Cyclistic Bike-Share Case Study

Summary

This report analyzes Cyclistic's bike-share data from October 2024 to September 2025 to recognise the differences between annual members and casual riders. R programming language has been used for data cleaning and Tableau for visualization which allowed us to identify the key behavioral trends to guide Cyclistic's future marketing strategy.

Our analysis shows that annual members take more frequent rides, whereas casual riders take longer trips, particularly on weekends and during summer months. These insights form the foundation for three strategic recommendations to increase member conversions.

1. Introduction

Cyclistic is a fictional bike-share company based in Chicago which seeks to understand how annual members and casual riders use its bikes differently.
The aim is to design marketing strategies that convert casual riders into annual members, hence increasing revenue and customer retention.

2. Data Preparation & Tools

Data Sources:

- Divvy October 2024 to September 2025 datasets (publicly available).

- **Tools Used:**
- **RStudio** for data cleaning, transformation, and summarization.

- **Tableau** for visualization and dashboard creation.

3. Data Cleaning & Transformation

The following steps were performed using R:

- Combined monthly CSV files(12 months).

- Converted date/time fields and calculated ride_length.

- Removed null values and invalid entries. For instance: Removing trips < 1 min or > 24 hours.

- Added helper columns for day_of_week, month, hour, and is_weekend.

The final cleaned dataset dimensions:
Rows: 3,769,998   **Columns:** 18

4. <u>Key Insights</u>

- Members take more total rides than casual riders, showing consistent weekday commuting patterns.
- Casual riders have longer ride durations, indicating leisure-oriented usage.
- Casual rides peak on weekends, while members ride more consistently throughout the week.
- Summer months (June–August) show higher ride volume for both user types, reflecting seasonal demand.
- Peak riding hours: Members travel the most around 8 AM & 5 PM while Casuals travel the most around mid-afternoon.

5. <u>Visualization</u>

Data visualizations were created in Tableau using cyclistic_viz_data.csv.

Key worksheets:

- **Member vs Casual Rides:** Compared total rides by user type.
- **Average Ride Length:** Showed average duration by user type.
- **Hourly Rides:** Highlighted time-of-day patterns.
- **Monthly Trends:** Displayed seasonal usage trends.
- **Rides by Day of Week:** Revealed weekday vs weekend patterns.

A combined 'Cyclistic Bike Usage Analysis Dashboard' was designed to summarize these insights interactively.

6. <u>Recommendations</u>

Based on findings:

1. **Target casual riders with weekend & summer membership promotions.**

   This would encourage frequent summer leisure riders to subscribe for discounts or perks.

2. **Offer commuter plans for daily riders**.

   For instance: Launch commuter-based incentives for annual members.

3. **Create flexible membership plans.**
   Offer short-term memberships to convert casual riders gradually.

7. <u>Conclusion</u>

The analysis shows that annual members and casual riders use Cyclistic bikes differently. By using these behavioral insights, Cyclistic can strategically increase annual memberships, optimize marketing efforts and improve operational planning for high-demand periods.