Cyclistic Bike Share

April 26, 2022

Summary Analysis Report

Insights, Conclusions, & Recommendations

Presented to

Cyclistic Management &
Lily Moreno

Presented by

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Background

- Project Info
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"We are data. We don't speak business."

- AtScale Advertisment

Lily Moreno, the director of marketing for **Cyclistic Bike Share**, believes that the company's future success depends on maximizing the number of annual memberships. Cyclistic's financial analytics team have concluded that annual memberships are much more profitable than casual riders.

Business Objective
Mrs. Moreno has a clear goal to design marketing strategies aimed at converting casual rides into annual members. She notes that casual riders are already familiar with the Cyclistic program.

Tasks and Deliverables
The primary business task is to maximize the number of annual memberships through casual rider conversion to annual memberships.

The analyst task is to understand how annual and casual riders use Cyclistic bikes differently.

Deliverables for this analysis include:

- A summary analysis
- Supporting visualizations and key findings
- Three recommendations on how to increase conversion

Data Stuff

01

Data Location, Organization, and Credibility

The data used in this analysis is located at:

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

The data sets used in this analysis were cited by **Motivate International Inc.** (MI) , verified by the **Chicago Department of Transportation**, and contain first-party collected & anonymized rider data from Jan 2021 - Dec 2020.

This analysis acts as a Capstone for the **Google Data Analytics Professional Certification**.

02

Data Security, Licensing, and Accessibility

- Access to PII such as credit cards and addresses have been restricted
- Data made available under an open license provided by MI which can be found **here**.

The Process

Analysis Tools

For this analysis I utilized Python, Jupyter, and Tableau.

The data contained 5+ million observations with 13x more variables. Python's ease in seamlessly handling large volumes of data in seconds made it the standout choice. Additionally, the Jupyter notebook allowed me to visualize relationships and prototype graphs prior to modeling them in Tableau.

Data Cleaning

1. Merged 13 CSV files into Python & Jupyter
2. Dropped missing values in *'end_station_name'*
3. Converted *'start/end times'* to **DATETIME** objects
4. Created new columns for year, month, day, and hour.
5. Dropped duplicates
6. Created new columns for *'bike_time'* & *'bike_distance'*
7. Converted **object** datatypes to **category**
8. Converted **int** and **float** datatypes to lesser bytes
9. Dropped *'ride_id'*, *'start/end station_names'*, LAT and LON values, and *'started_at/ended_at'* times.
10. Dropped outliers in *'bike_time'* and *'bike_distance'*
11. Dropped all rows with 'Base' as a station name.
12. Dropped all rows with *'bike_time'* or *'bike_distance'* of zero.
13. Verfied and Validated formulas and results
14. Saved the cleaned dataset prior to analysis.

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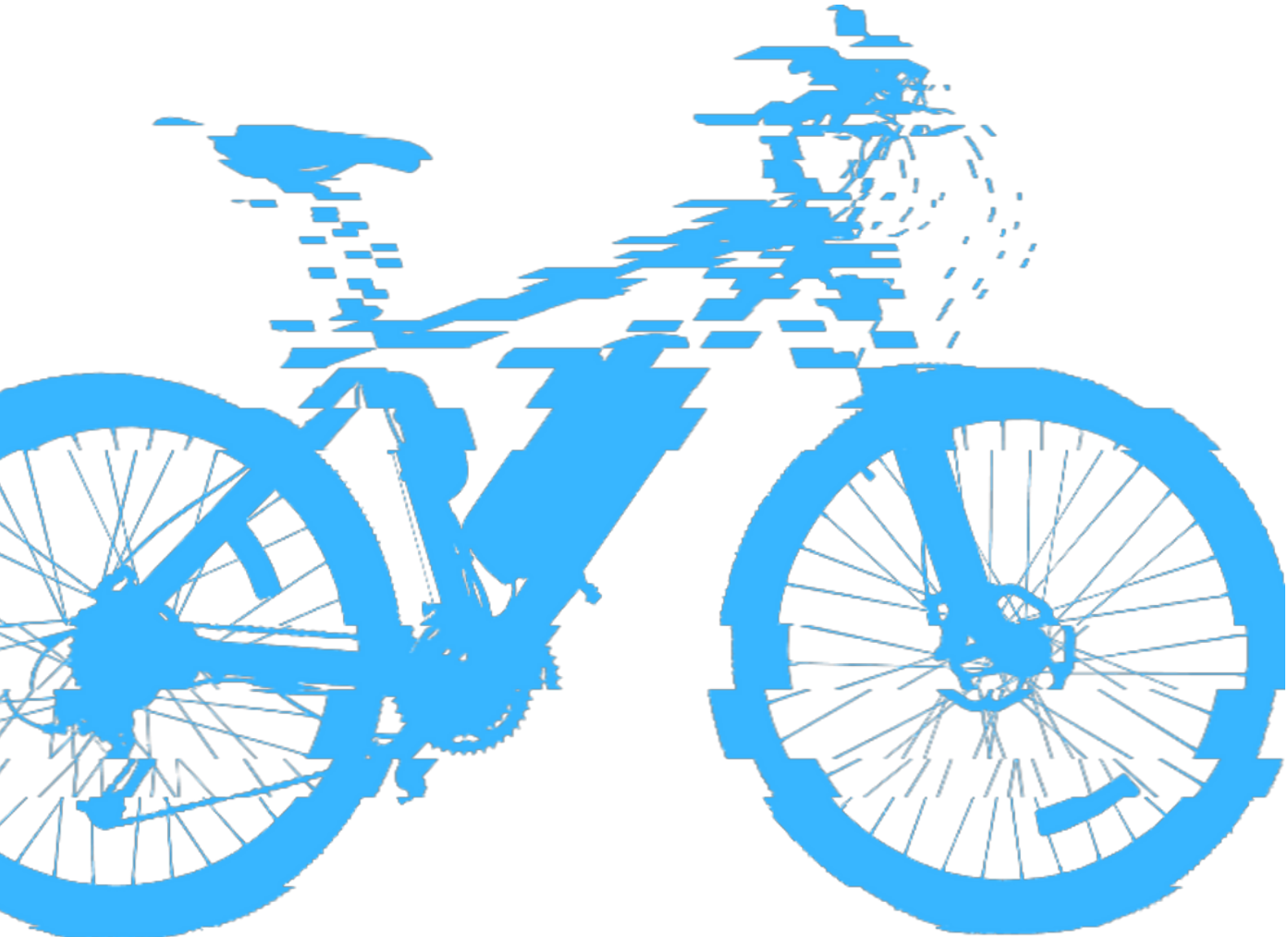
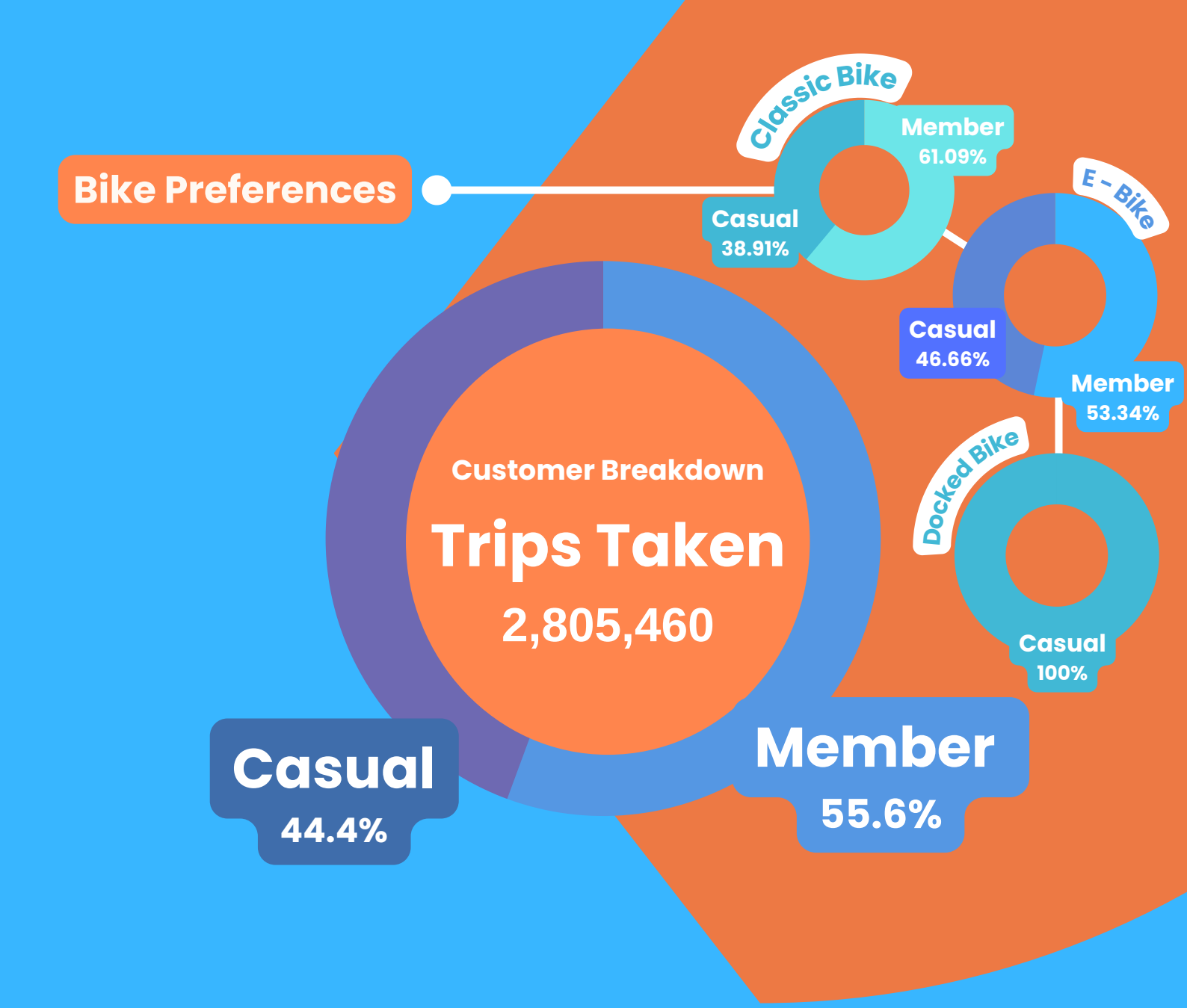
SECTION 1:

RIDER SNAPSHOT

Who are our customers?





Rider Snapshot

In 2021:

- There were **2.8M** rides taken.
- Members rode a total of **1.56 million** times; Casuals rode **1.24 million** times.
- **Classic Bikes** were preferred **64%** of the time by Members and **50%** by Casuals.
- **E-Bikes** were used **35.8%** of the time by Members; **40%** by Casuals.
- **Docked Bikes** were used exclusively by Casuals and made up **10%** of their rides.

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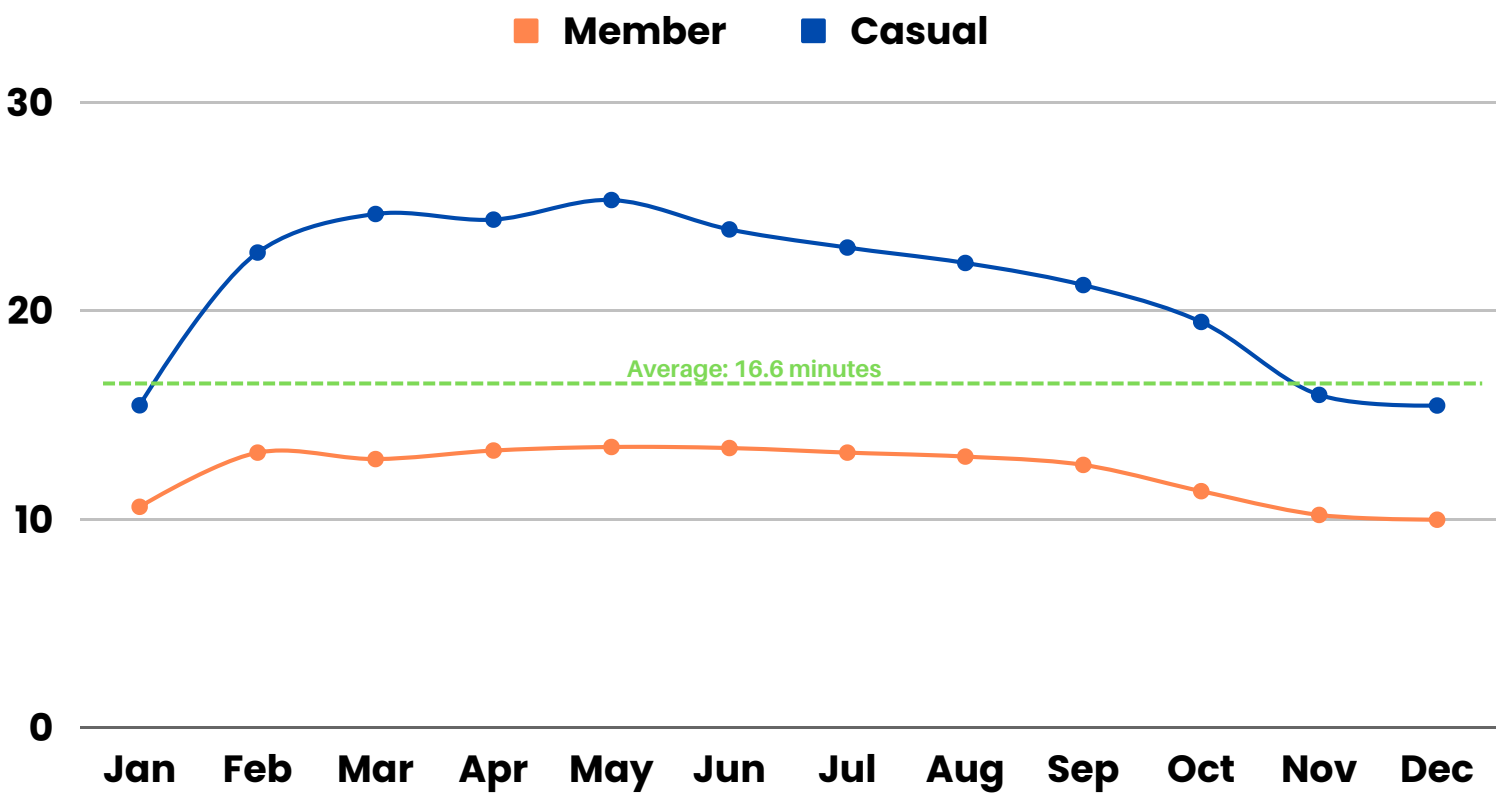
SECTION 2:

RIDER BIKE AVERAGES

How long do our customers stay on their bikes?

Customer Ride Lengths

Avg. Bike Duration



Casual riders spend nearly twice as long on their bikes than Member riders. Taking the expense-factor into consideration, this may suggest that Casual riders use Cyclistic bikes more **leisurely** than Members.

"Casual riders use Cyclistic bikes more leisurely than Members."

Members, however, spent an average of 12.5 minutes on their bikes and, on average, left approximately **$5.20** of unused riding time per trip. This suggests that Members use Cyclistic bikes more **intently** than Casual riders and may be mostly comprised of commuters.

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SECTION 3:

RIDER FREQUENCY

How often do customers use our bikes?

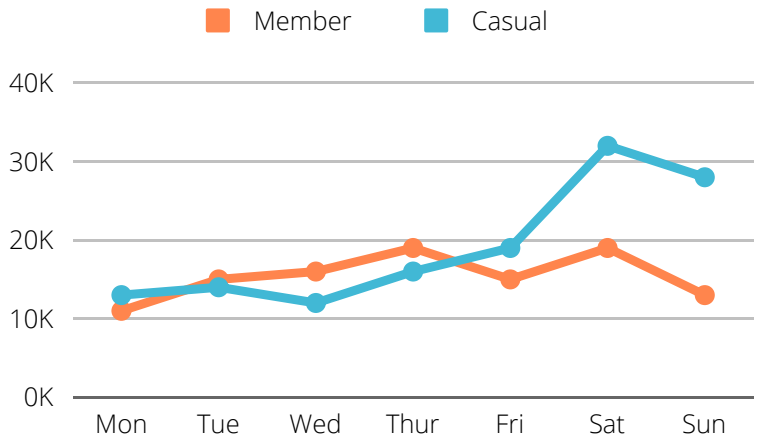
Cyclistic Rider Frequency

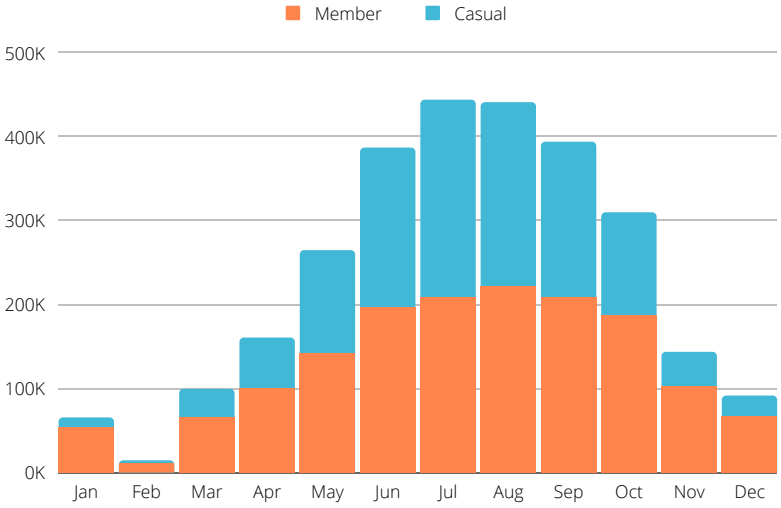
Days, Weeks, Months, Year

Rides by Day of the Week

Members ride consistently throughout the weekdays (Mon-Fri) but drop off significantly during the weekends.

Casual riders, however, pick up their ridership during the weekends and account for more than **52%** of weekend rides by user.





Total Trips per Month

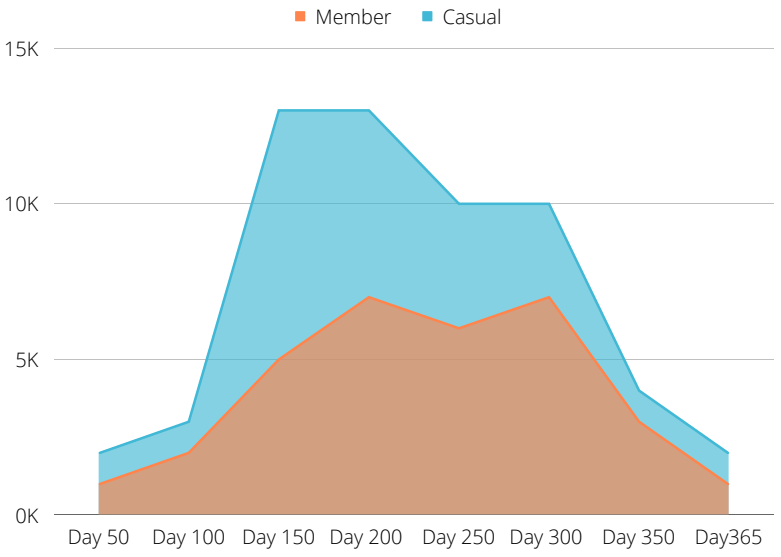
Members average 4K trips daily and never exceed **8K** trips in a single day. Their ridership also increases significantly in August.

Casual riders, however, pick up their ridership during in **May** and peaks in **July.** They appear to be seasonal riders - notably riding more throughout the warmer months.

Rides by Day of the Week

Members ride Cyclistic bikes for **92%** of the year, only dropping off significantly during the month of February. This may be due to the weather during that time which, according to Weather.com, saw days of snow, wintery mixes, and low temperatures in 2021.

Casual riders can be seen riding significantly more during days that fall on weekends throughout the year. Like Member riders, Casuals typically do not use the bikes in February, with the lowest rider count in a day being zero.



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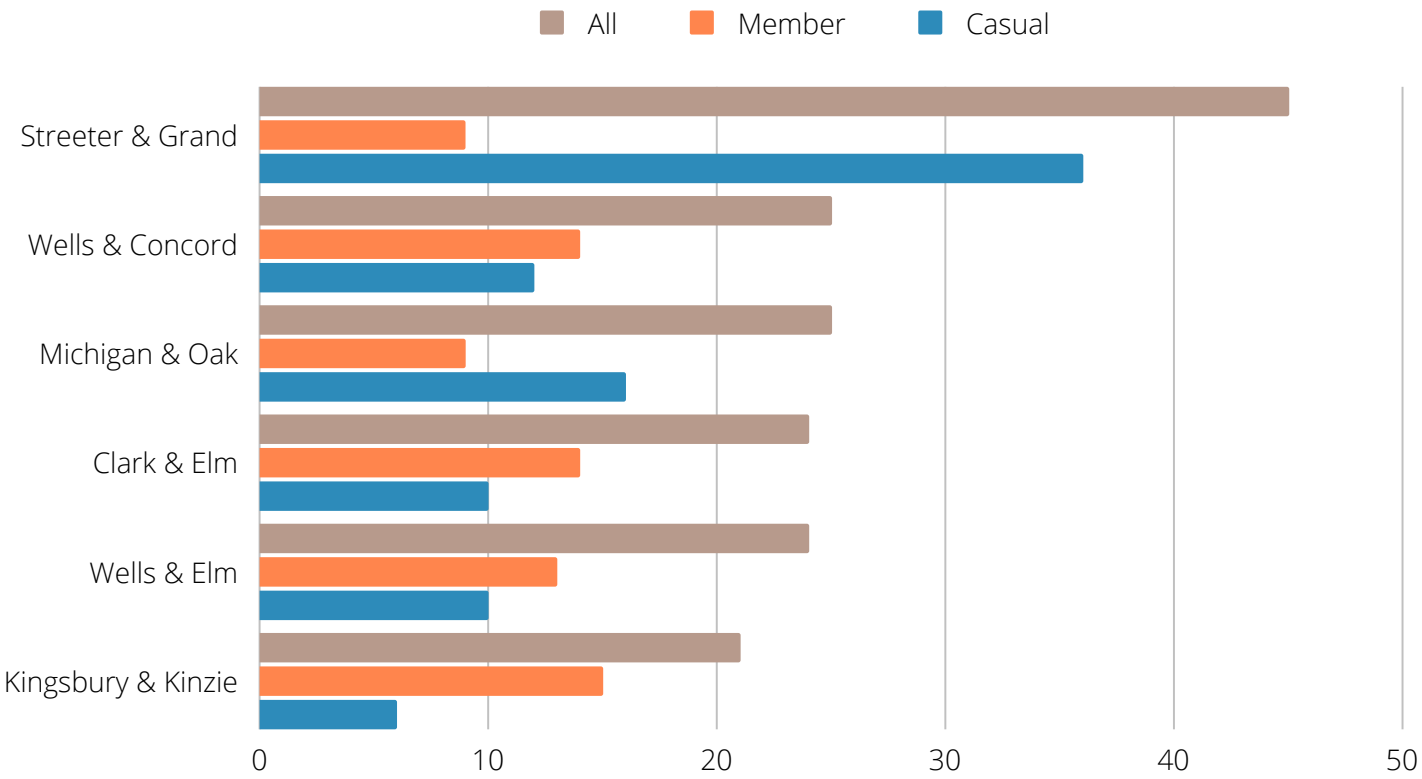
SECTION 4:

TOP LOCATIONS

Where do customers begin their journeys?

Top Locations

For the year ending December 31, 2021



Top Start (*Casuals*)

Streeter & Grand Ave was the starting point for 36K Casual riders in 2021. The location is surrounded by attractions.

Top Start (*Members*)

Kingsbury & Kinzie St was the starting point for **15K** Member riders in 2021, the largest point for all members. The location is surrounded by pubs, condominiums, and shopping centers.

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SECTION 5:

CONCLUSION & RECOMMENDATIONS

Insights & Ideas

Conclusion

"Customer conversion is dependent on the right customer conversation"

- Rasheed Oguniaru

It will be challenging to develop a Casual rider conversion strategy based solely on the findings in this analysis. While general rider group use cases have been identified, more data will be needed to improve the actionability of the proposed recommendations.

The findings suggest that **Member** and **Casual** riders have seemingly divergent uses for Cyclistic's bicycles.

Members spend close to **2x less** time on their bikes than casual riders, they decline in ridership during the weekends, and take more trips from inner-Chicago starting locations. All of this suggests that the Member rider-base are predominantly '***commuters***' who have an almost daily need for Cyclistic bikes.

Casual riders, on the other hand, ride their bikes **less frequently** than Members during the weekdays (Mon-Fri) but are significantly active on the weekends. They surge in ridership starting in **May** and peak in usage during **July**. Casual riders start the majority of their rides from **Streeter & Grand Ave** - a well-known tourist location - which suggests that the Casual rider-base are largely '***leisure-riders***'.

Given the data, there appears to be **little incentive** for a Casual rider to convert to an annual membership in its current state. This may be due to the affordable pricing structure and effective marketing message that highlights a Casual riders' need for leisure and short-term utility. To target Casual riders that may be "on-the-fence" would require data that identifies **sentiment, bike habits,** and **granular travel patterns** to offer more accurate insights.

Recommendations

Cyclistic Bike Share

Idea 1.

Create a 'Casual' membership.

Offering a Casual membership (by monthly/annual subscription) would allow Casual riders who have a potential need for frequent biking to justify the subscription. As it stands, the annual membership only benefits daily users - which Casual riders are not.

Idea 2.

Host monthly membership events.

In combination with the 'Casual' membership, Cyclistic could host monthly 'membership' biking challenges/events. The exclusivity of the events (combined with leaderboards, swag, and recognition) would likely convert even the most stubborn cost/benefit-driven Casuals.

Idea 3.

Have members do the converting.

Create an ambassador program where long-term, high-mileage, or high-usage members are given the tools and incentive to actively recruit new members. This could take the form of monthly free 'guest' passes, ambassador events, or other form of community engagement.

Idea 4.

Create a seasonal reward pass.

It's simple - reward Casual riders. Create a 'rider reward pass' system which offers two tracks:

1. Free (mini-rewards/extra time/etc...)
2. Full (Any rewards commensurate with frequent rides)

Those who want the Full rewards will convert. Those who enjoy the free rewards will simply ride more.

Phase 5

Reward Casual riders for their feedback.

Create a survey system that targets unique Casual riders and grant them some additional riding time after their first ride.

Future Exploration

- Conversion Rate Data
- Bike Trip Data
- E-Bike-specific Data
- Membership Tenure data
- Member churn rates

Summary Analysis
Report

Questions?
Contact Me.

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