-23 17:12:41
## 4   docked_bike      casual     18.816667 2020-06-20 01:09:35
## 5   docked_bike      casual      9.383333 2020-06-25 16:59:25
## 6   docked_bike      casual     10.933333 2020-06-17 18:07:18
```

Test trip_duration

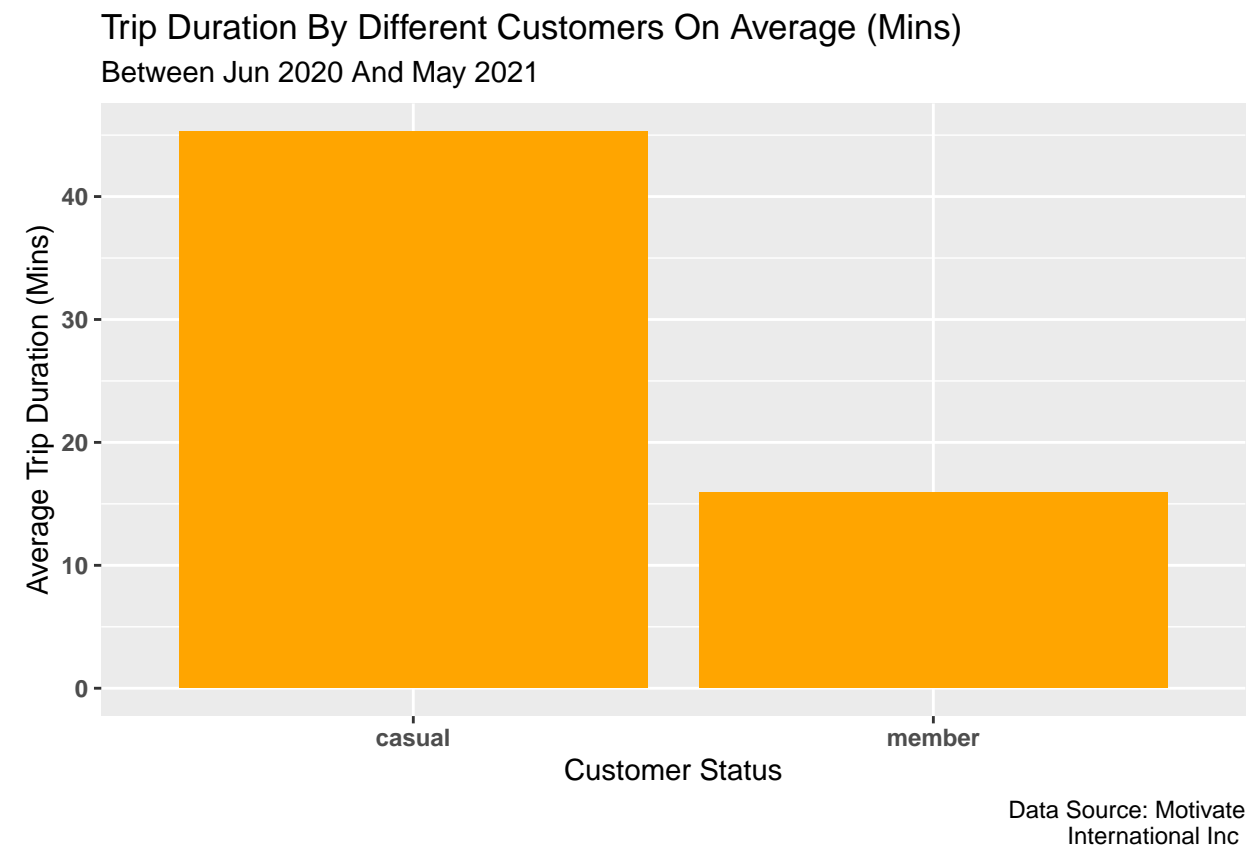
```
##   min_trip_duration_mins
```

```
## 1 -29010.45
```

Clean and orgainse

```
## # A tibble: 2 x 2
##   member_casual mean_trip_duration_mins
##   <chr>          <dbl>
## 1 casual          45.3
## 2 member          15.9
```

Plot View 1 (Trip Duration On Average)



Separate date-time structure

```
## # A tibble: 2,824,352 x 5
##   rideable_type member_casual trip_duration_mins Date      Time
##   <chr>          <chr>          <dbl> <chr>      <chr>
## 1 docked_bike   casual          12.1  2020-06-13 23:24:48
## 2 docked_bike   member           5.8  2020-06-26 07:26:10
## 3 docked_bike   member           8.55 2020-06-23 17:12:41
## 4 docked_bike   casual          18.8  2020-06-20 01:09:35
## 5 docked_bike   casual           9.38 2020-06-25 16:59:25
## 6 docked_bike   casual          10.9  2020-06-17 18:07:18
## 7 docked_bike   member           6.63 2020-06-25 07:24:33
## 8 docked_bike   casual           8.32 2020-06-19 00:00:56
## 9 docked_bike   member          21.1  2020-06-30 12:11:36
```

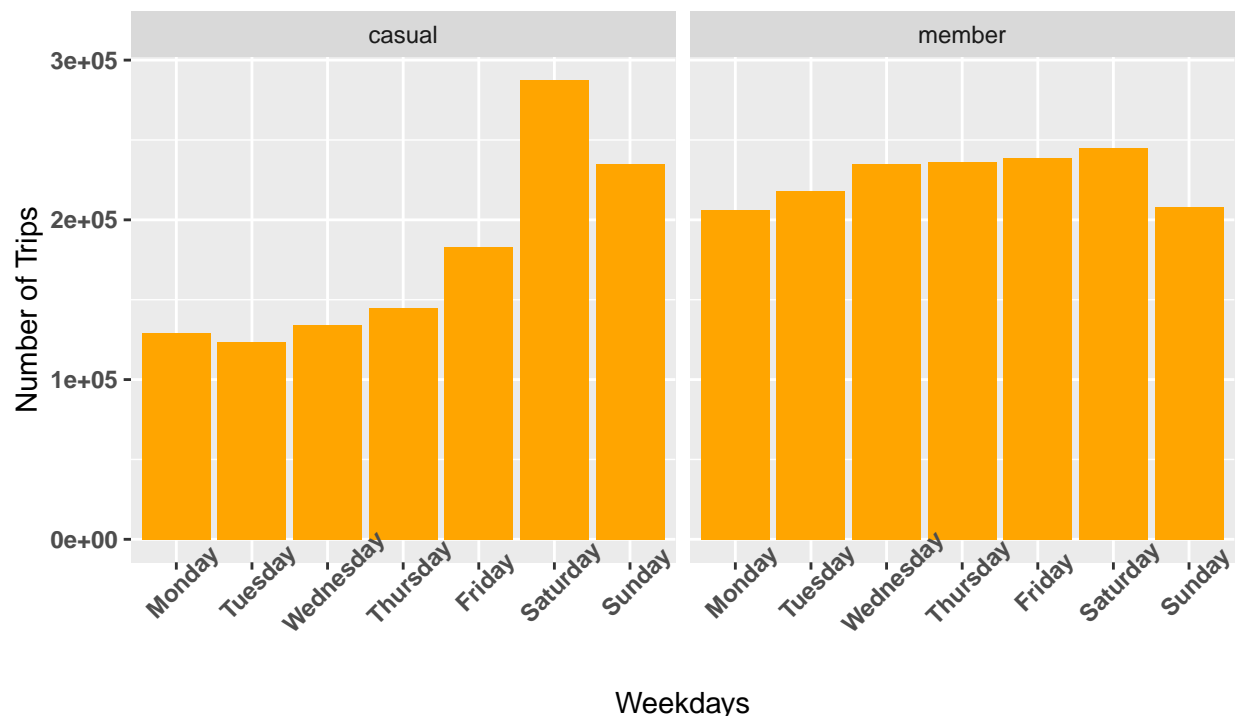
```
## 10 docked_bike    member                10.7  2020-06-28 14:17:09
## # ... with 2,824,342 more rows
```

Convert character-date-weekdays

```
## 'data.frame':  2824352 obs. of  6 variables:
## $ rideable_type    : chr  "docked_bike" "docked_bike" "docked_bike" "docked_bike" ...
## $ member_casual    : chr  "casual" "member" "member" "casual" ...
## $ trip_duration_mins: num  12.12  5.8  8.55 18.82  9.38 ...
## $ Date              : chr  "2020-06-13" "2020-06-26" "2020-06-23" "2020-06-20" ...
## $ Time              : chr  "23:24:48" "07:26:10" "17:12:41" "01:09:35" ...
## $ weekdays          : chr  "Saturday" "Friday" "Tuesday" "Saturday" ...
```

Plot View 2 (The Most Popular Weekdays For Customers)

The Most Popular Weekdays For Customers
Between Jun 2020 and May 2021



Data Source: Motivate International Inc

Fliter out casual riders and extract month

```
##   rideable_type member_casual trip_duration_mins    Date    Time weekdays
## 1  docked_bike      casual        12.116667 2020-06-13 23:24:48 Saturday
## 2  docked_bike      casual        18.816667 2020-06-20 01:09:35 Saturday
## 3  docked_bike      casual         9.383333 2020-06-25 16:59:25 Thursday
## 4  docked_bike      casual        10.933333 2020-06-17 18:07:18 Wednesday
## 5  docked_bike      casual         8.316667 2020-06-19 00:00:56  Friday
## 6  docked_bike      casual        20.416667 2020-06-29 16:59:41  Monday
##   month
## 1   Jun
```

```
## 2 Jun
## 3 Jun
## 4 Jun
## 5 Jun
## 6 Jun
```

Calculate frequency for casual riders

```
## # A tibble: 6 x 2
## # Groups:   month [6]
##   month number_of_casual_riders
##   <fct>           <int>
## 1 Apr             32116
## 2 Aug            281945
## 3 Dec             5866
## 4 Feb             2177
## 5 Jan             3264
## 6 Jul            268103
```

Filter out member riders and extract month

```
##   rideable_type member_casual trip_duration_mins      Date      Time weekdays
## 1  docked_bike      member           5.800000 2020-06-26 07:26:10   Friday
## 2  docked_bike      member           8.550000 2020-06-23 17:12:41   Tuesday
## 3  docked_bike      member           6.633333 2020-06-25 07:24:33  Thursday
## 4  docked_bike      member          21.116667 2020-06-30 12:11:36   Tuesday
## 5  docked_bike      member          10.700000 2020-06-28 14:17:09   Sunday
## 6  docked_bike      member          45.383333 2020-06-06 17:07:01  Saturday
##   month
## 1 Jun
## 2 Jun
## 3 Jun
## 4 Jun
## 5 Jun
## 6 Jun
```

Calculate frequency by group

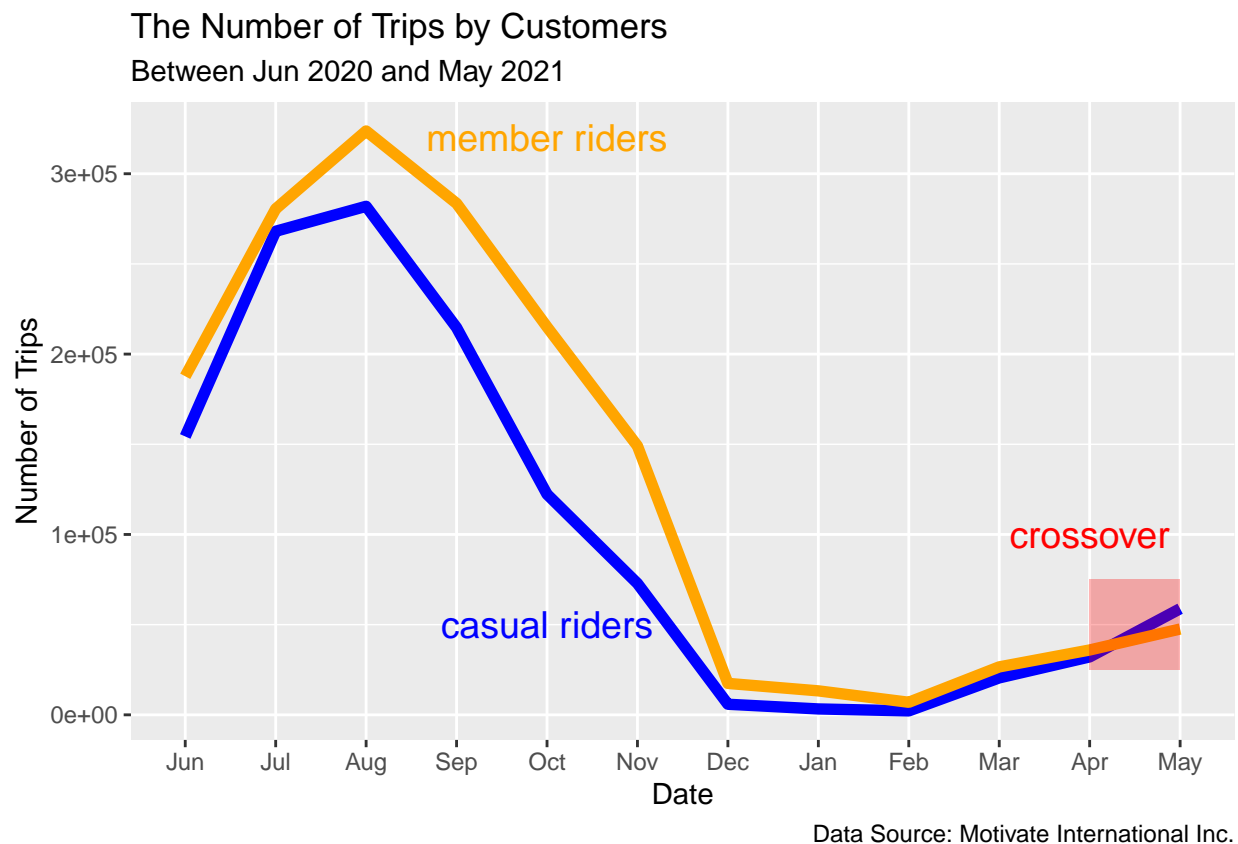
```
## # A tibble: 6 x 2
## # Groups:   month [6]
##   month number_of_member_riders
##   <fct>           <int>
## 1 Apr             35954
## 2 Aug            323707
## 3 Dec             17429
## 4 Feb             6966
## 5 Jan             13280
## 6 Jul            280514
```

combination data

```
## # A tibble: 6 x 3
## # Groups:   month [6]
##   month number_of_casual_riders number_of_member_riders
##   <fct>           <int>           <int>
```

## 1 Apr	32116	35954
## 2 Aug	281945	323707
## 3 Dec	5866	17429
## 4 Feb	2177	6966
## 5 Jan	3264	13280
## 6 Jul	268103	280514

Plot View 3 (Number of Trips by Customers)



Recommendation:

- Charge more on casual riders when they have long time trips in order to convert them into members. (From Plot view 1)
- Provide members with benefits when they ride on Friday, Saturday, and Sunday in order to convert casual riders into members. (From plot view 2)
- Need to devise new membership plans for casual riders and members as people are facing uncertainty of lockdown during the COVID pandemic, low willingness to join the membership revealed. (From Plot View 3)