

How Casual Riders and Annual Members Use Cyclistic Bikes Differently

Uncovering User Behavior Trends in Shared Bike Usage

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AGENDA

Introduction : Business Objective & Dataset Overview

Data Cleaning & Transformation

Understanding usage trends over time

Comparing ride lengths between user types

Insights into bike choices across segments

Popular locations and peak usage hours

Key findings and recommendations

Introduction

We have been tasked with analyzing and explaining the differences in bike usage between **Annual Members** and **Casual Riders** of Cyclistic's shares bike service.

USER DEFINITION

- **Annual Member:** A user subscribed to Cyclistic with an annual fee.
- **Casual Rider:** A user who purchases a single-trip or full-day pass

DATA SOURCE

- Publicly available dataset from DivvyBikes
- Hosted on Chicago's Open Data Portal
- 12 months of ride data
- Over 5million ride records
- Data is fully anonymized and GDPR-compliant

FOCUS AREAS

- Total number of rides
- Average trip duration
- Bike Type used (Classic vs Electrical)
- Most popular start stations
- Common trip start times

Data Cleaning & Preparation

1. Missing Values:

- Removed rides with missing **start_station_name** or **end_station_name**

2. Filtering:

- Removed rides under 1 minute (likely errors)
- Removed rides over 24 hours (outliers)
- Removed rideable_type = 'electric_scooter' (data for 1 month only)

3. New Calculated Fields:

- trip_duration: Time between started_at and ended_at
- day_of_week, month, hour: Extracted from started_at

4. Standardization:

- Ensured consistent formatting for date/time columns

5. Final Dataset Size:

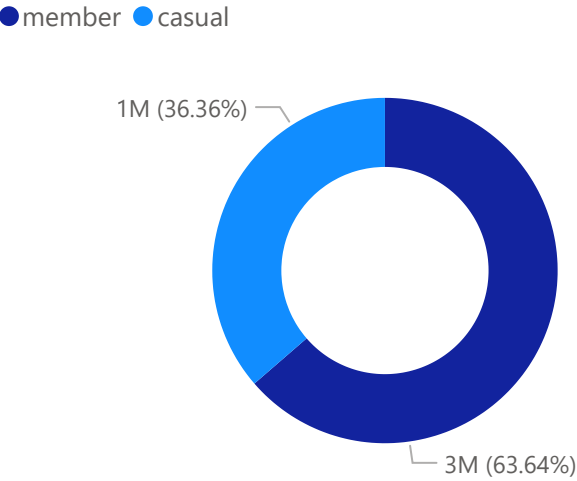
- After cleaning: ~4 million rows

	rideable_type ▾	started_at ▾	ended_at ▾	start_station_name ▾
	classic_bike	5/15/2024 5:51:23 PM	5/15/2024 6:00:03 PM	Clinton St & Washington Blvd
	classic_bike	5/15/2024 5:29:04 PM	5/15/2024 5:56:02 PM	Clinton St & Washington Blvd
	classic_bike	5/15/2024 5:40:47 PM	5/15/2024 6:15:43 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:10:55 PM	5/8/2024 5:24:40 PM	Clinton St & Washington Blvd
3	classic_bike	5/1/2024 5:28:08 PM	5/1/2024 5:42:44 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:27:02 PM	5/8/2024 5:40:02 PM	Clinton St & Washington Blvd
	classic_bike	5/29/2024 5:40:18 PM	5/29/2024 6:15:33 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:41:23 PM	5/8/2024 5:48:04 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:57:17 PM	5/8/2024 6:12:58 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:04:49 PM	5/8/2024 5:20:02 PM	Clinton St & Washington Blvd
	classic_bike	5/22/2024 5:17:47 PM	5/22/2024 5:38:38 PM	Clinton St & Washington Blvd
	classic_bike	5/22/2024 5:16:59 PM	5/22/2024 5:21:30 PM	Clinton St & Washington Blvd
	classic_bike	5/15/2024 5:55:06 PM	5/15/2024 6:22:02 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:37:31 PM	5/8/2024 6:16:03 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:19:44 PM	5/8/2024 5:27:32 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:11:57 PM	5/8/2024 5:48:34 PM	Clinton St & Washington Blvd
	classic_bike	5/15/2024 5:27:59 PM	5/15/2024 5:38:21 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:18:11 PM	5/8/2024 5:27:44 PM	Clinton St & Washington Blvd
	classic_bike	5/29/2024 5:17:24 PM	5/29/2024 5:32:32 PM	Clinton St & Washington Blvd
	classic_bike	5/1/2024 5:15:42 PM	5/1/2024 5:36:51 PM	Clinton St & Washington Blvd
	classic_bike	5/29/2024 5:11:13 PM	5/29/2024 5:22:45 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:51:38 PM	5/8/2024 6:23:58 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:12:19 PM	5/8/2024 5:20:29 PM	Clinton St & Washington Blvd
	classic_bike	5/1/2024 5:50:40 PM	5/1/2024 6:04:59 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:01:08 PM	5/8/2024 5:11:18 PM	Clinton St & Washington Blvd
	classic_bike	5/8/2024 5:49:10 PM	5/8/2024 5:52:12 PM	Clinton St & Washington Blvd
	classic_bike	5/1/2024 5:53:40 PM	5/1/2024 5:56:09 PM	Clinton St & Washington Blvd
	classic_bike	5/15/2024 5:26:27 PM	5/15/2024 5:29:22 PM	Clinton St & Washington Blvd
	classic_bike	5/22/2024 5:10:35 PM	5/22/2024 5:14:08 PM	Clinton St & Washington Blvd
	classic_bike	5/22/2024 5:22:32 PM	5/22/2024 5:25:33 PM	Clinton St & Washington Blvd
	classic_bike	5/22/2024 5:10:42 PM	5/22/2024 5:42:19 PM	Clinton St & Washington Blvd

Total Rides Over the Past 12 Months

Understand how ride volume changes over time for both user type

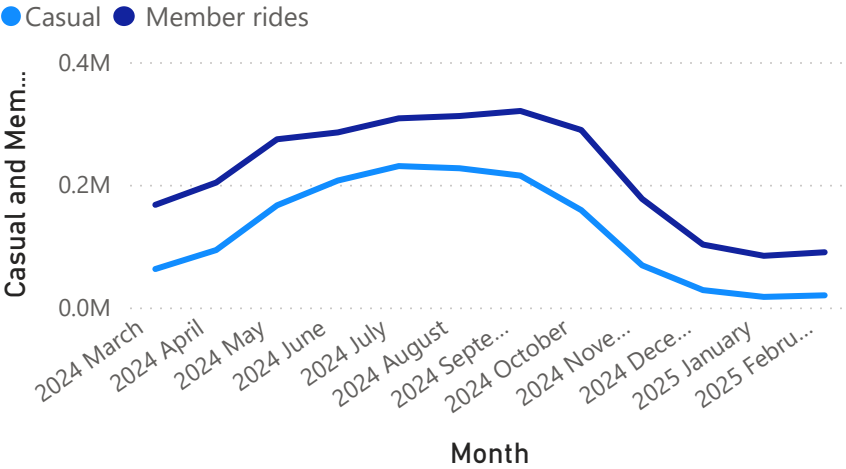
Total Rides per User Type



Members account for 63% of total rides and Casual riders for 37%

Favorite Month per User

Total Rides per User Type & per Month

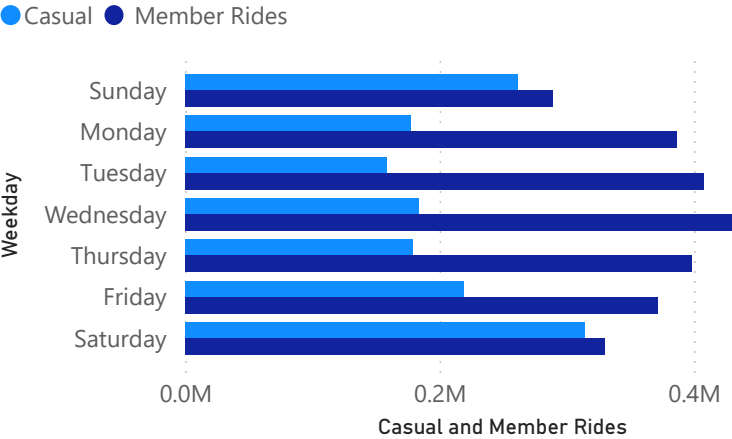


More Rides when the weather gets warmer

Huge drop in rides between March 2024 and February 2025

Favorite Day per User

Total Rides per User Type & per Weekday



Casual riders prefer to ride on Friday, Saturday and Sunday (Weekend, Leisure)

Members prefer to ride on Tuesday, Wednesday, Thursday (Weekdays, Commute)

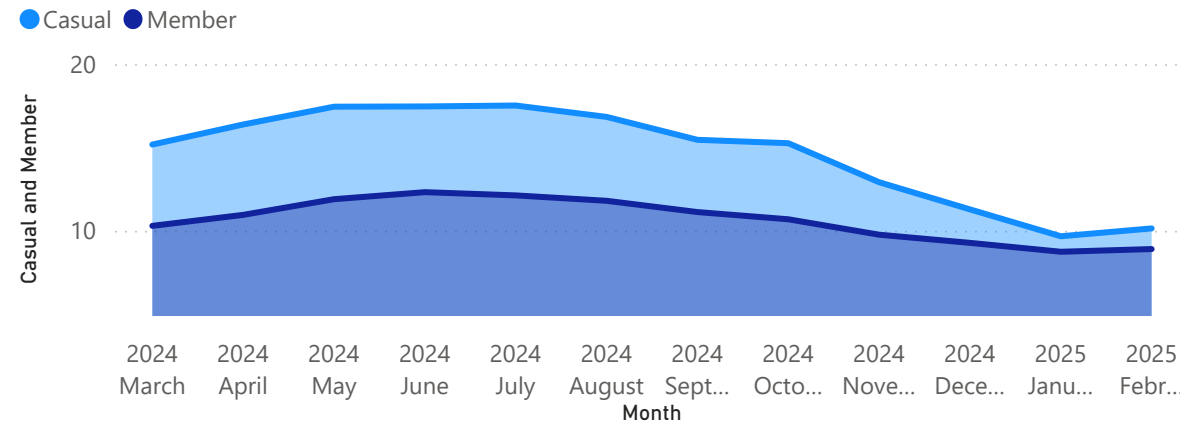


Average Trip Duration by Rider Type

Explore how long members and casual riders typically ride

Trip Duration per Month

Average Trip Duration (Minutes) by User Type & per Month



Casual Riders bike longer than Members

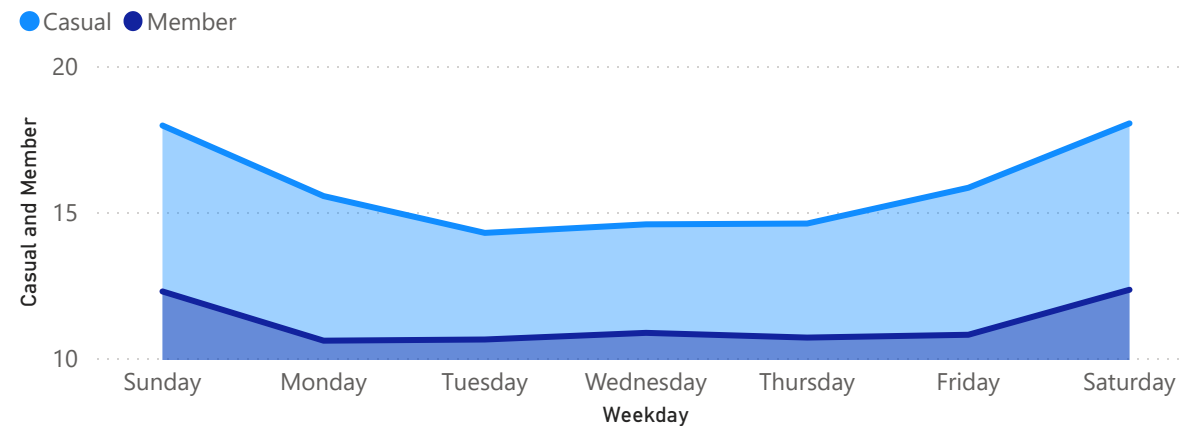
Casual Rides: 17min

Member Rides: 11min

Longer Rides when weather is warmer

Trip Duration per Weekday

Average Trip Duration (Minutes) by User Type & per Weekday



More Rides during the Weekend

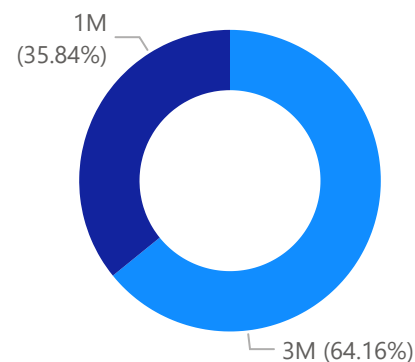


Preferred Bike Type: Member vs Casual

Breakdown of classic and electric

Classic or Electrical bikes?

rideable... classic_bike electric_bike

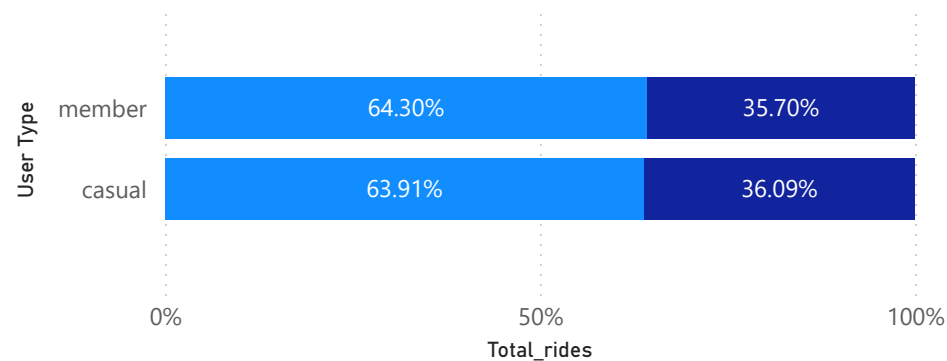


64% of Rides are with Classic bikes

Who uses what bike?

classic vs electrical bike use per member type

rideable_type classic_bike electric_bike

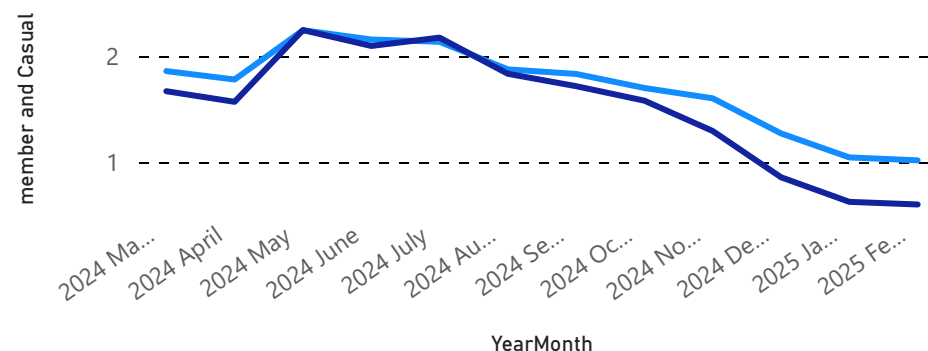


Casual riders use slightly more Electric bikes when compared to the total number of rides

How Classic bikes are losing ground to Electrical bikes

Ratio between Classic & Electrical Rides (on par if ratio = 1)

member Casual



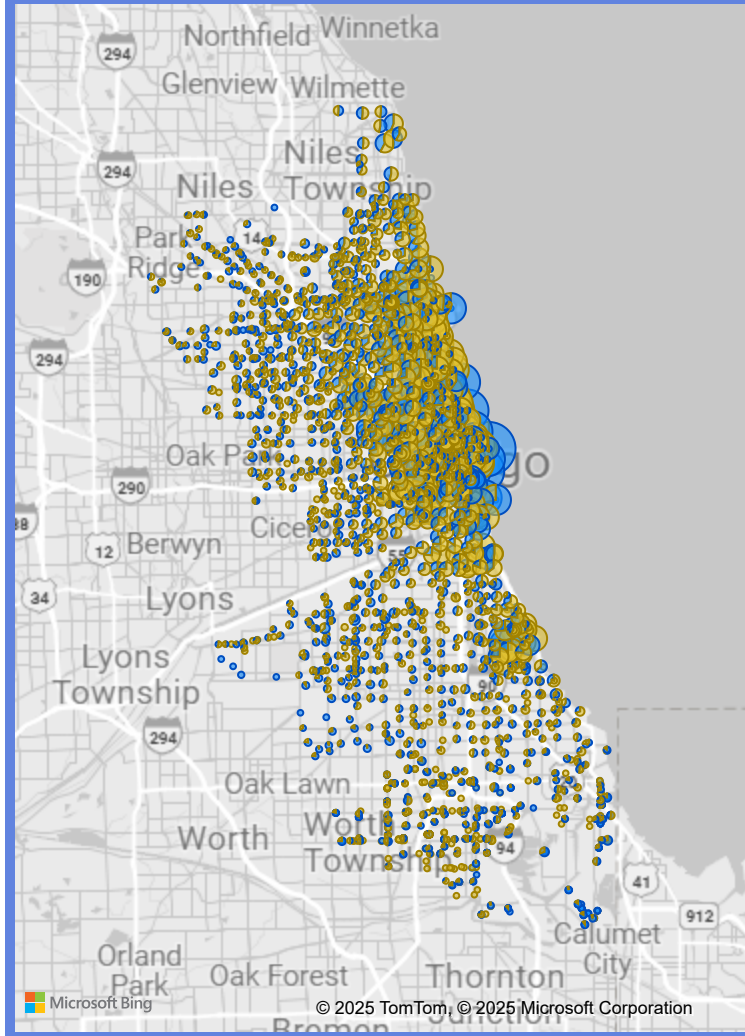
Sharp decline in the use of classic bikes in favor of Electrical bikes since May 2024

Classic bike use decline even bigger for Casual riders

📍 Top Start Stations & 🕒 Peak Trip Times

Total Rides per Station & per User Type

User Type ● casual ● member



Geography:

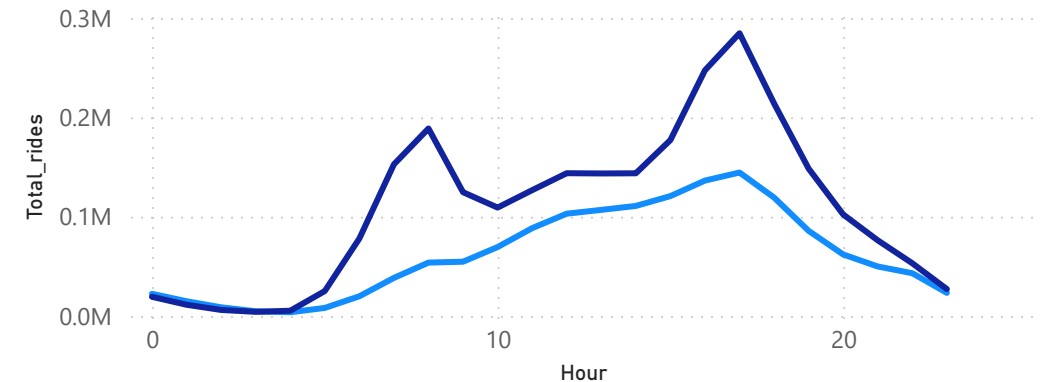
- Casual rides concentrated in Centric Coastal areas and southside
- Member rides concentrated in City Center, Suburbs and Northside
- A lot of Casual riders in the Southside of the city

Timing:

- Members have peak travelling times during commuting hours
- Members inactive during evening and night
- Casual riders are more active than members after 6PM (% of total rides-wise)

Total Rides per Hour of the day and User Type

User Type ● casual ● member





Key Findings & Recommendations

Key Findings

- More Member rides than Casual rides
- Casual rides last longer than member rides
- More rides during the weekend and warmer months
- Members bike generally for commuting reasons (Weekdays & peak hours)
- Casual riders bike for leisure reasons (weekend)
- Southside casual riders very active in the early morning (commute?)
- Both riders are decreasing bike usage, especially classic bikes



Seasonality

Targeted marketing campaigns during high usage seasons

Work vs Leisure

Create new offers and packages for weekend/leisure riders

Geography

Opportunity to develop the Southside by launching targeted advertising and temporary Discounts

Appendices

Total Rides per User Type & per Month

YearMonth	2024 March		2024 April		2024 May		2024 June		2024 July		2024 August		2024 September		2024 October		2024 November		2024 December		2025 January		2025 February	
Day Name	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member
Sunday	11,563	19,591	18,513	22,344	25,872	27,447	45,997	41,726	30,790	29,266	37,671	34,925	41,194	37,607	28,095	28,862	12,751	20,264	4,628	11,730	1,506	6,195	2,816	8,816
Monday	8,002	25,756	14,233	36,997	17,939	32,248	21,171	39,147	27,307	49,080	21,812	39,649	33,217	54,136	16,015	36,735	7,882	26,597	5,313	20,839	1,587	10,642	2,626	14,755
Tuesday	7,493	27,123	13,315	40,272	13,908	35,066	20,499	41,081	26,575	52,499	20,977	42,176	21,217	45,279	17,792	48,989	7,584	28,035	4,142	19,018	1,898	12,149	2,861	15,916
Wednesday	6,705	26,059	7,645	26,609	23,533	53,403	26,495	44,219	32,564	56,553	25,015	46,866	25,647	52,161	20,095	53,821	7,087	26,397	3,189	14,941	3,305	15,655	2,387	13,648
Thursday	6,280	23,261	7,348	26,470	19,863	44,637	24,018	43,114	28,848	41,377	28,861	51,960	26,471	50,215	21,119	50,191	6,361	21,236	3,141	13,082	3,361	17,792	2,810	14,502
Friday	7,243	21,383	9,921	24,367	27,924	45,898	26,946	37,849	35,309	41,004	38,053	50,353	28,835	43,728	23,405	37,896	12,268	30,690	3,049	12,128	2,708	12,710	3,424	13,404
Saturday	15,148	23,946	22,403	26,367	37,237	35,305	41,594	38,063	48,894	38,353	54,354	46,015	38,185	37,032	31,952	32,619	14,563	23,557	4,627	10,599	2,648	8,855	2,642	8,704
Total	62,434	167,119	93,378	203,426	166,276	274,004	206,720	285,199	230,287	308,132	226,743	311,944	214,766	320,158	158,473	289,113	68,496	176,776	28,089	102,337	17,013	83,998	19,566	89,800

Average Trip Duration (Minutes) by User Type & per Month

YearMonth	2024 March		2024 April		2024 May		2024 June		2024 July		2024 August		2024 September		2024 October		2024 November		2024 December		2025 January		2025 February		Total	
Day Name	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member	Casual	Member
Sunday	17.45	11.34	19.05	12.71	18.97	13.11	19.19	13.83	18.34	12.81	18.36	13.14	17.52	12.17	17.39	11.92	15.11	10.50	13.16	10.13	9.50	8.91	11.68	9.09	17.96	11.68
Monday	15.12	10.12	15.98	10.74	17.76	11.36	16.36	11.56	16.44	11.40	15.71	11.11	15.79	10.88	14.51	9.97	11.66	9.45	11.48	9.30	8.48	8.26	9.51	8.81	15.54	9.51
Tuesday	13.87	10.11	14.92	10.84	14.92	10.98	15.83	11.72	15.81	11.53	14.99	11.01	13.74	10.75	13.11	10.46	10.65	9.42	9.97	9.20	8.78	8.74	9.76	9.00	14.28	9.00
Wednesday	12.50	9.86	13.09	10.05	15.83	11.83	16.40	12.33	16.25	11.78	15.68	11.58	13.62	10.89	12.76	10.34	10.56	9.45	9.92	9.01	9.89	8.72	8.38	8.68	14.58	8.68
Thursday	12.51	9.69	12.46	10.03	15.65	11.25	16.26	11.79	17.21	12.22	15.16	11.29	13.60	10.81	13.22	10.25	11.17	9.62	10.17	8.87	9.55	8.81	9.61	8.87	14.60	8.87
Friday	14.05	9.53	14.33	10.07	16.90	11.54	16.94	11.83	17.88	12.12	16.48	11.50	14.56	10.68	15.74	10.70	12.77	9.70	9.86	8.88	9.54	8.72	10.60	8.83	15.83	8.83
Saturday	16.90	11.54	18.57	12.55	19.54	13.67	18.59	13.10	19.24	13.69	18.57	13.17	17.06	12.08	17.47	11.94	14.84	10.41	12.94	9.67	11.10	9.07	11.07	9.14	18.03	9.14
Total	15.17	10.29	16.37	10.95	17.44	11.89	17.45	12.31	17.51	12.12	16.83	11.79	15.45	11.12	15.25	10.68	12.91	9.76	11.28	9.27	9.66	8.73	10.13	8.90	16.17	8.90

Ratio between Classic & Electrical Rides

per Month & per user type

YearMonth	2024 March		2024 April		2024 May		2024 June		2024 July		2024 August		2024 September		2024 October		2024 November		2024 December		2025 January		2025 February		Total	
Day Name	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	Casual	member	C
Sunday	2.23	2.23	2.23	2.11	2.68	2.82	2.38	2.33	2.23	2.39	2.13	2.19	1.96	2.09	1.93	2.01	1.72	1.60	1.46	1.03	1.14	0.65	1.21	0.75	2.05	
Monday	1.96	1.67	1.82	1.56	2.30	2.20	2.05	1.84	2.08	1.90	1.82	1.57	1.87	1.76	1.70	1.44	1.53	1.09	1.33	0.86	1.02	0.53	1.04	0.56	1.78	
Tuesday	1.77	1.41	1.76	1.40	2.14	1.84	2.06	1.81	2.06	1.87	1.82	1.56	1.90	1.59	1.74	1.37	1.59	1.09	1.25	0.79	1.07	0.62	1.07	0.59	1.76	
Wednesday	1.72	1.28	1.55	1.10	2.17	1.92	2.18	2.02	2.12	2.02	1.87	1.67	1.82	1.48	1.68	1.31	1.57	1.05	1.22	0.76	1.03	0.71	0.93	0.50	1.76	
Thursday	1.67	1.26	1.62	1.07	2.06	1.78	2.11	1.87	2.15	2.13	1.82	1.58	1.80	1.49	1.58	1.29	1.62	1.14	1.18	0.73	0.98	0.57	0.94	0.52	1.71	
Friday	1.73	1.46	1.61	1.24	2.05	1.96	2.09	2.02	2.08	2.15	1.68	1.62	1.59	1.44	1.58	1.57	1.55	1.25	1.10	0.79	0.97	0.57	0.91	0.54	1.67	
Saturday	2.07	2.00	2.02	1.91	2.69	3.00	2.25	2.42	2.31	2.60	2.09	2.30	1.93	1.96	1.82	1.90	1.69	1.54	1.42	0.97	1.23	0.71	1.16	0.78	2.01	
Total	1.86	1.67	1.78	1.57	2.24	2.24	2.16	2.09	2.13	2.17	1.87	1.83	1.83	1.72	1.70	1.58	1.60	1.29	1.27	0.86	1.04	0.62	1.02	0.60	1.80	

