Cyclistic Bike-Share Case Study Report

Title: How do annual members and casual riders use Cyclistic bikes differently?

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# 1. Business Task Statement

Cyclistic, a bike-share company in Chicago, aims to increase the number of annual memberships. The marketing team believes this can be achieved by understanding how casual riders (Customer) and annual members (Subscriber) use the service differently. The goal of this analysis is to uncover usage patterns and insights that can inform a marketing strategy to convert casual riders into annual members.

# 2. Data Sources

This analysis uses publicly available data provided by Motivate International Inc. (<https://divvy-tripdata.s3.amazonaws.com/index.html>), which includes:  
- 12 months of Cyclistic (Divvy) bike-share trip data in .csv format  
- Key fields: ride\_id, rideable\_type, started\_at, ended\_at, start\_station\_name, end\_station\_name, member\_casual  
- All data has been anonymized to respect privacy and licensing requirements  
  
Each dataset was verified for consistency and integrity before analysis.

# 3. Data Cleaning and Manipulation

The following steps were performed to prepare the data for analysis:  
- Analyzed 12 months of data through 4 quarterly datasets, each containing 3 months of data.  
- Created ride\_length field by subtracting started\_at from ended\_at (in HH:MM:SS format)  
- Created day\_of\_week field using the weekday of started\_at (1 = Sunday, 7 = Saturday)  
- Removed:  
 - Trips with negative or zero ride\_length  
 - Rows with missing station names  
- Standardized values in member\_casual field  
- Formatted date/time fields to ensure compatibility across tools

# 4. Summary of Analysis

**Key insights observed from descriptive analysis and aggregations:**

* **Ride Duration**:
  + ***Customers generally have longer average ride lengths than Subscribers***
    - This indicates that Customers may use this service for leisure which, generally, is considered an activity that takes a longer time.
    - Subscribers may use this service for commuting, which happens more frequently during weekdays but for shorter ride duration.
* **Day-of-Week Usage**:
  + ***Subscribers make a significantly higher number of trips than Customers.***
    - Subscribers tend to ride more during weekdays, indicating they use this service for commuting to jobs, school, etc. that occur during weekdays.
    - Customers tend to ride more on weekends (especially on Saturdays and Sundays), when they do not have work, school, or other occupations; likely indicating that they use this service for leisure rides.

# 5. Visualizations and Key Findings

### Customer and Subscriber Comparison: Number of Trips During the Week

### Quarter 1 (January – March)

### Quarter 2 (April – June)

### Quarter 3 (July – September)

### Quarter 4 (October – December)

Key Findings:

1. Subscribers make significantly more trips than Customers.
2. Customers tend to make more trips on weekends, while Subscribers tend to make more trips on weekdays.
3. Both users of this service tend to make more trips during the months of April to September.
4. This service is not very popular among its users during the months of January to March.
5. In the last quarter of the year, the number of trips made by Subscribers generally stay the same while Customers make significantly less trips compared to Q2 and Q3.

### Customer and Subscriber Comparison: Average Ride Length During the Week

### Quarter 1 (January – March)

### Quarter 2 (April – June)

### Quarter 3 (July – September)

### Quarter 4 (October – December)

Key Findings:

1. Subscribers tend to make shorter rides.
   1. On average, rides tend to be 11-17 minutes long.
2. Customers tend to make longer rides.
   1. Generally, customers make rides that are, on average, over an hour long, with longer rides happening in the later half of the year.

# 6. Top Three Recommendations

1. **Launch a weekend-focused membership campaign**
   1. This offers a trial or discounted membership emphasizing value for frequent weekend riders.
   2. This may potentially encourage Customers to become Subscribers during the weekends, which helps because Subscribers are more profitable than Customers (based on an analysis done by Cyclistic’s finance analysts)
2. **Use targeted digital ads near popular tourist stations**
   1. Focus on casual riders starting trips in recreational areas, with in-app or email prompts.
   2. Offer discounted rates during popular ride days.
   3. Increases Customer usage retention as they see this service as an affordable activity during their leisure times.
3. **Highlight commuter benefits**
   1. Emphasize cost savings, convenience, and accessibility in a campaign aimed at converting casual Customers to Subscribers
   2. Highlight environmental benefits for persuasion.
   3. Provide a map that shows how close various bike stations are, showing that this is a very convenient mode of transportation.

# Appendix

### Used Pivot Tables:

### Quarter 1 (January – March)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Count of trip\_id** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 3766 | 1892 | 2728 | 2489 | 2920 | 3375 | 5993 | 23163 |
| Subscriber | 24233 | 48507 | 58277 | 57925 | 63983 | 59672 | 29309 | 341906 |
| **Grand Total** | **27999** | **50399** | **61005** | **60414** | **66903** | **63047** | **35302** | **365069** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Average of ride\_length** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 0:41:35 | 0:44:27 | 0:40:27 | 0:51:57 | 2:13:48 | 0:59:54 | 1:00:20 | 1:01:57 |
| Subscriber | 0:16:48 | 0:14:38 | 0:14:22 | 0:12:06 | 0:12:01 | 0:13:53 | 0:16:59 | 0:13:54 |
| **Grand Total** | **0:20:08** | **0:15:45** | **0:15:32** | **0:13:44** | **0:17:20** | **0:16:21** | **0:24:21** | **0:16:56** |

### Quarter 2 (April – June)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Count of trip\_id** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 48807 | 27577 | 25566 | 24901 | 23234 | 31957 | 53892 | 235934 |
| Subscriber | 68293 | 128866 | 139521 | 145303 | 133113 | 122140 | 75405 | 812641 |
| **Grand Total** | **117100** | **156443** | **165087** | **170204** | **156347** | **154097** | **129297** | **1048575** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Average of ride\_length** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 0:48:46 | 0:44:19 | 0:48:15 | 0:48:55 | 0:49:18 | 0:48:11 | 0:51:40 | 0:48:51 |
| Subscriber | 0:15:42 | 0:14:01 | 0:13:16 | 0:13:48 | 0:13:39 | 0:13:46 | 0:15:06 | 0:14:00 |
| **Grand Total** | **0:29:29** | **0:19:21** | **0:18:41** | **0:18:56** | **0:18:57** | **0:20:54** | **0:30:21** | **0:21:50** |

### Quarter 3 (July – September)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Count of trip\_id** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 61366 | 35185 | 31925 | 35409 | 42522 | 49201 | 79419 | 335027 |
| Subscriber | 70914 | 110365 | 115803 | 119255 | 111010 | 108534 | 77667 | 713548 |
| **Grand Total** | **132280** | **145550** | **147728** | **154664** | **153532** | **157735** | **157086** | **1048575** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Average of ride\_length** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 1:01:19 | 1:09:10 | 1:05:33 | 1:11:43 | 1:05:36 | 1:12:21 | 0:54:12 | 1:04:07 |
| Subscriber | 0:16:25 | 0:16:09 | 0:15:50 | 0:15:05 | 0:16:48 | 0:15:42 | 0:17:42 | 0:16:09 |
| **Grand Total** | **0:37:14** | **0:28:58** | **0:26:34** | **0:28:03** | **0:30:19** | **0:33:22** | **0:36:09** | **0:31:29** |

### Quarter 4 (October – December)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Count of trip\_id** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 25327 | 12790 | 12041 | 10227 | 12206 | 12903 | 20694 | 106188 |
| Subscriber | 54084 | 100423 | 109778 | 94612 | 96966 | 91060 | 50930 | 597853 |
| **Grand Total** | **79411** | **113213** | **121819** | **104839** | **109172** | **103963** | **71624** | **704041** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Average of ride\_length** | **Days of the Week** |  |  |  |  |  |  |  |
| **Row Labels** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Grand Total** |
| Customer | 1:02:00 | 0:44:45 | 1:08:39 | 1:13:20 | 0:57:03 | 1:03:12 | 1:00:39 | 1:01:05 |
| Subscriber | 0:13:00 | 0:11:46 | 0:13:03 | 0:12:09 | 0:11:59 | 0:11:43 | 0:15:14 | 0:12:30 |
| **Grand Total** | **0:28:38** | **0:15:30** | **0:18:33** | **0:18:07** | **0:17:01** | **0:18:06** | **0:28:21** | **0:19:50** |