Cyclistic Bike-Share Rider Behavior Analysis

About the Project

This case study investigates rider behavior patterns in the Cyclistic bike-share program to determine how casual riders and annual members use the service differently. The goal is to support strategic decisions to convert casual users into paying members.

Business Objective

Analyze the difference in riding behavior between casual and member riders to recommend strategies to convert more casual riders into annual members.

Dataset & Tools

- Cyclistic public trip data (2019–2020)
- Python, Pandas, Seaborn
- Google Colab
- Power BI
- Report generated in Python

Methodology

1. Imported and merged datasets
2. Cleaned & transformed data (datetime conversion, removing invalid rides)
3. Feature Engineering (Duration, Day of Week, Hour)
4. Exploratory data analysis and visualization
5. Insights interpretation & recommendations

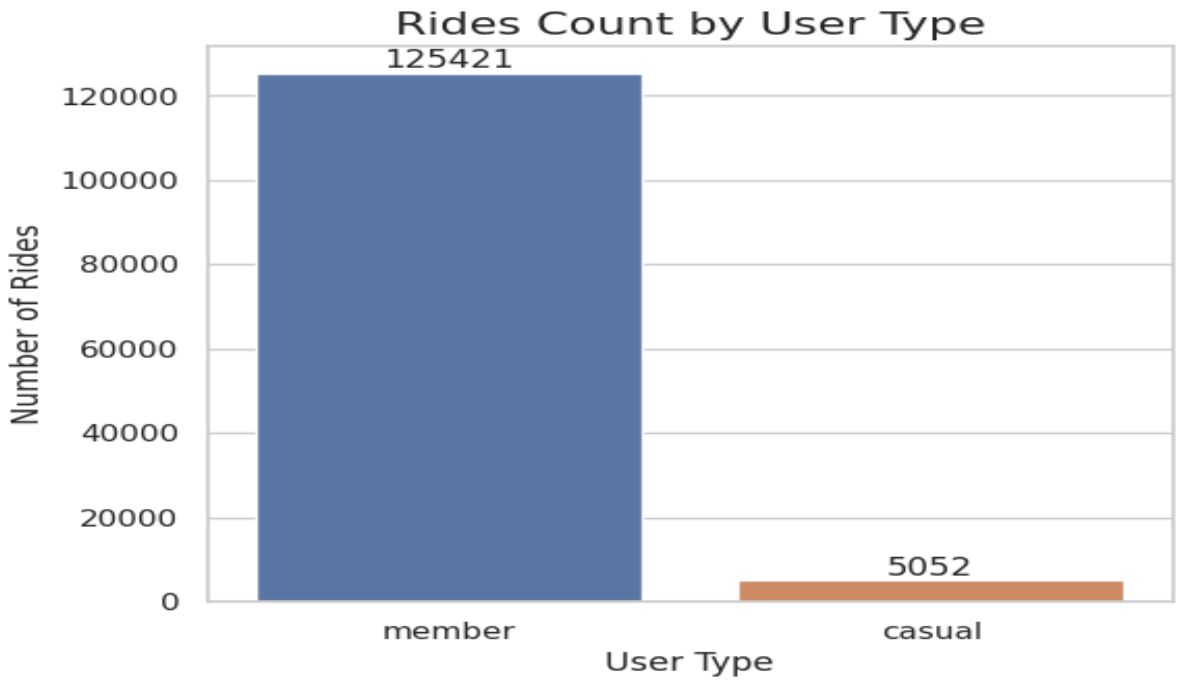
Key Insights

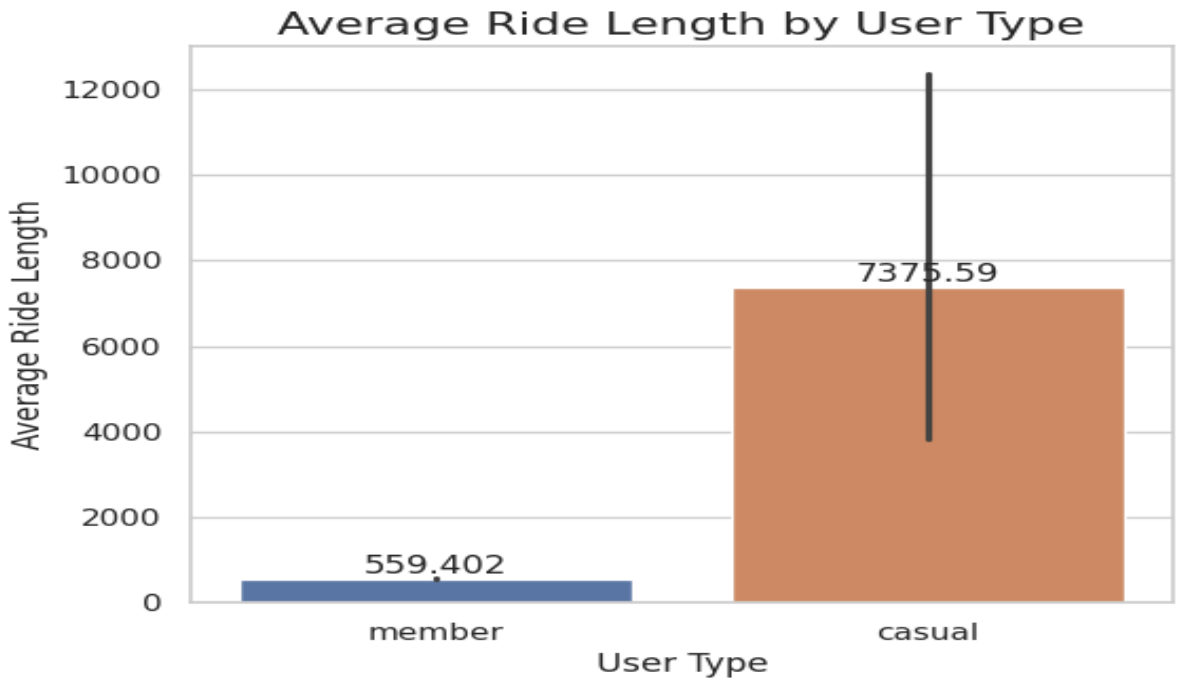
- Annual members use bikes significantly more often
- Casual riders take longer leisure trips, mostly weekends
- Members show weekday commute behavior (AM/PM peaks)
- Casual users correlate with tourism and recreation patterns

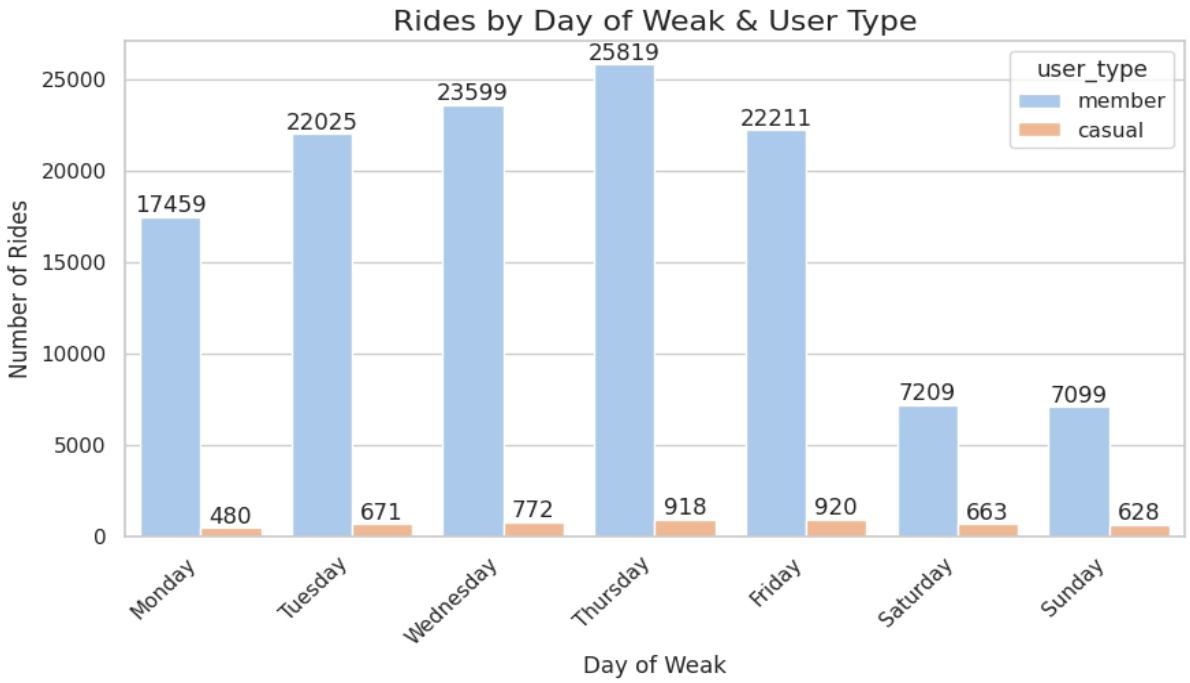
Recommendations

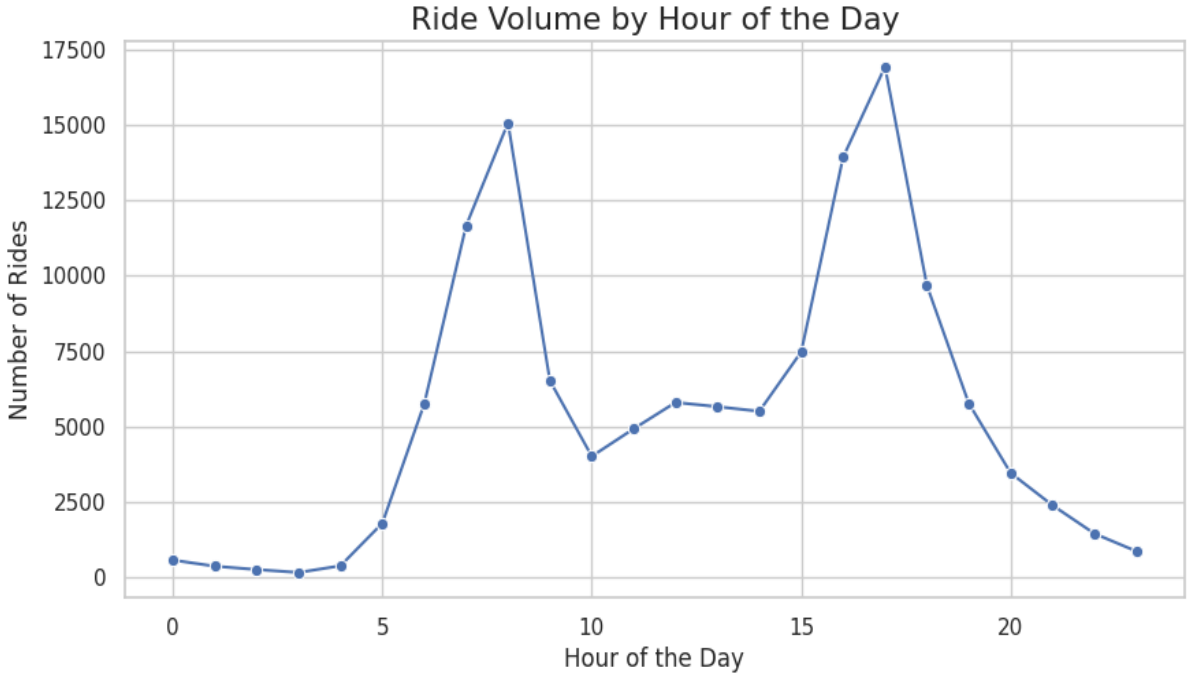
Recommendation 1: Introduce flexible weekend/seasonal memberships
Recommendation 2: Launch loyalty program to encourage frequent casual use
Recommendation 3: Target marketing at tourist & leisure zones (parks, waterfront)

Data Visualizations


Rides Count by User Type
125421
5052
120000
100000
80000
60000
40000
20000
0
Number of Rides
member
casual
User Type


Average Ride Length by User Type
7375.59
559.402
12000
10000
8000
6000
4000
2000
0
Average Ride Length
member
casual
User Type





Completed as part of a professional data analytics portfolio project.