Cyclistic Rider-Type Analysis
Trends in 2022

Background:

Cyclistic is a bike-share company that started in 2016 and has since grown into a successful company with a fleet of 5,824 bicycles (with 3 different types of bicycles) that are located in stations throughout Chicago.

Cyclistic has two types of riders: casual riders, which consists of those using single-ride passes or full-day passes, and annual members. Annual memberships are more profitable than casual riders.

Business Task:

Analyze how annual members and casual riders use Cyclistic bikes differently in 2022 to determine how casual riders can be turned into annual members to increase profits.

Business Objectives:

- How do annual members and casual riders use Cyclistic bikes differently?
- How could these trends apply to turning casual members into annual members?

Data:

- The dataset is publicly available via Motivate International Inc. under this link, and the data is available in .csv format.
- Our date range: January 2022 to December 2022
- The dataset has individual ride records consisting of ride_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, end_lng, and member_casual.

Tools and Process:

- R used for data cleaning, data transformation, and data analyzation
- Tableau used for data visualization

Data Cleaning, Tranformation, and Analysis with R:

- Datatypes made consistent and then consolidated into one dataset using this query

```
> trips_2022 <-bind_rows(trip_01, trip_02, trip_03, trip_04, trip_05, trip_06, trip_07,
trip_08, trip_09, trip_10, trip_11, trip_12)
```

- To assist in analysis, 4 new columns were added (month, day, year, day of the week) using this query

```
> trips_2022$month <-format(as.Date(trips_2022$date), "%m")
> trips_2022$day <-format(as.Date(trips_2022$date), "%d")
>
> trips_2022$year <-format(as.Date(trips_2022$date), "%Y")
> trips_2022$day_of_week <-format(as.Date(trips_2022$date), "%A")
```

- To assist in analysis, "ride_length" converted to numeric for calculations

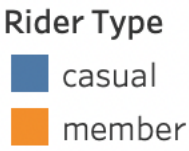
```
> trips_2022$ride_length <- as.numeric(as.character(trips_2022$ride_length))
```

- Unnecessary data removed

```
> trips_2022<-trips_2022[!(trips_2022$ride_length <=0),]
> cat("Number of rows:",nrow(trips_2022))
Number of rows: 5667186
> trips_2022v1<-na.omit(trips_2022)
```

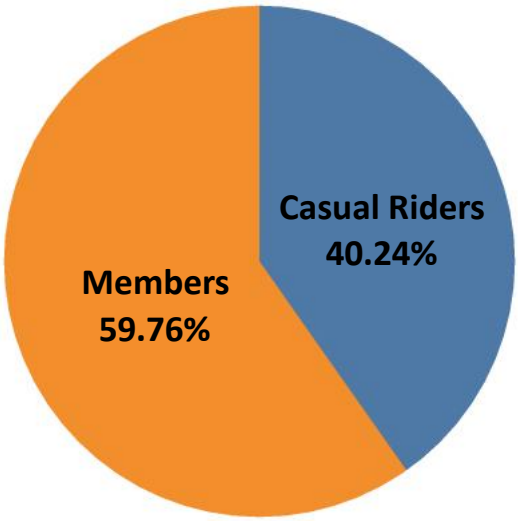
Data Visualization:

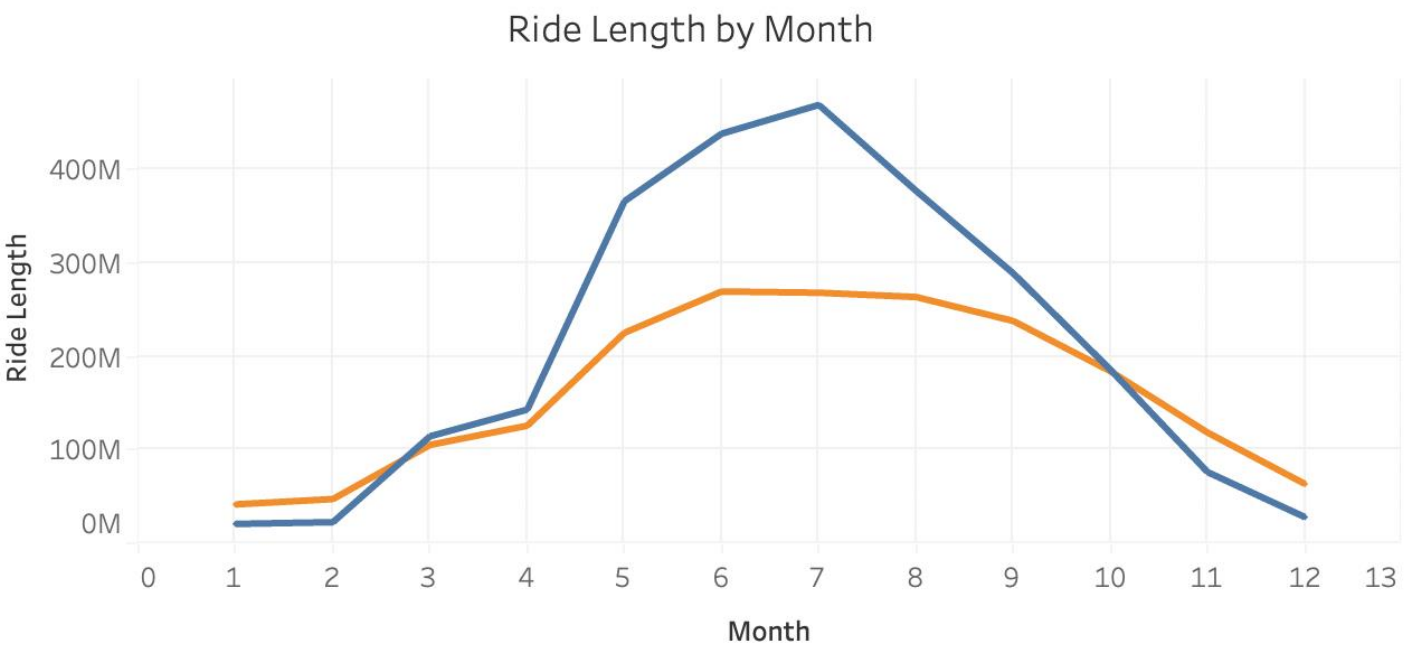
The final, cleaned dataset consisting of roughly 3.4 million ride records was analyzed and used to create visualizations in Tableau that show the differences in bicycle usage between casual riders and annual members. The Tableau dashboard can be found here.



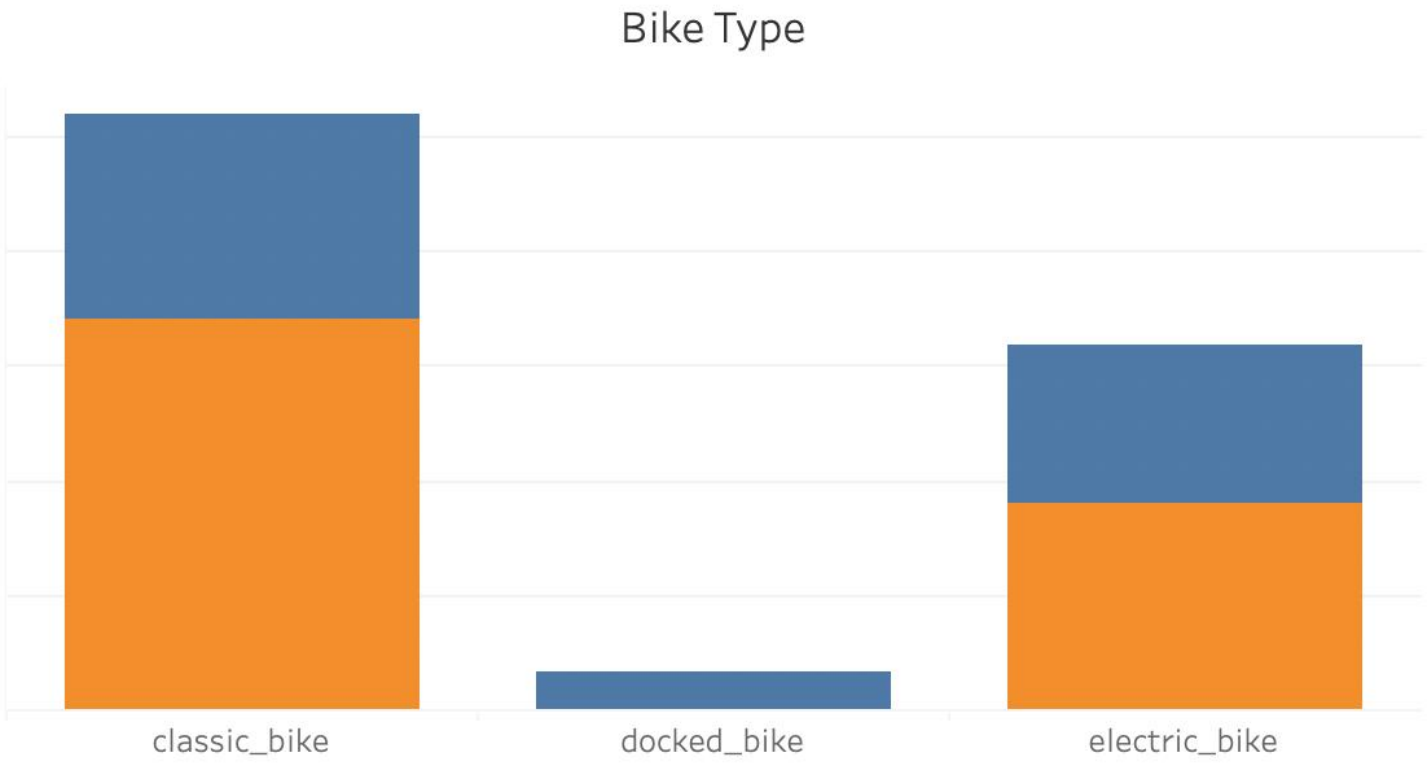
For all graphs, blue represents casual riders and orange represents annual members.

Annual Members vs. Casual Riders



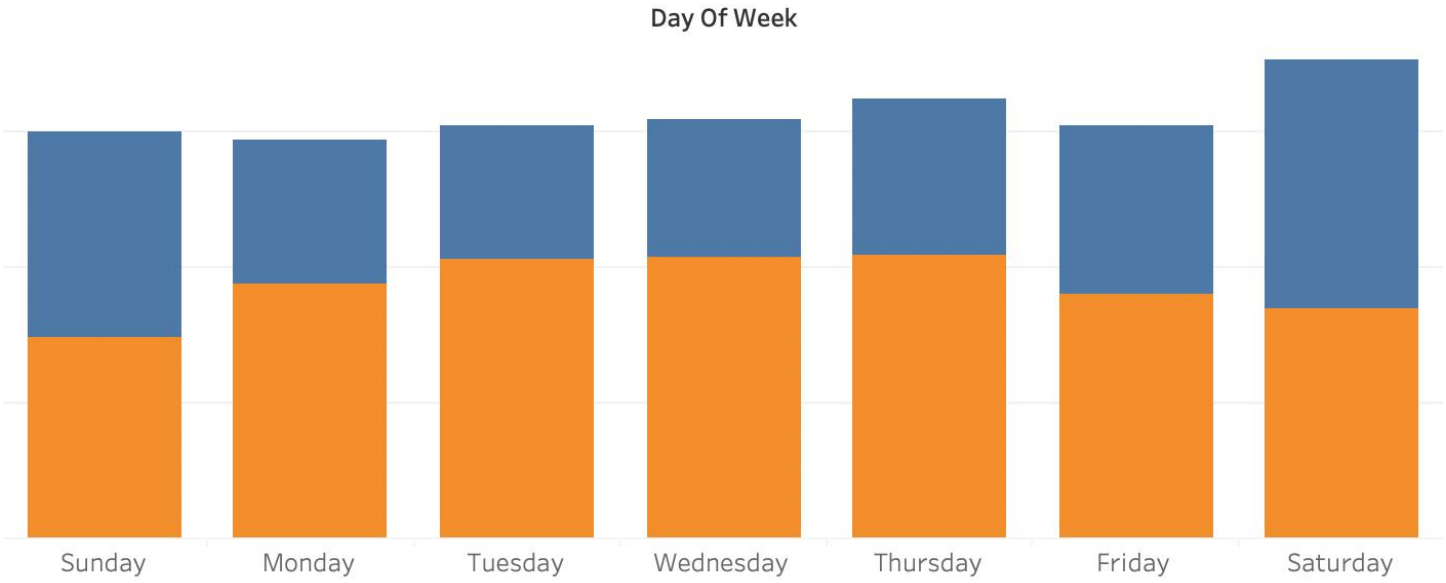


Casual Riders rode further than Annual Members on average, and the most popular season for riding for both Casual Riders and Members is the Summer.

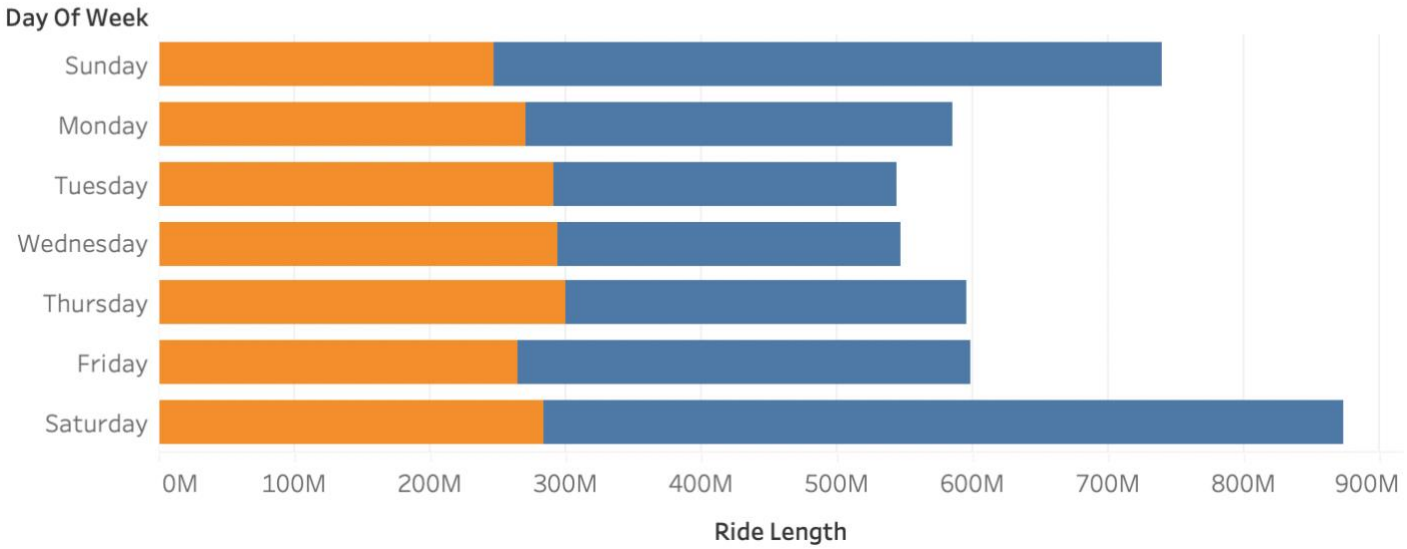


Classic bikes are the most popular bike type for both Members and Casual Riders; however, only casual riders used docked bikes.

Total Rides by Weekday



Ride Length by Weekday



The most popular days to bike for members are Tuesday, Wednesday, and Thursday. The most popular days to bike for casual riders are Saturday and Sunday. This trend also corresponds to ride length for each rider type.

Conclusion and Recommendations:

- Based on the data, casual riders use bike rentals for leisure while annual members use bike rentals for commuting. Casual riders may include residents of Chicago but may also include tourists that cannot be converted to annual members.
- Since the least popular season for bike rentals is winter, a discount or campaign for annual memberships can be offered in the winter to drive sales.
- Other membership options could be offered to targeted members that reside in Chicago and are casual riders, such as a weekend only membership or summer season only membership.