Cyclistic Bike-Share Case Study

Data Analytics Portfolio Summary

Project Overview

Cyclistic is a Chicago-based bike-share company seeking to increase annual memberships. This case study analyses behavioural differences between **annual members** and **casual riders** to identify data-driven opportunities for converting casual riders into long-term subscribers.

Business Question

How do annual members and casual riders use Cyclistic bikes differently, and how can these differences inform a targeted membership conversion strategy?

Data & Tools

- **Data:** Public Cyclistic (Divvy) bike-share trip data, Q1 and Q4 2019
- **Tools:** SQL (Google BigQuery), Tableau, Microsoft Excel
- **Methods:** Data cleaning, feature engineering, aggregation, window functions, and data visualization

Analytical Approach

Trip data from multiple quarters were cleaned and merged using SQL to enable consolidated analysis. Ride duration was calculated from timestamp differences, and additional time-based features (day of week and month) were extracted to support behavioural analysis. Invalid records, including negative ride durations and trips exceeding 24 hours, were removed. Cleaned data was analysed to compare ride frequency, duration, and usage patterns across rider types and time periods.

Key Insights

- **Annual members account for approximately 88% of total rides**, with usage concentrated on weekdays, indicating commuter-oriented behaviour.
- **Casual riders take trips nearly three times longer on average** and show peak usage on weekends, consistent with leisure riding.
- Weekend ride composition shifts significantly, with casual riders representing up to **35–40% of total rides**.
- Casual rider trip durations increase during warmer months, while member behaviour remains stable.

Recommendations

- **Weekend conversion campaigns:** Target high-engagement casual riders with weekend-focused membership offers.
- **Loyalty incentives for long rides:** Reward frequent long-duration casual riders to encourage membership conversion.
- **Commuter optimization:** Improve bike availability and redistribution at high-demand weekday commuter stations.
- **Seasonal marketing:** Align promotional campaigns with warmer months when casual ridership increases.

Business Impact

This analysis supports a data-driven strategy for increasing annual memberships while maintaining strong commuter satisfaction. By linking behavioural insights directly to actionable recommendations and measurable KPIs, the case study demonstrates how analytics can inform growth-focused business decisions.