Business task

- Business question:
- How do annual members and casual riders use Cyclistic bikes differently?

- Analysis goal:
- Analyze historical trip data to identify behavioral patterns between member and casual users. The findings should provide insights to help Cyclistic convert casual riders into annual members.

- Context:
- Cyclistic is a bike-share company looking to increase the number of annual memberships. The marketing team needs a better understanding of behavioral differences between the two user types in order to design effective campaigns.

Key Findings from the Analysis

- **Differences in Usage Behavior**
- Casual users tend to ride bikes on weekends, with longer trip durations. 🕑
- Annual members take shorter and more frequent trips during the workweek. 📅
- Casual riders prefer docked bikes, while members use classic bikes more often. 🚲
- The day with the highest number of trips is Saturday, with over 650,000 rides — mainly from casual users. 📅
- On average, casual users have a trip duration of **22 minutes and 34 seconds**, while members average **11 minutes and 50 seconds** 🕑

Methodology

Data Cleaning:

-Removed empty values and incorrect ride durations (e.g., negative or 0-minute rides)

- Filtered out system-generated trips and irrelevant entries

Calculated Fields:

- ride_length: calculated as the difference between ended_at and started_at
- day_of_week: extracted using the WEEKDAY function (1 = Sunday to 7 = Saturday)

Tools Used:

- Google Sheets for initial cleaning and calculations
- BigQuery SQL for data aggregation, grouping by user type and day

Methodology

Analytical Focus:

- Compared average ride length by user type and day

- Analyzed ride volume across weekdays and weekends

- Identified usage trends based on subscription type

User Comparison: Casual Riders vs. Annual Members

Category	Casual Riders	Annual Members
Ride Duration	Average: 22 min 34 sec	Average: 11 min 50 sec
Ride Frequency	Peak on weekends (~300K rides)	Weekdays (~420K rides Wed–Fri)
Usage Pattern	Leisure or occasional use	Routine and practical use
Day Preference	Saturday and Sunday	Monday to Friday
Bike Type	Prefer docked bikes	Prefer classic bikes

Data overview

Source: Cyclistic bike-share trip data, published by Motivate International Inc

Time Range: Last 12 months of dat

File Format: `.csv` files with multiple columns:

- `ride_id`, `started_at`, `ended_at`, `ride_length`, `day_of_week`, `member_casual`

Data Processing: Cleaned in **Google Sheets**, aggregated using **BigQuery SQL**

Privacy: Fully anonymized; no personal data involved

Final conclusion

The analysis shows a consistent difference in behavior between casual riders and members. Casual users tend to ride more on weekends, take longer trips, and prefer docked bikes.
In contrast, members ride more frequently during the week, take shorter rides, and prefer classic bikes. These patterns suggest that casual riders may be using the service more for leisure or tourism, while members use it as part of their daily routine. By targeting casual users based on these behaviors, Cyclistic has a strong opportunity to convert them into loyal members.

Applying insights

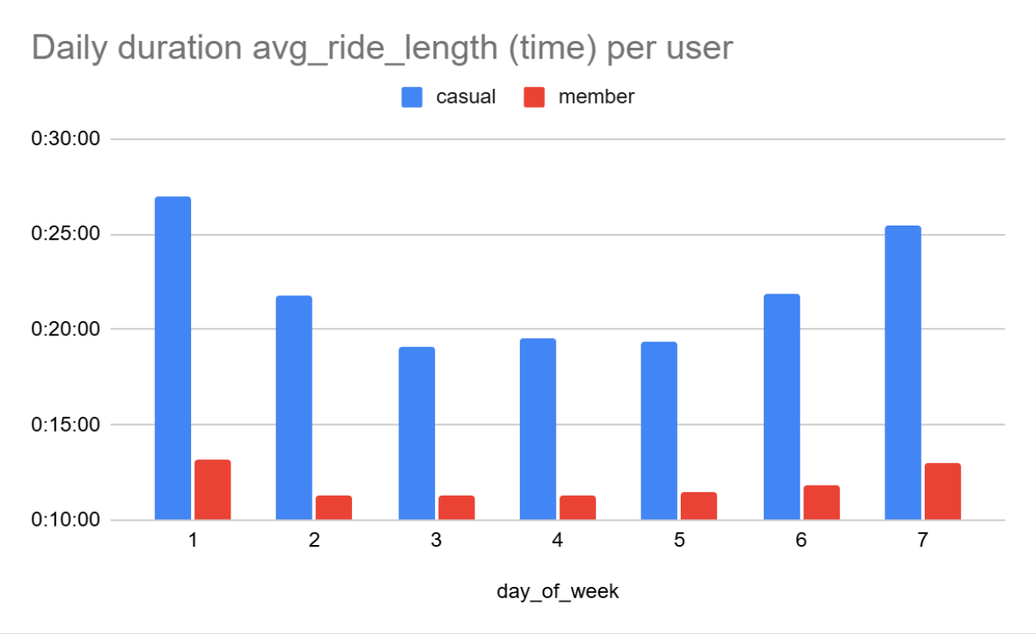
The business can apply these insights by launching focused marketing campaigns during weekends, when casual rider activity is highest. They can also tailor messages based on casual users' preferences—highlighting how membership could save them money on longer trips, or offering promotions near popular casual stations. In addition, operational decisions like optimizing bike type availability and station placement can enhance the user experience and increase conversion rates.

Next steps

- Develop targeted promotions and ads for casual users during weekends.
- Run A/B tests with different membership offers to measure which strategies convert casual riders most effectively.
- Deploy more classic bikes and promotional materials in stations frequently used by casual riders.
- Monitor usage patterns in real time to continuously refine marketing efforts and operations.

Shared Bike Usage Patterns

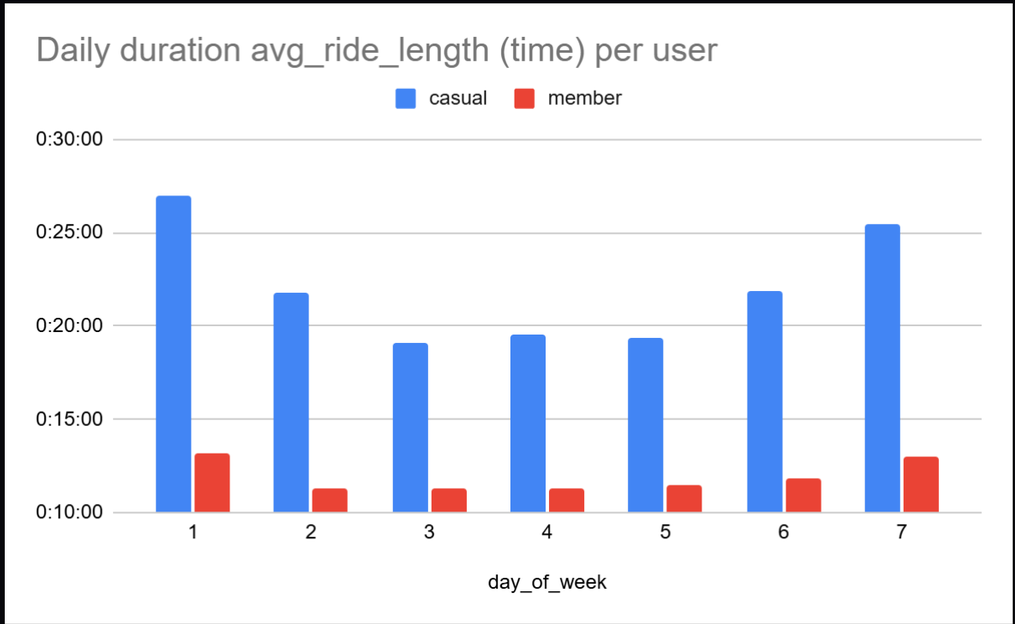
There is a clear difference in ride duration between casual users and subscribed members, suggesting distinct usage patterns



Casual users (blue bars)

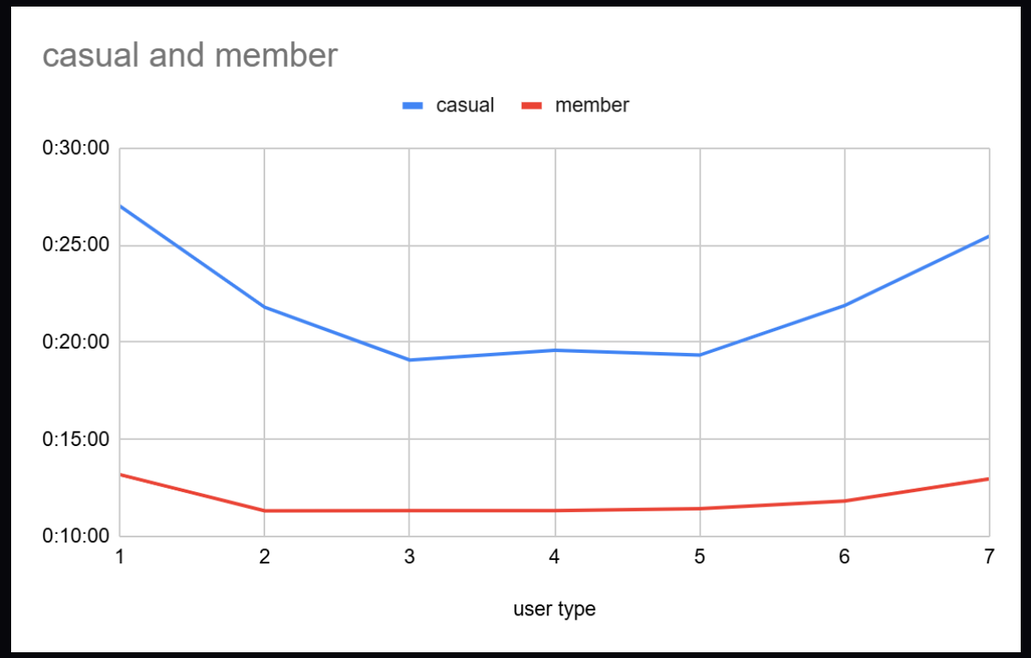
- Significantly higher average durations on all days of the week.
- Sunday (Day 1) is the most representative day, with an average of 25 minutes and 28 seconds.
- They likely use the bikes for recreational activities or long rides, especially on weekends.

Subscribed Members (Red Bars)



- Stable and low duration throughout the week, ranging from 11 to 13 minutes per day.
- On Sunday, they reach only 12 minutes and 58 seconds.
- Indicates a more routine and brief usage, ideal for short and regular trips such as daily commuting.

Average ride duration per day of the week for two user types

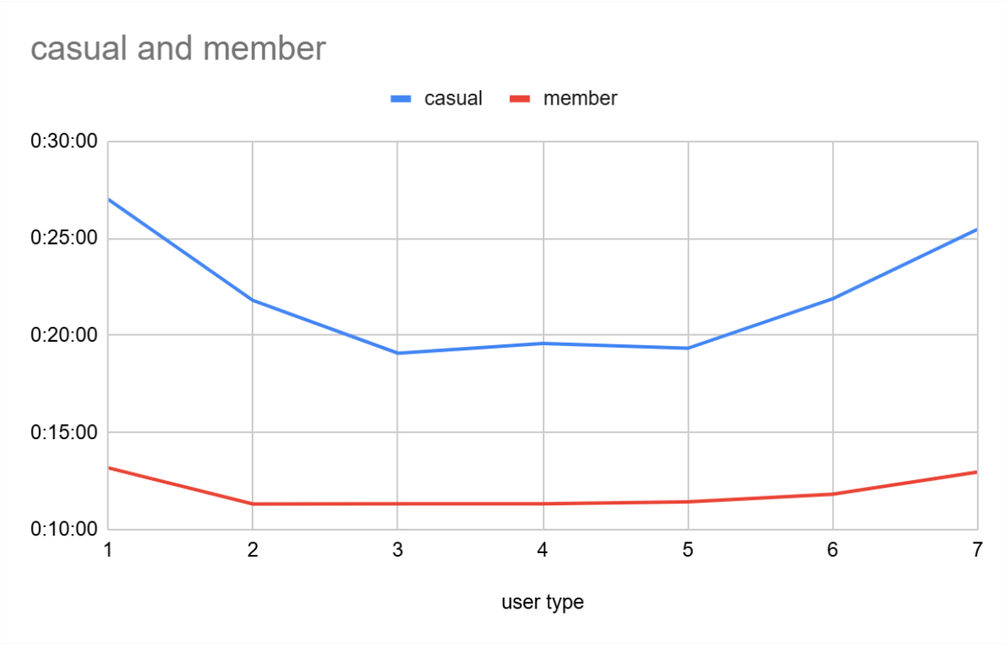


Casual users

- Start the week (Day 1) with an average of **27 minutes and 1 second**.
- There's a **gradual decrease** from Monday through Wednesday (Day 3: 19:05).
- Durations **remain steady** around 19 minutes until Friday.
- Casual users **tend to ride longer on weekends**, suggesting recreational use or l

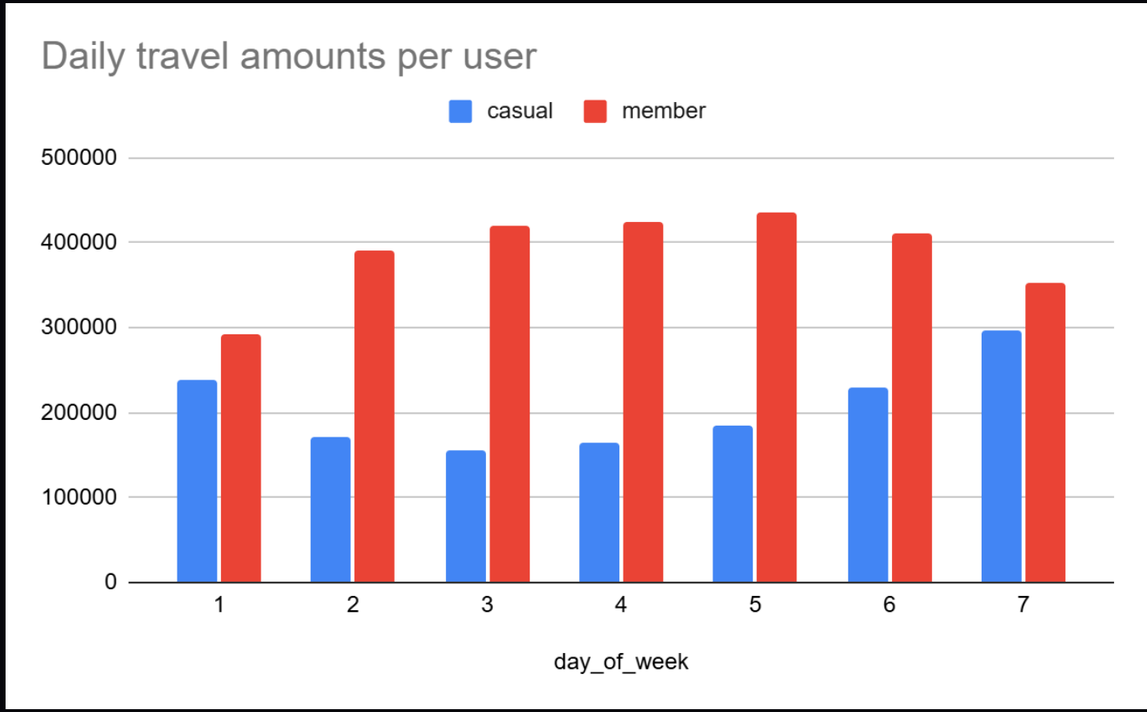
Average ride duration per day of the week for two user types

Subscribed members



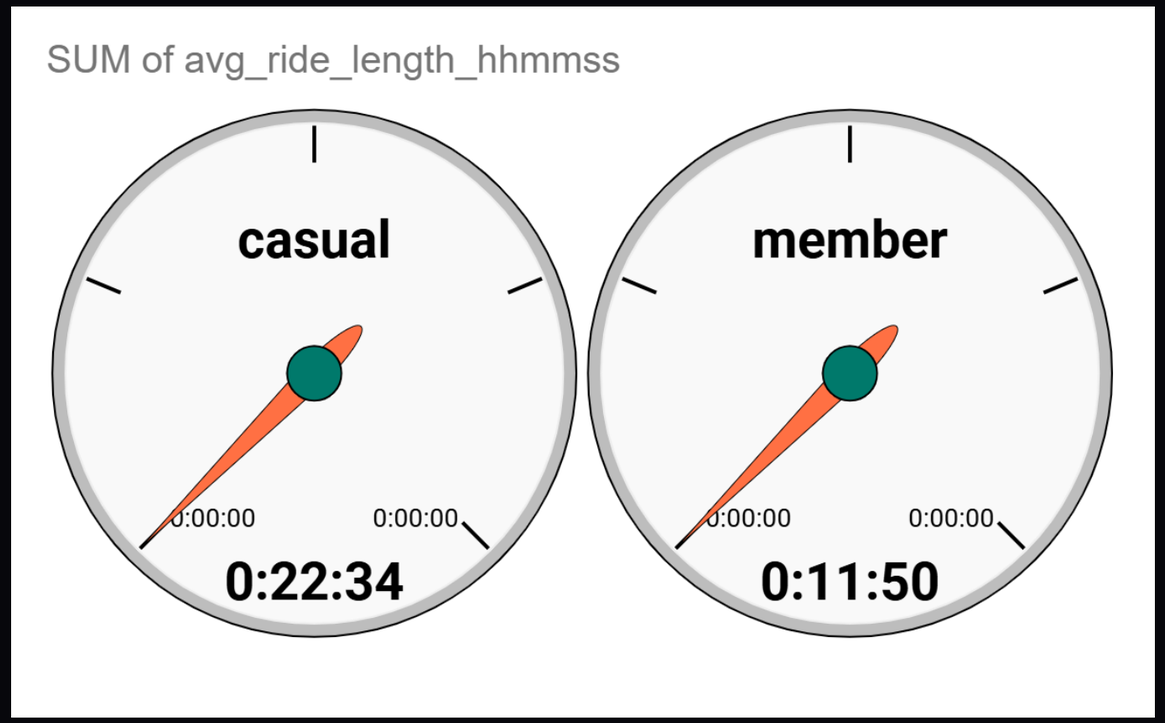
- They show a **stable and low duration** throughout the week: between **11 and 13 minutes per day**.
- The highest value is on **Sunday (12:58)**, but the difference is minimal.
- This pattern indicates a **routine and functional use**, likely for daily commuting or regular errands.

Average ride duration per day of the week for two user types



- **Subscribed members** (red bars) make **more daily rides** than casual users on **every day of the week**.
- Their highest ride counts occur between **Wednesday and Friday**, with over **420,000 rides per day**.
- In contrast, **casual users** (blue bars) peak on **Sunday (Day 7)** with nearly **300,000 rides**, suggesting a **more recreational or weekend-oriented use**.

Analysis of average ride duration by user type

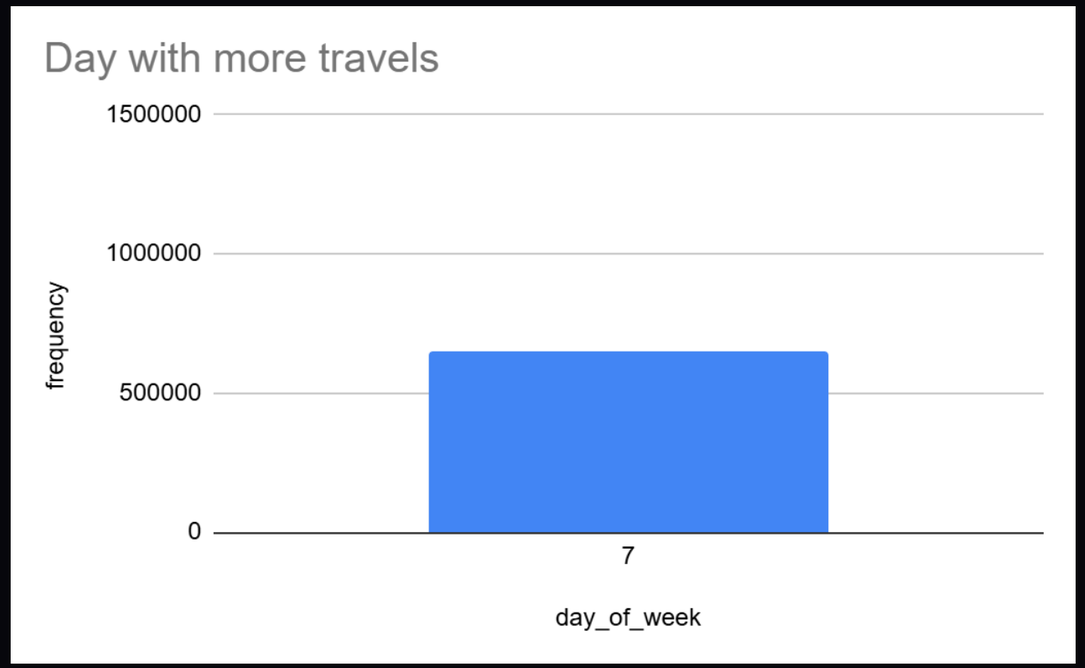


- The **average ride duration** for **casual users** is **22 minutes and 34 seconds**, nearly **double** the duration of **subscribed members**, who average **11 minutes and 50 seconds**.

- The **gauge charts** clearly highlight this contrast, showing that casual users tend to take **longer rides overall**.

- This pattern reinforces the idea that **casual users ride for leisure or occasional use**, while **members use bikes for shorter, more routine trips**.

Most popular day for bike usage



"Saturday (Day 7) had the highest number of rides, with a total of 650,106 trips initiated."

Conclusion

- This case study demonstrates how data-driven insights can uncover meaningful differences in user behavior. By understanding when, how, and where casual riders use Cyclistic bikes, we can recommend specific, actionable steps to increase membership conversions. These strategies not only support revenue growth but also help improve customer satisfaction and operational efficiency.

Top 3 Recommendations

- Launch weekend-targeted promotions for casual users with special membership offers.
- Encourage casual riders to try classic bikes by improving availability and promoting benefits.
- Focus marketing at high-traffic stations popular among casual users with QR codes and clear membership information.

Next steps

•Create and test targeted marketing campaigns for casual riders, especially on weekends.
•Evaluate the performance of promotional strategies using ride data and membership conversion rates.
•Adjust bike distribution and station resources based on high-usage areas for casual riders.