01/2025

Cyclistic Case Study Report

Business Task

How can Cyclistic convert casual riders into annual members by understanding and leveraging the differences in their usage patterns?

Understand the differences in how casual riders and annual members use Cyclistic bikes to design a marketing strategy aimed at converting casual riders into annual members.

Key Questions:

1. What are the usage patterns of casual riders compared to annual members (e.g. trip duration, frequency, and time of usage)?
2. Are there specific times (e.g. weekends, holidays) when casual riders are more active?
3. What are the most popular locations (start and end stations) for casual riders and annual members?
4. Are there significant differences in the types of bikes used (e.g. electric vs. standard)?

Data Sources

Cyclistic's historical trip data for the last 12 months (Jan 2024 - Dec 2024)

- Primary data which represent anonymized bike-sharing data collected and provided by Motivate International Inc. Motivate International Inc is an established company servicing bicycle sharing systems. As dat was conducted on a 1st party basis, it indicates high level of integrity.
- Data is current as it covers the most recent 12 months of trip data.
- Comprehensive trip details of cyclistic's users are present in the data including ride ID, start and end time, start and end station, rideable type and member type.
- The datasets are anonymised to protect rider's personally identifiable information (PII). Fields such as credit card numbers or personal addresses are not included.
- The data is made available under an open license, ensuring ethical and legal compliance for analysis and visualisation.

Data Shortcomings

Missing data in the fields of start station name, start station id, end station name and end station id. These missing fields had little impact on the analysis.

- the start and end location of the trip was not meaningful in the analysis as the users could have varying travel patterns during the trip.

No access to distance rode per trip.

- no information to riding habits.

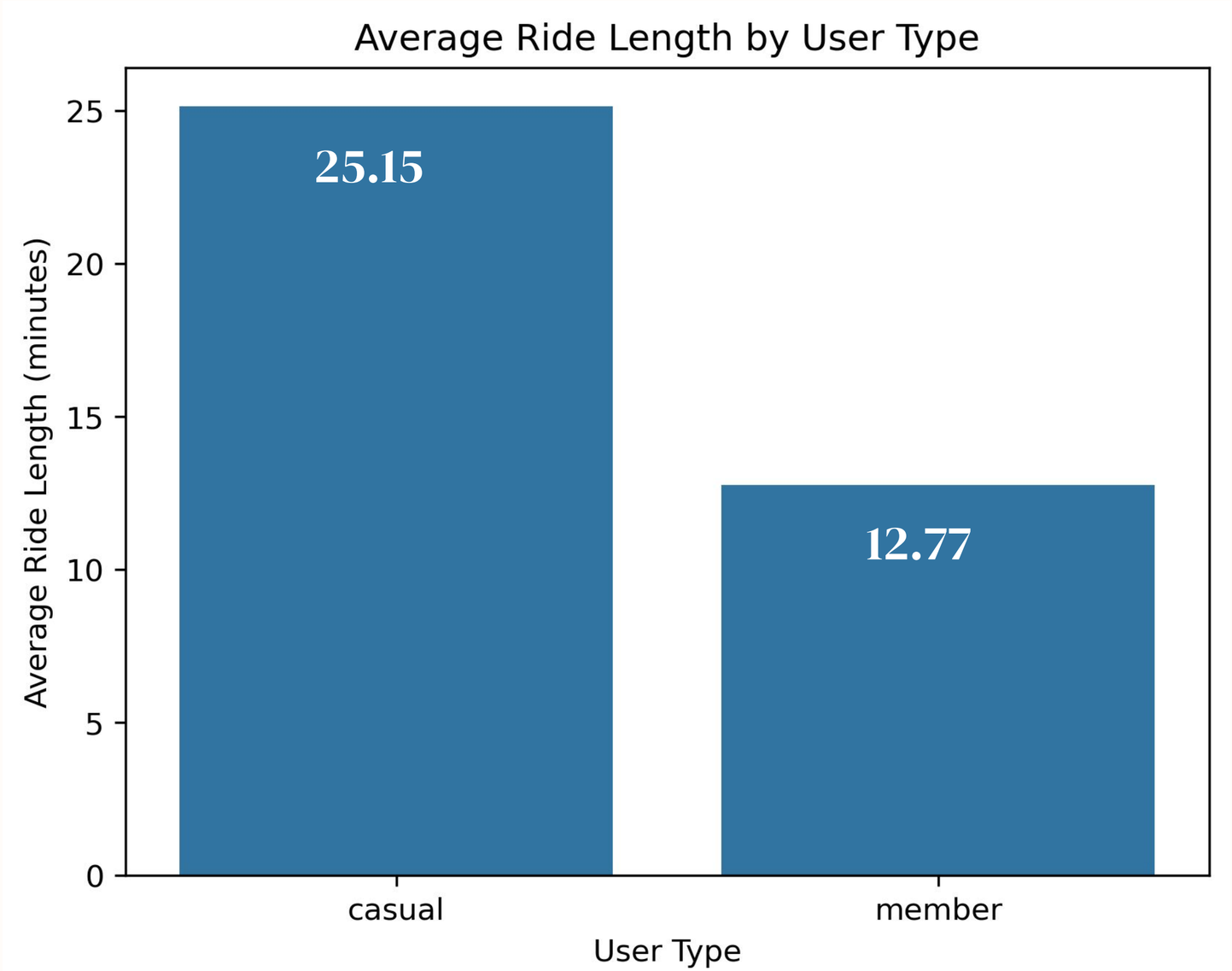
Casual members refers to rides that were not taken by members, however, we do not have further information of whether it was a single ride pass or a daily pass.

Data Cleaning and Manipulation Documentation

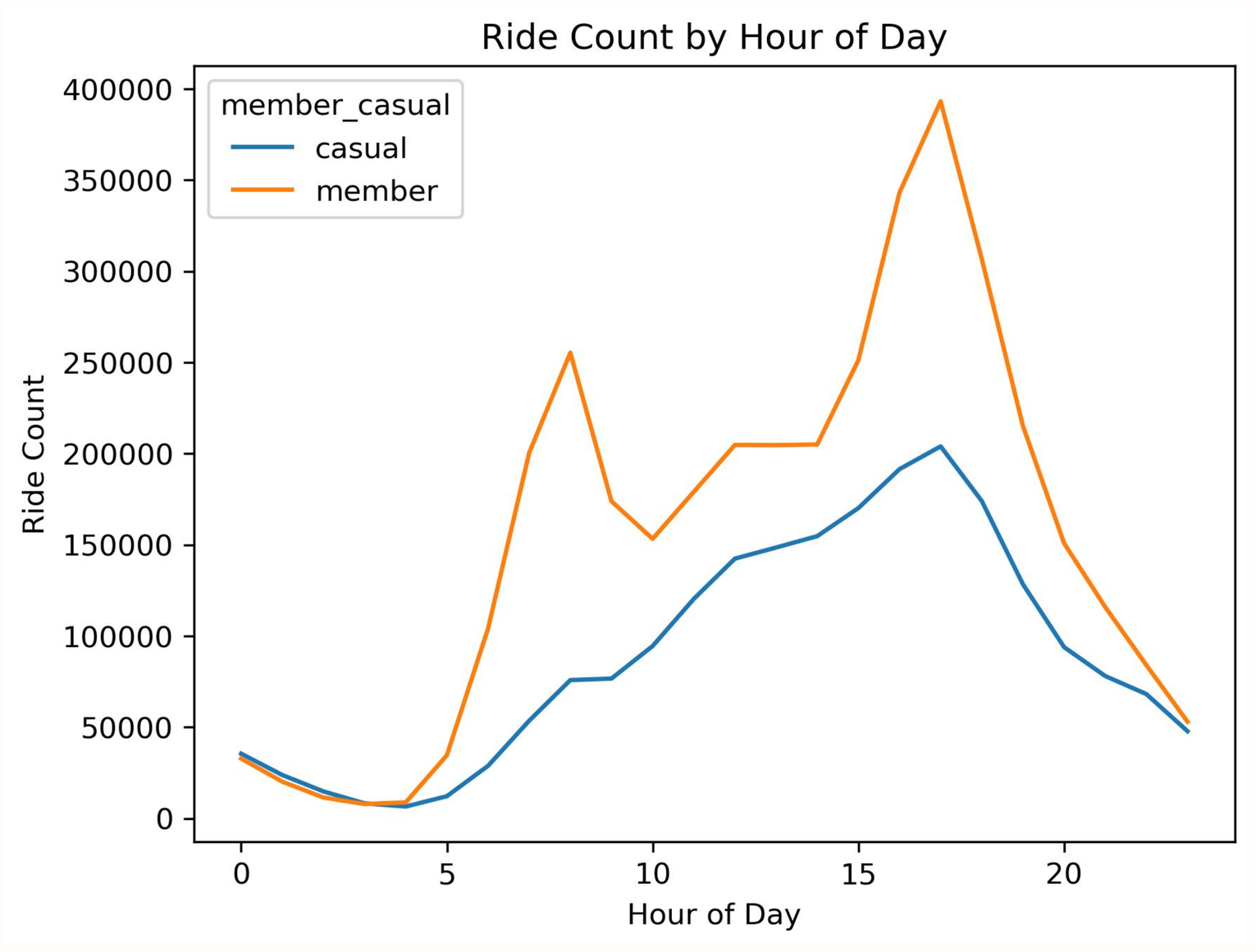
1. **The start and end station locations are less relevant if the goal is to explore broader patterns of behavior rather than geographical usage. Since the focus is on behavioral differences between members and casual riders, station-level data is considered less critical.**
   - The data for start station name, id, latitude, longitude and end station name, id, latitude, longitude has been omitted.

2. **New columns were added to derive insights that align with the business objectives.** They are:
   - **Ride Length:** Enables detailed descriptive analysis, such as calculating averages, medians, and distributions of trip durations for different user groups.
   - **Month:** Helps in identifying seasonal trends, such as increased usage during summer months or holidays.
   - **Day of the week:** Provides insights into weekly ~~behavior, such as whether casual riders prefer~~ weekends while members use bikes more consistently throughout the week.

Average Ride Length by Rider Type



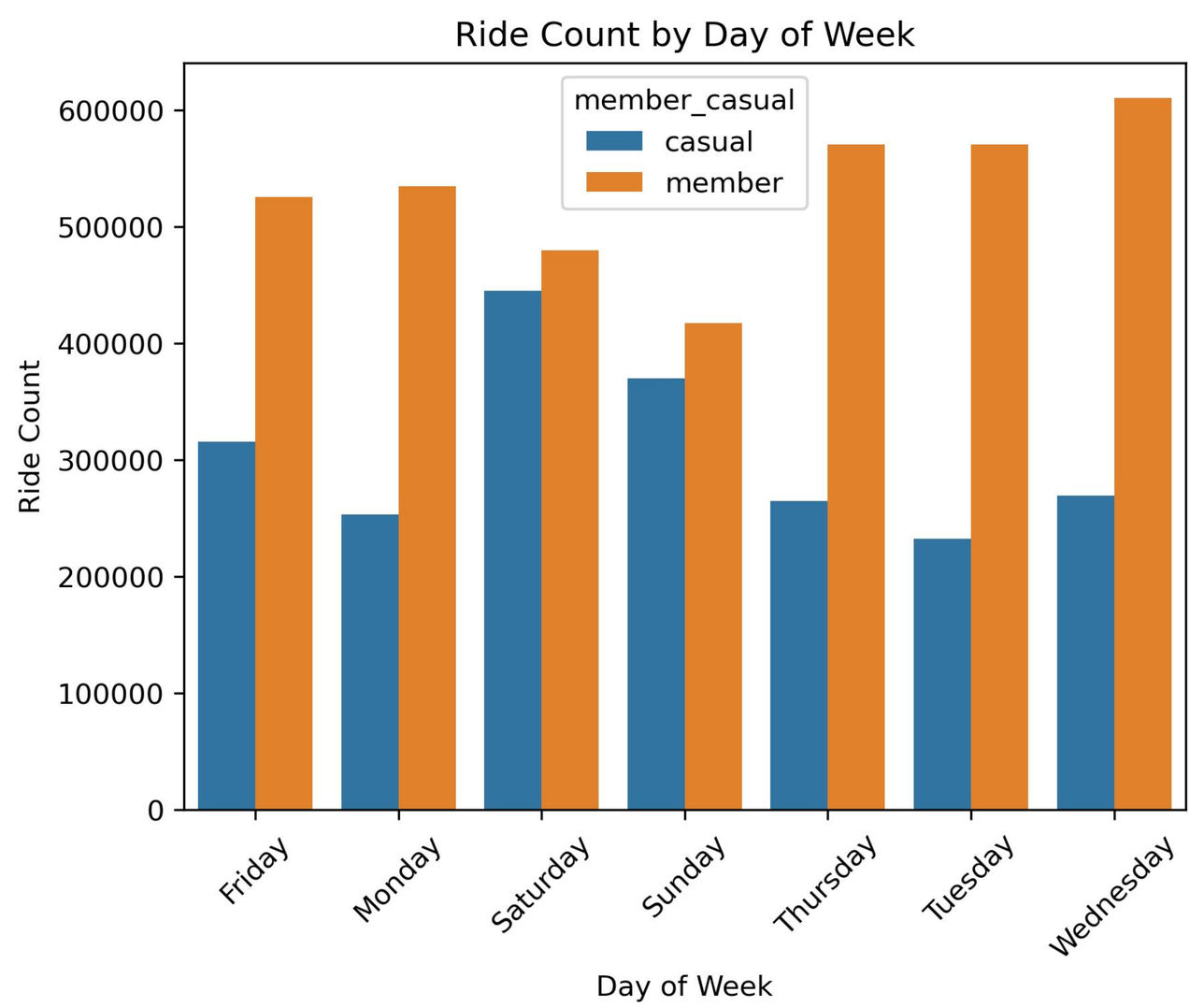
Ride Count by Hour of the Day



Member vs Casual Ride Count by Day of Week

Rider Type	Mon	Tues	Wed	Thur	Fri	Sat	Sun
Casual	253599	232390	269354	265099	315864	445409	369943
Member	534594	570686	610271	570594	525823	479688	417254

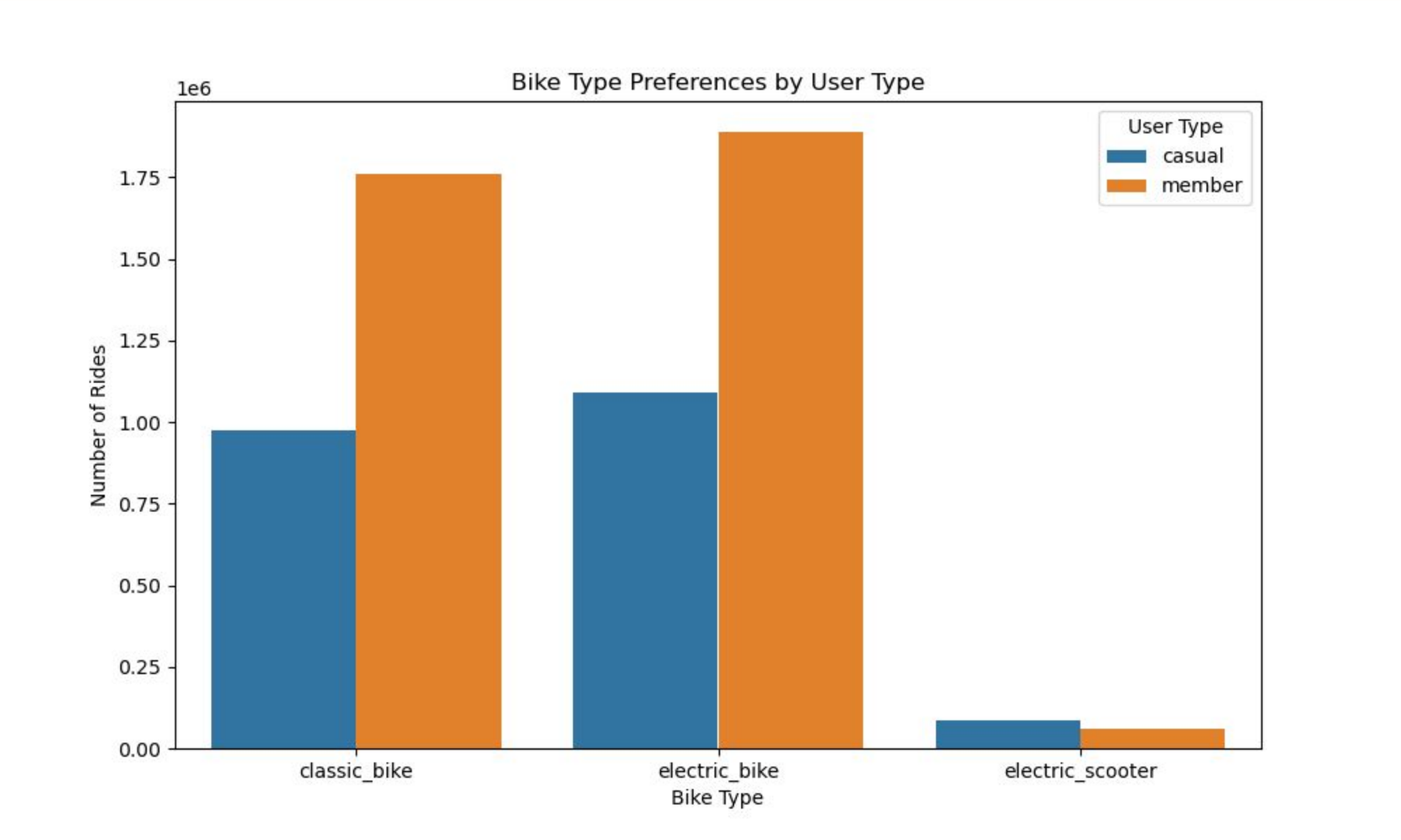
Member vs Casual Ride Count by Day of Week



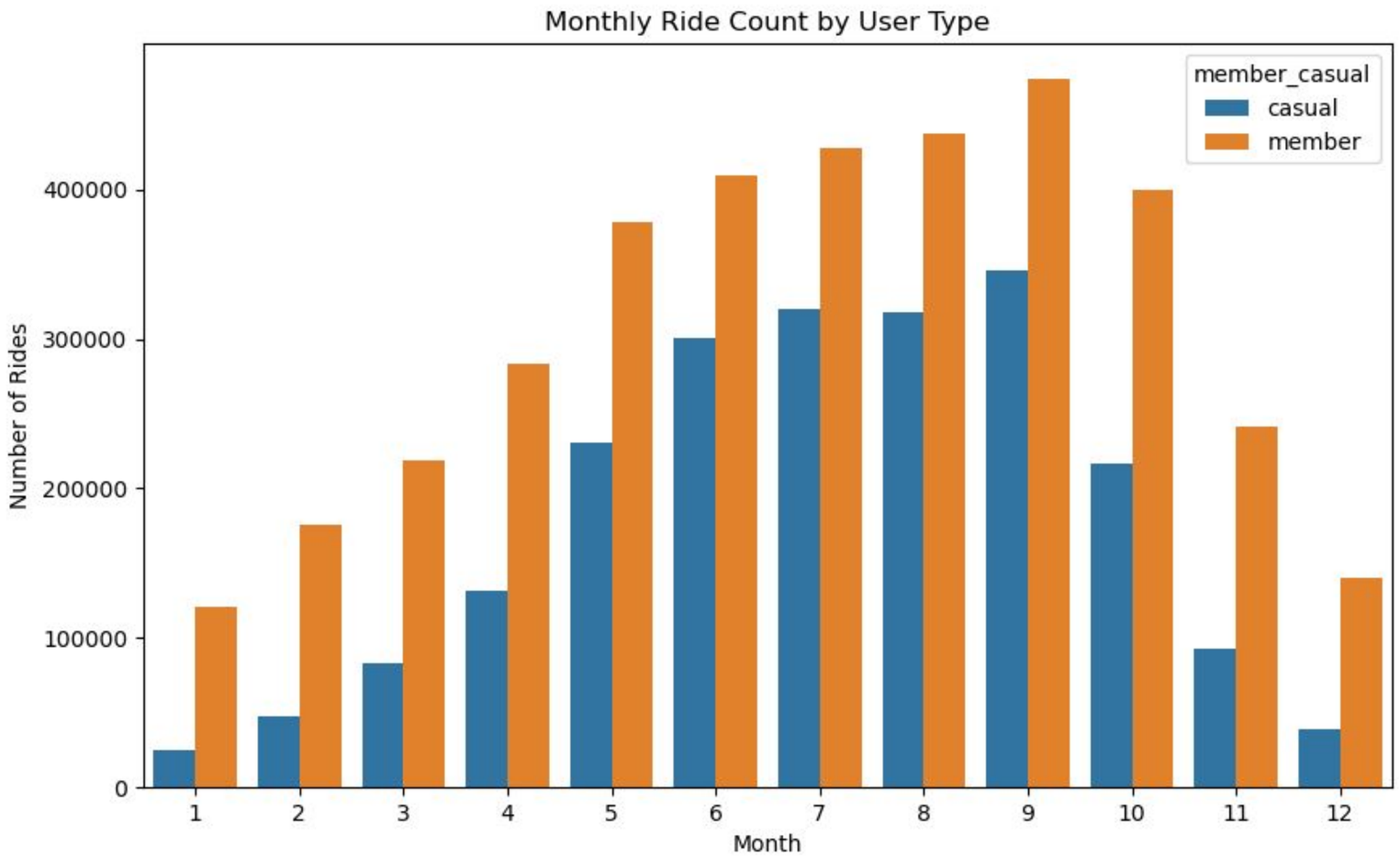
Member vs Casual Rider Bike Type Preferences

Rider Type	Classic Bike	Electric Bike	Electric Scooter
Casual	974966	1091477	85215
Member	1760670	1889118	59122

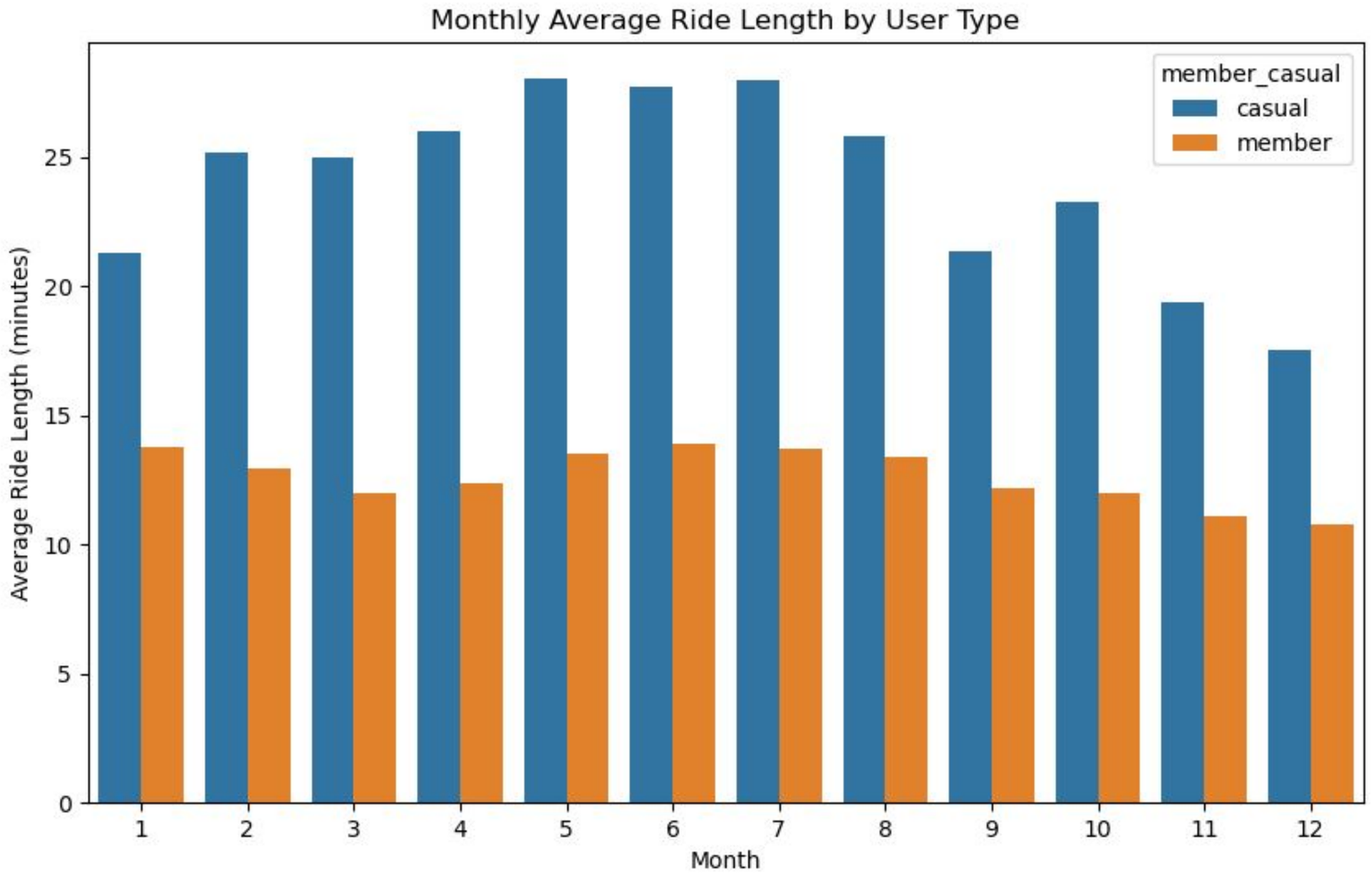
Member vs Casual Rider Bike Type Preferences



Member vs Casual Rider Monthly Ride Count



Member vs Casual Rider Monthly Average Ride Length



Analysis Insights

1. **Ride Length:**

   Casual Riders: Longer ride durations in summer and spring, indicating recreational use. Shorter durations in winter suggest limited use for essential trips.

   Annual Members: Consistent ride lengths across seasons, with slight increases in summer and spring for recreational use.

2. **Day of Week:**

   Casual Riders: Peak on weekends during summer and spring, aligning with leisure activities. Minimal activity on weekdays in winter.

   Annual Members: Consistent usage throughout the week, reflecting regular commuting patterns. Slight dips in winter weekends.

Analysis Insights

3. Bike Type Preferences:

Casual Riders: Likely prefer electric bikes or classic bikes for recreational use. May show less preference for docked bikes.

Annual Members: Likely use classic bikes more consistently, reflecting commuting habits. Electric bikes may also be popular for longer or faster commutes.

Analysis Insights

4. Seasonal Changes:

Winter:

Casual Riders: Drastic reduction in casual rides. Recreational use decreases as tourists and occasional riders avoid outdoor activities.

Annual Members: More consistent usage, likely for commuting purposes, though still reduced compared to warmer months.

Spring:

Casual Riders: Begin to reappear, often for recreational purposes.

Annual Members: Use remains steady, often for commuting or regular travel.

Analysis Insights

4. Seasonal Changes:

Summer:

Casual Riders: Significant spike in usage, primarily for leisure and tourism. Popular routes may include parks, lakefronts, and tourist attractions.

Annual Members: Maintain steady usage, with potential increases for recreational rides alongside regular commuting.

Fall:

Casual Riders: Gradual decrease, particularly in late fall as recreational opportunities dwindle.

Annual Members: Remain consistent, particularly for commuting, though recreational rides may decrease.

Recommendations

1. **Targeted promotions during peak month:**

   Casual riders are more likely to use the bikes during specific months (e.g., summer or spring), Annual memberships could be marketed as a cost-effective solution for frequent riders who would benefit from unlimited rides.

2. **Benefits tailored to long but infrequent trips:**

   Casual riders tend to take longer rides, this insight could be leveraged by offering an annual membership with benefits tailored to long but infrequent trips. For example, "lower prices for rides more than 30-minute."

3. **Priority access or discounts for peak time riders:**

   Casual riders tend to ride during specific times of the day or week (e.g., weekends and summer holidays), promote annual memberships with additional benefits like giving members priority access to the bikes and discounts during these peak times.