🚲 Cyclistic Bike-Share Analysis Report

1. Executive Summary

Cyclistic aims to grow its annual memberships. This analysis of 5.47M rides (Aug 2024 – Jul 2025) compares behaviors of casual riders vs annual members.

Key Insights:
- Casual riders: longer rides, prefer weekends, peak midday/afternoon, highly seasonal.
- Members: shorter but more frequent rides, commute-hour peaks, steady year-round.
- E-bikes are popular across both groups, with casuals slightly more reliant.

Top Recommendations:
1. Weekend-to-Weekday Trial Passes for casuals.
2. E-bike perks for members (discounted/free unlocks).
3. Corporate/university membership partnerships to capture commuter groups.

2. Background & Objectives

Business Problem: Cyclistic wants to increase annual memberships, which are more profitable than casual usage.
Objective: Use trip data to identify differences between casual riders and members, and recommend strategies to convert casuals to annual members.

3. Data Overview

- Source: 12 months of Cyclistic public trip data (Aug 2024 – Jul 2025)
- Records: 5.47 million valid rides
- Fields: Ride ID, bike type, timestamps, user type, start/end stations, GPS
- Limitations: No demographics (age, gender, income), some missing station data, weather not included.

4. Methodology

- Combined 12 monthly CSVs into BigQuery
- Cleaned data: removed invalid values (negative durations, >24hr rides, missing timestamps)
- Standardized fields (lowercased member/casual, added ride_length_min, day_of_week, month, etc.)
- Final dataset: trips_clean table with 5.47M rows
- Analysis performed with SQL in BigQuery, visualized in Looker Studio

5. Findings & Insights

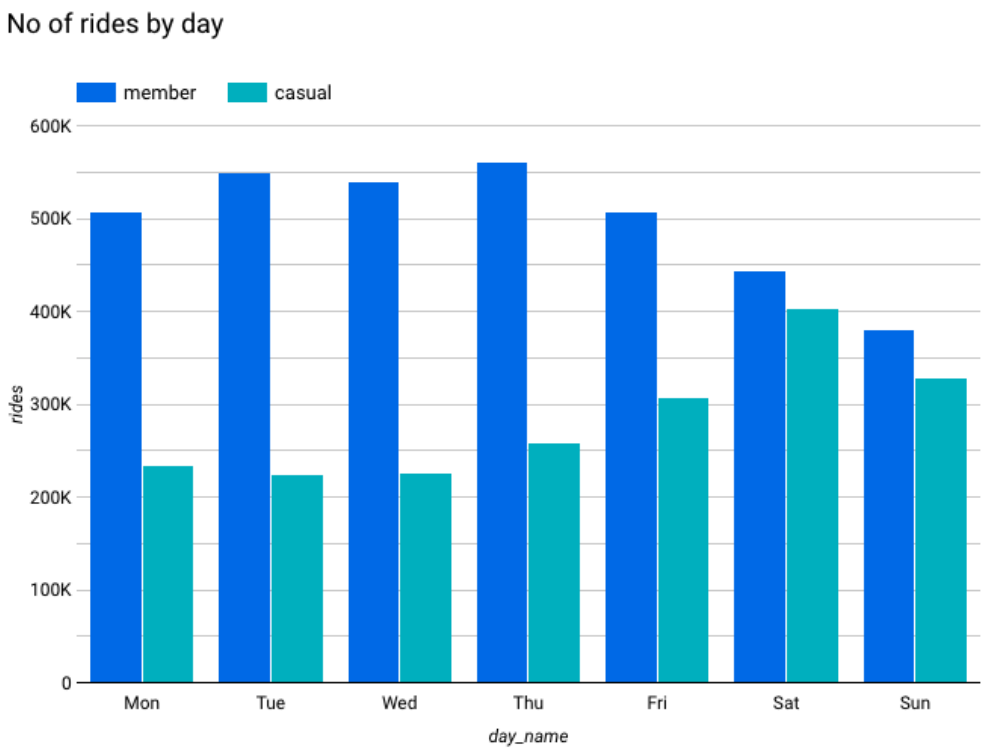
5.1 Ride Duration

Finding: Casuals ride longer (avg ~20 min) than members (avg ~11.5 min).

member_casual	avg_minutes	median_minutes	total_rides
casual	19.73603391	11	1981353
member	11.49116552	8	3491660

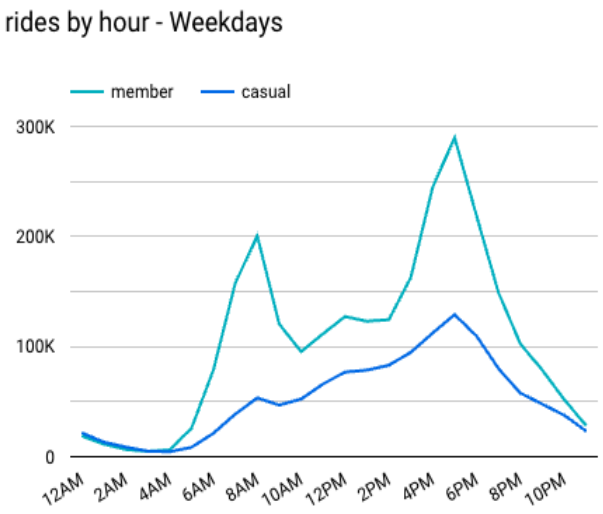
5.2 Weekday vs Weekend

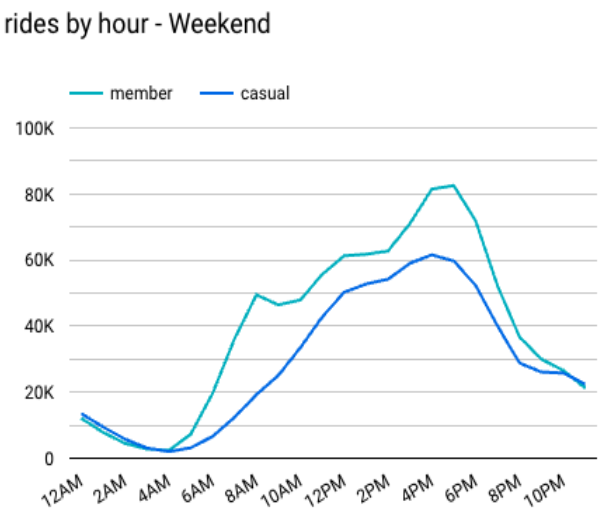
Finding: Members dominate weekdays; casuals surge on weekends.



5.3 Hourly Usage Patterns

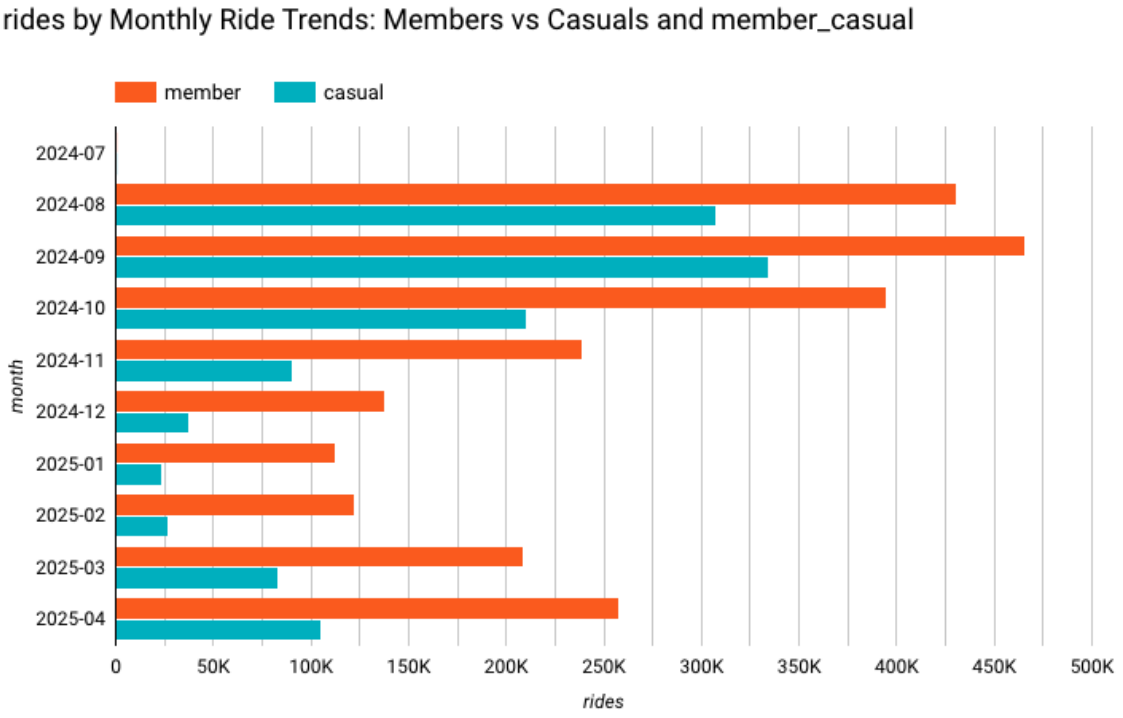
Finding: Members peak during commute hours (8AM, 5PM); casuals peak afternoons/weekends.





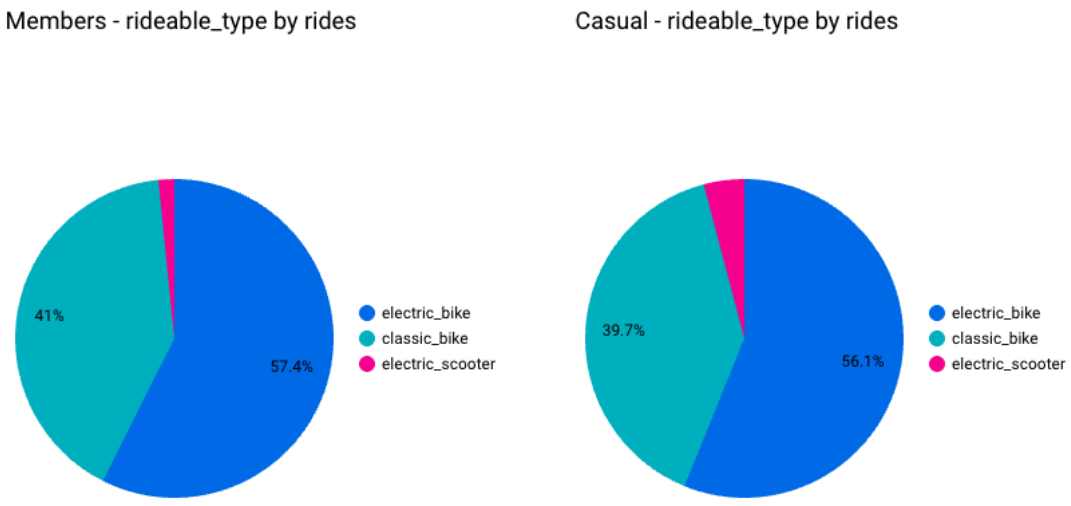
5.4 Monthly Seasonality

Finding: Casuals are highly seasonal; members ride consistently year-round.



5.5 Bike Type Preferences

Finding: Both groups favor e-bikes; casuals rely slightly more on them.



6. Recommendations

1. Launch Weekend-to-Weekday Trial Passes to convert casual weekend riders into weekday commuters.
2. Add exclusive e-bike membership perks (discounted unlocks/free rides) to attract e-bike–loyal casuals.
3. Build corporate and university membership partnerships to secure bulk commuter adoption.

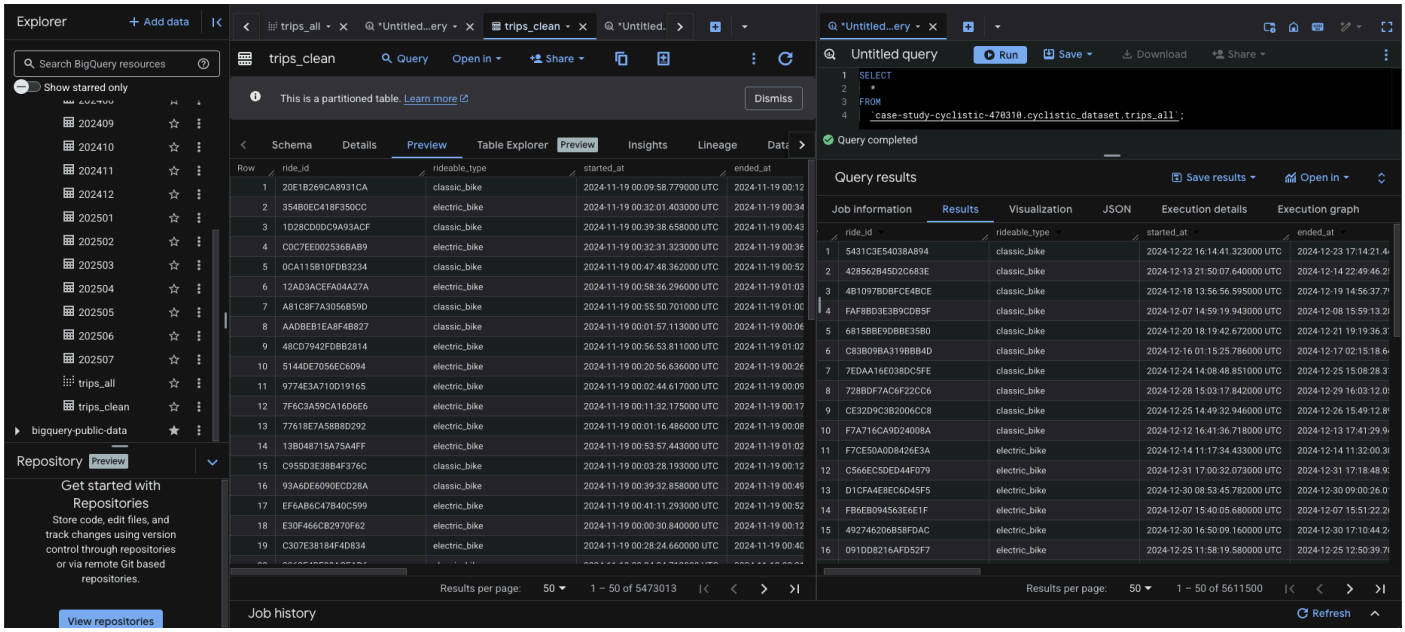
7. Next Steps

- Pilot weekend-to-weekday trial pass campaign
- Launch e-bike perks for members
- Develop partnership program with universities and employers

8. Appendix

8.1 Data Cleaning Log

- Removed invalid rows (negative/0 duration, >24 hrs)
- Standardized fields (member_casual, ride_length_min, etc.)
- Final dataset: 5.47M valid rides



8.2 Technical Queries

SQL scripts stored in GitHub repo (or provided in project files).

8.3 Limitations

- No demographic information available
- Missing or incomplete station data
- Weather, holidays, and external factors not included