ANALYZING DIVVY BIKE SHARE RIDES

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INTRODUCTION

Divvy is Chicagoland's bike share system. Divvy's current marketing approach isn't effectively converting casual riders into annual members, hindering long-term financial stability.

PROBLEM STATEMENT

To optimize DIVVY's revenue model and drive long-term sustainability by maximizing annual memberships for the year 2024

RESEARCH QUESTION

Are there consistent patterns or behaviors among rider groups between the years 2022 and 2023?

METHODOLOGY

1. Understanding the business context
2. Formulation of Research Question
3. Data Collection
   a. Divvy Website
   b. Weather
4. Tools Selection for data analysis
   a. Matplotlib
   b. Seaborn
   c. Pandas
5. Data cleaning & Data processing
   a. Data Standardization
   b. Handling Nulls
   c. Removing Duplicates
   d. Redundancy Checks
6. Feature Engineering
7. Segmenting Dataset
8. Doing Descriptive Analytics

OBSERVATION & INFERENCE -1
TRIP DURATION

```
member_2022['trip_duration'].mean
11.806239859444325
casual_2022['trip_duration'].mean
21.058710024092804
member_2023['trip_duration'].mean
12.073921788900263
casual_2023['trip_duration'].mean
20.65868029988734
```

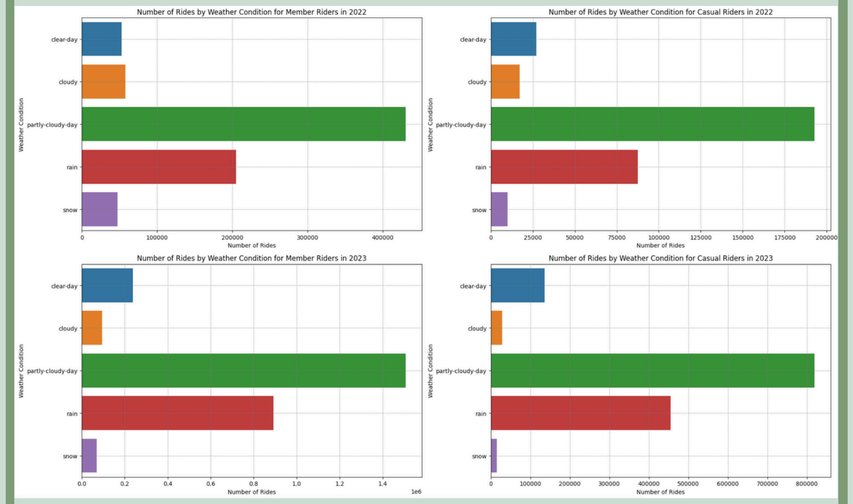
Findings:

1. Members maintained consistent average ride times across 2022 and 2023.
2. Casual riders rode 78% and 73% longer than members in 2022 and 2023, respectively.

Inference:

The consistent usage by members suggests routine trips, while the significantly longer ride times for casual riders indicate more sporadic or leisurely use.

OBSERVATION & INFERENCE -2
DAY TYPE



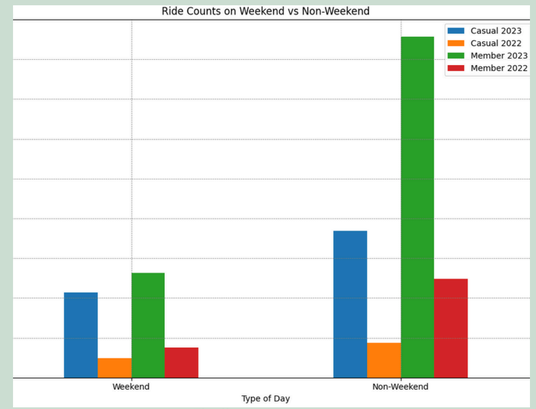
Findings:

1. In 2022, on cloudy and snowy days, casual members took fewer rides compared to regular members.
2. The same trend was observed in 2023, with casual members engaging less on adverse weather days.

Inference:

This consistent trend across both years indicates that regular members are less deterred by poor weather conditions, likely due to reliance on the service for essential commutes, whereas casual members' usage is more weather-sensitive, possibly due to discretionary or leisure-oriented travel.

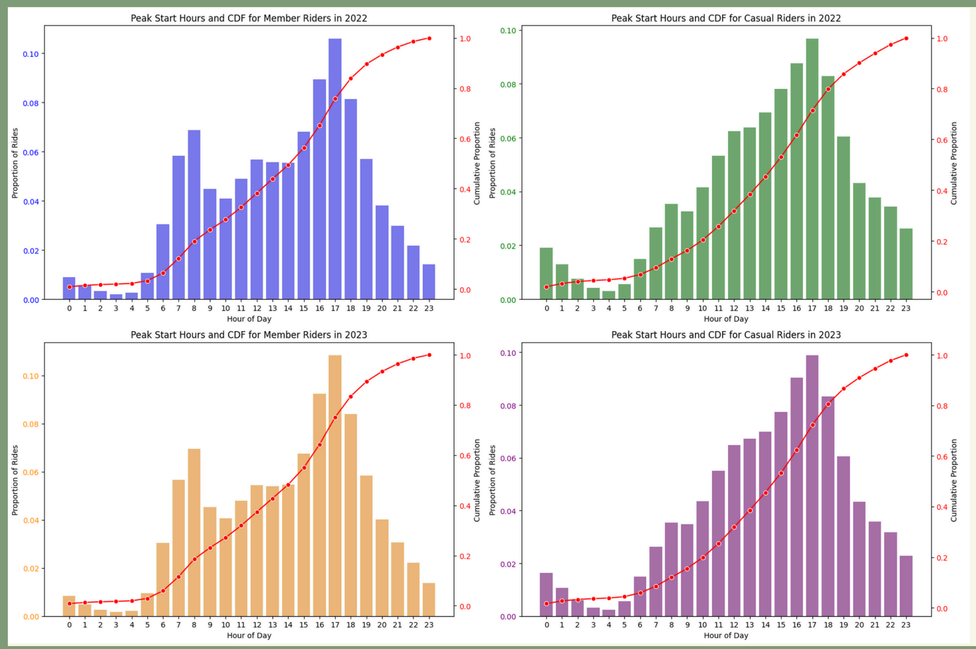
OBSERVATION & INFERENCE -3
WEEKEND ENGAGEMENT



Findings:

1. During weekends in both 2022 and 2023, ride engagement was equal between casuals and members.
2. On non-weekend days, casual riders had 53% fewer rides compared to members in both years.

Inference: Equal weekend engagement suggests similar leisure activity patterns for both user types, whereas the significant drop in casual rider activity on non-weekends indicates that members likely use the service more for routine or commuter purposes.



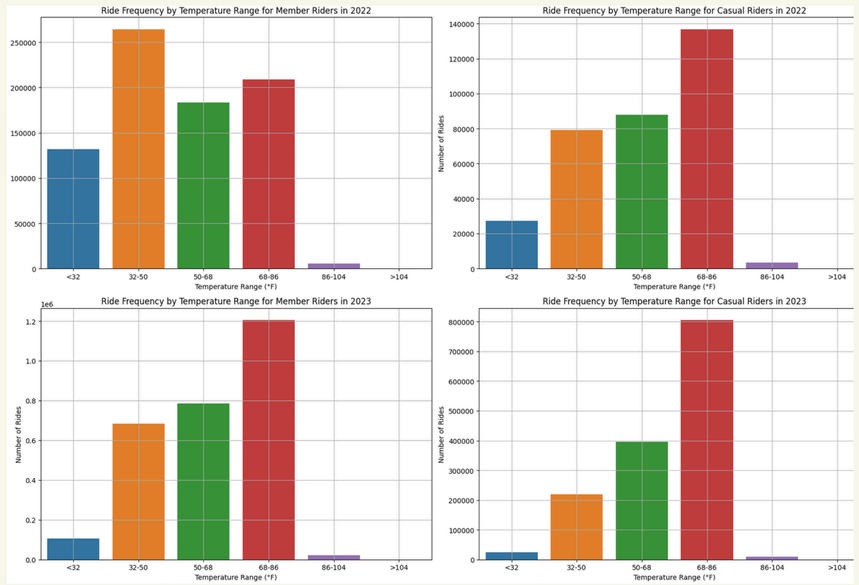
OBSERVATION & INFERENCE -4
HOURLY ACTIVITY

Findings:

1. Across 2022 and 2023, 65% of members consistently started their rides between 6 AM and 8 PM.

Inference:

This trend indicates that the majority of members likely use the service for daily routines or commuting purposes.



OBSERVATION & INFERENCE -5
TEMPERATURE

Findings:

1. In both 2022 and 2023, when temperatures fell below 32°F, casual members took 300% fewer rides compared to members.

Inference:

This pattern suggests that regular members are likely committed to using the service regardless of colder conditions, possibly for essential commuting, while casual members are more sensitive to unfavorable temperatures, reducing their usage significantly in cold weather.

REFERENCES

1. Data: https://divvybikes.com/system-data
2. Weather Data: https://www.visualcrossing.com/weather/weather-data-services
3. Seaborn: https://seaborn.pydata.org/tutorial.html
4. Pandas: https://pandas.pydata.org/docs/
5. Matplotlib: https://matplotlib.org/stable/gallery/index.html