

How does a bike-share navigate speedy success?


This presentation aims to facilitate the Share and Act phase of the data analysis

April 2024
Igor Vysochanskyy





The goal and business task of this analysis:



Goal: Find marketing strategies for increasing the number of annual memberships by convincing casual riders to become Ciclistic members.

Task: Find differences and trends in bike usage between annual members and casual riders.

Discuss any potential areas for further exploration.



Question to be solved:

In what is the distinct diversity in using bike trips between annual members and casual riders?

What marketing strategy will convince casual riders to buy an annual membership?

Discover how digital media can help in marketing tactics.

Will converting casual riders into annual members be more profitable than creating a marketing campaign that targets all-new customers

Data integrity log

To perform analysis, I used first-party data collected by Ciclistic bike-shearing company.

12 months of 2023 data has been used

The data provided by Motivate International Inc. under this [license](#).

- Data is reliable, original, comprehensive, current, and cited

Data is cleaned and checked using R Markdown.

- [Link](#) to R Markdown 1 (data cleaning)

Docked bikes were removed from the dataset as not relevant for analysis

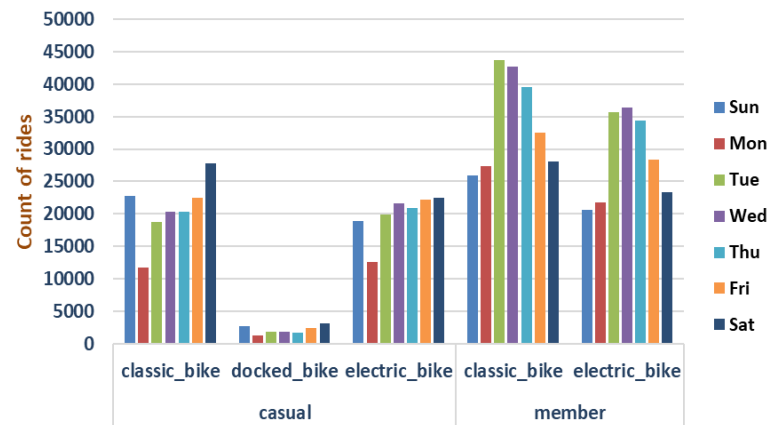
Why were Docked Bikes removed?

- 1st – not in service anymore.
- 2nd – (assumption) docked bikes are reclining, hand tricycles, and cargo bikes.
- 3rd – not present in datasets since 09/2023.
- 4th – Excel charts on the right show very different behavior of a “docked bike” - an extremely small count of rides and a significantly longer average trip duration – looks like an outlier. →

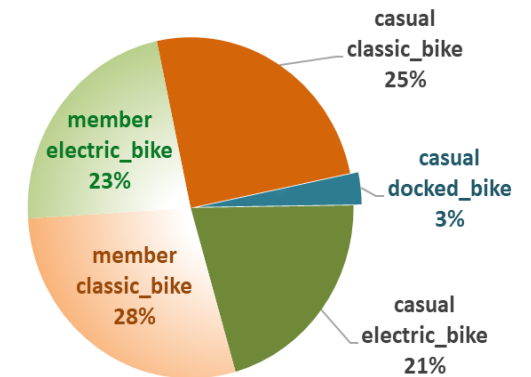
Clean Data Description:

- Number of rows = n_unique for ride_id column - no duplicates;
- Same number of characters (16) in ride_id column;
- Whitespace and empty cells: 0 in each column;
- Completeness: complete_rate = 1 (no missing values in any column);
- Column names: Correct;
- Character length variation in columns 2-4 is normal for this data type;
- Overall, the dataset is clean and ready for analysis.

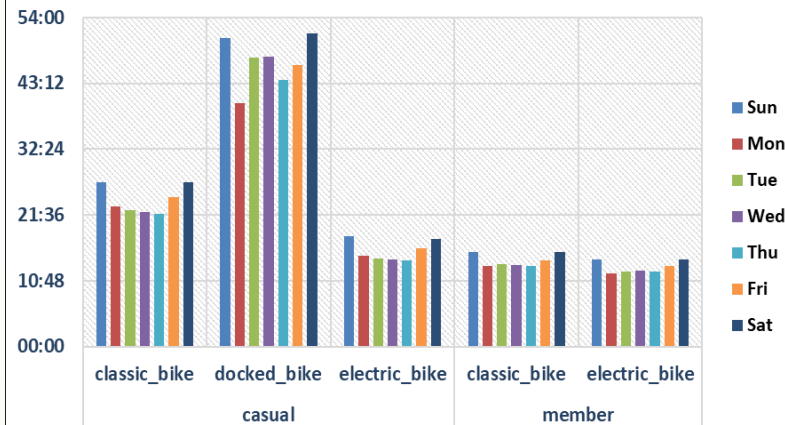
Count of rides for August, 2023



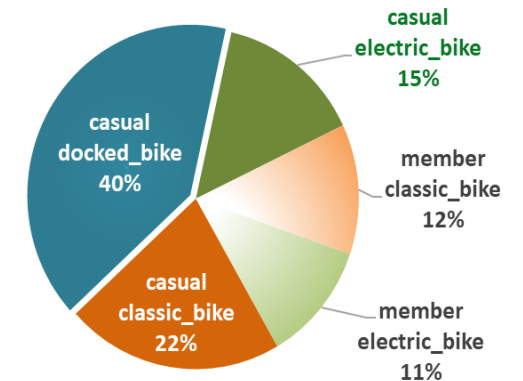
Count of rides in % for August, 2023



Average trip duration in mm:ss for August, 2023



Average trip duration in % for August, 2023

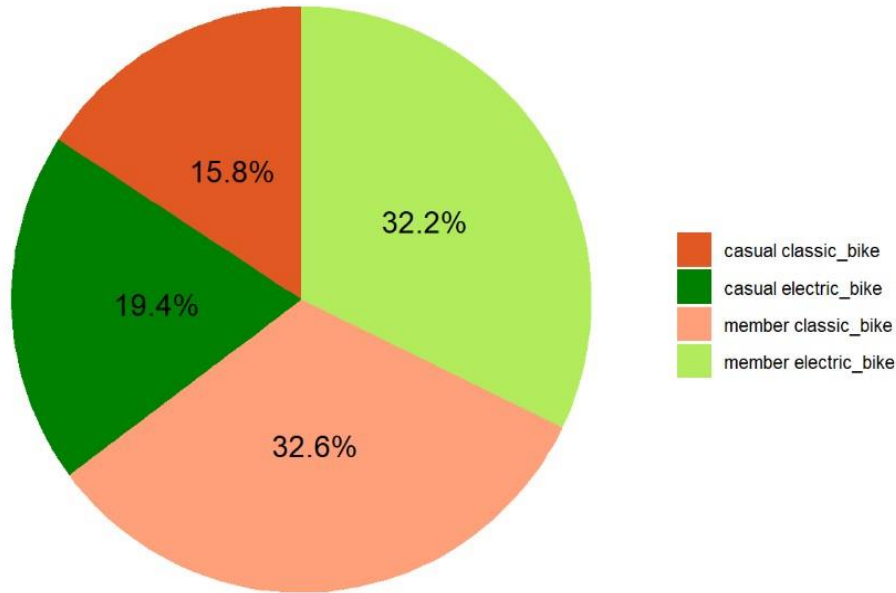


All details of data cleaning are explained in the Process Phase of [Project Description](#). Evaluation of data cleanliness using the `skim_without_charts()` function in an R script.



This and the next slides display charts supporting conclusions and recommendations related to the analysis. Refer to the Analysis Phase of the [Project Description](#). For R script review use link: [R Markdown 2](#)

Proportion of trips count for all riders



Current analysis proves that casual riders are very active during warm seasons of the year. Also, the consistency of these chart's patterns proves that casual riders like to ride much longer than members, mainly because it is for leisure, cardio, and a healthy lifestyle, which is a good possibility to convert them to annual members.

The displayed trip count proportion approximately reflects the actual quantity ratio between customer categories.

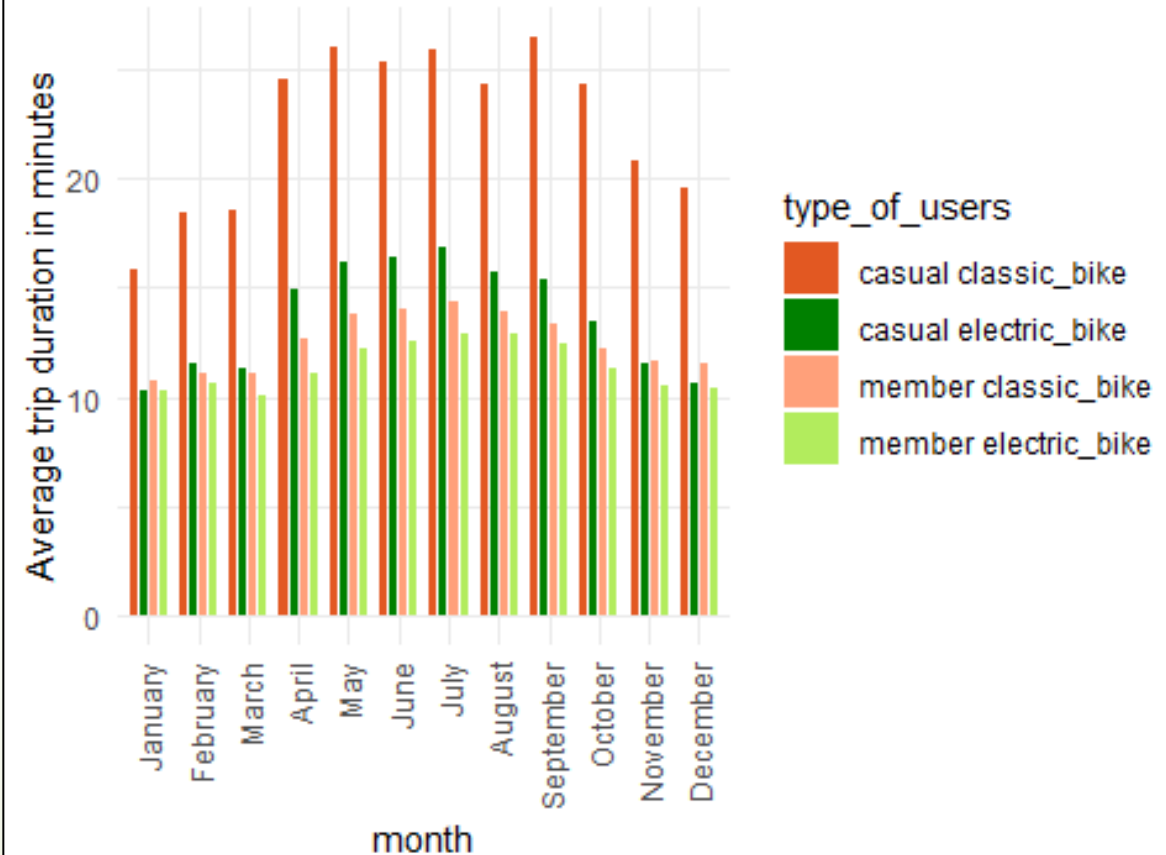
Ratios: Casuals/Members: $35.2/64.8 \approx 1/2$;

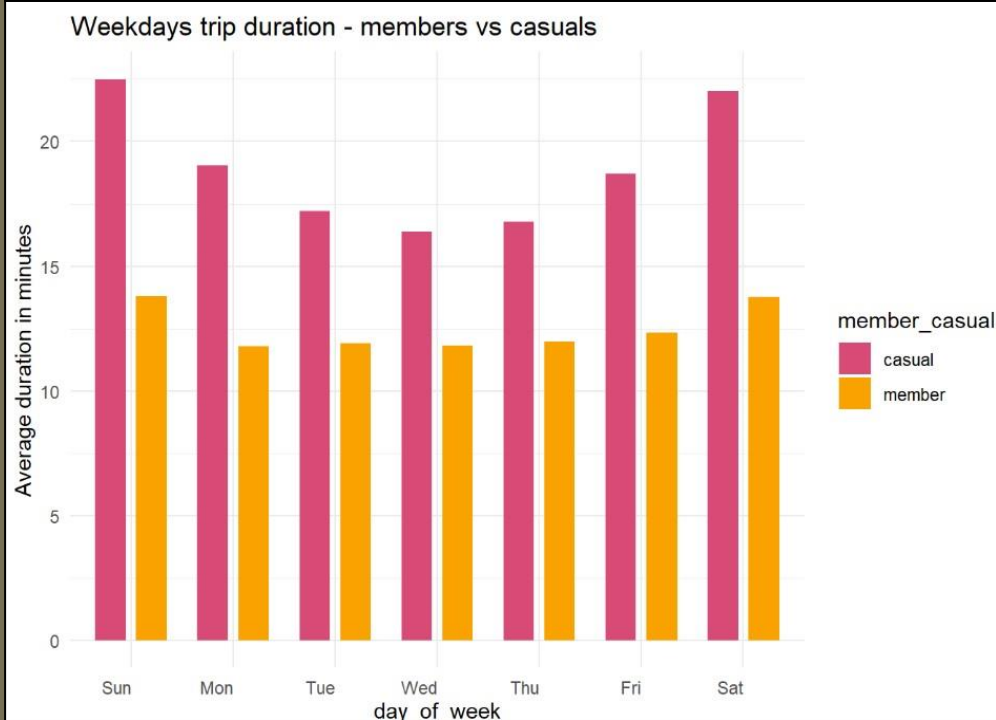
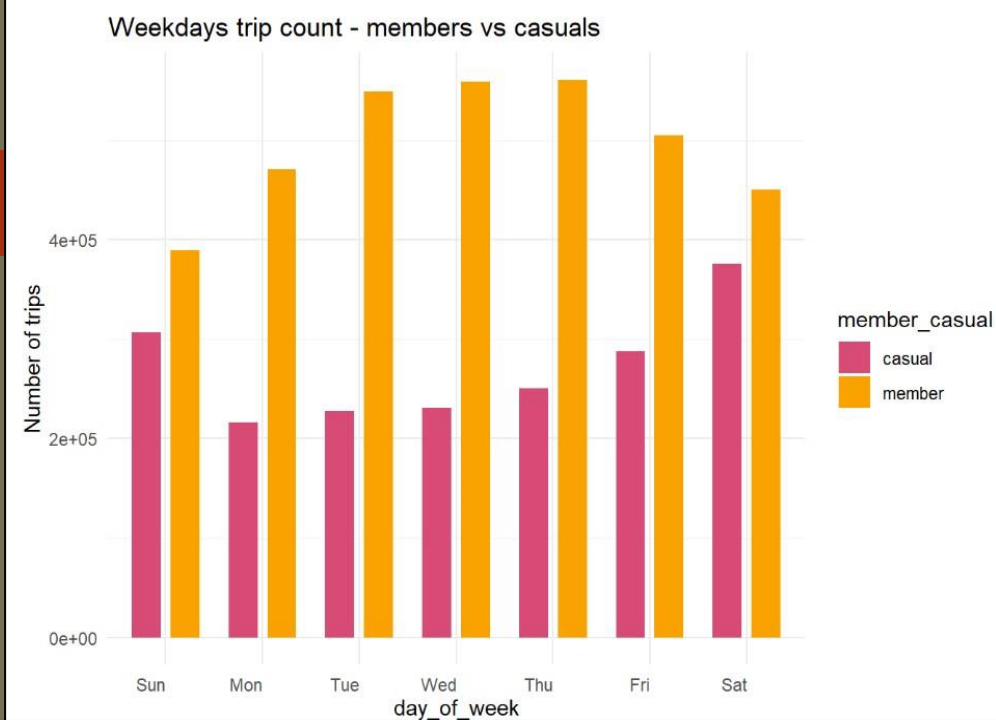
between classic bike users: $15.8/32.6 \approx 1/2$;

between electric bike users: $19.4/32.2 \approx 2/3$.

This difference will impact the most numbers and chart appearance.

Trip duration for all types of users



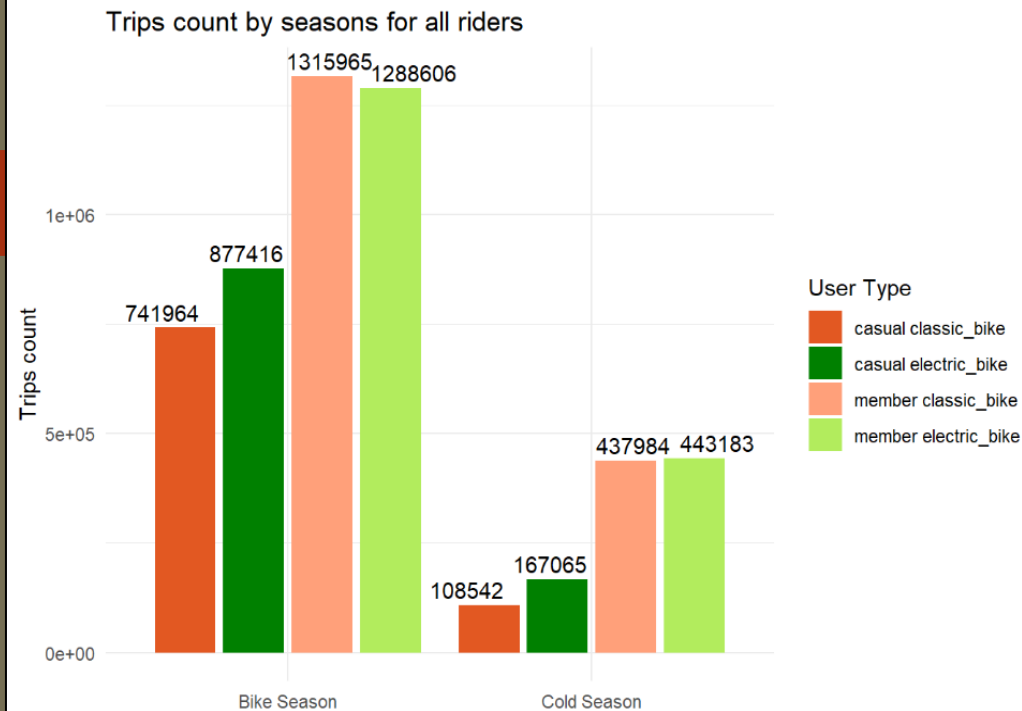


Insights from Weekdays Charts:

Members predominantly commute on weekdays and enjoy leisure rides on Saturdays, with casual riders favoring weekends and Fridays for leisure, leading to increased trip counts. Casual riders typically have longer trip durations, especially on weekends, reflecting their leisure-oriented nature.

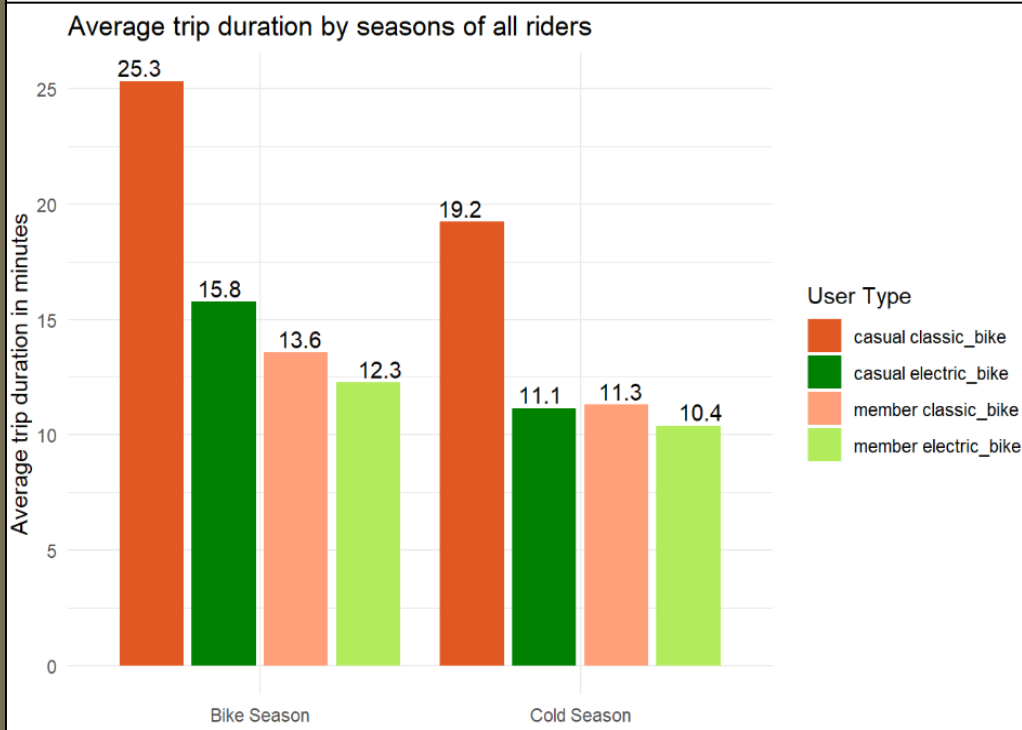
If this routine reflects the natural habits of riders (commute/leisure), there is no valid reason to change the price between workdays and weekends. People want to choose their preferred day and often can't ride on workdays. Such marketing risks customer loss, won't convince casual riders to become members, and will only disappoint users. We need to pursue win-win marketing strategies that will lead to success.

Additionally, if the company increases prices during busy hours, using bikes at these times can feel as rushed as commuting to work. Such a change detracts from the relaxed nature of leisure and appears as coercion to buy a membership, which is unacceptable.



I divide a year into two parts – **cold season** and **bike season**. The cold season: is from **November to March (5 months)**, and the bike season is from **April to October (7 months)**.

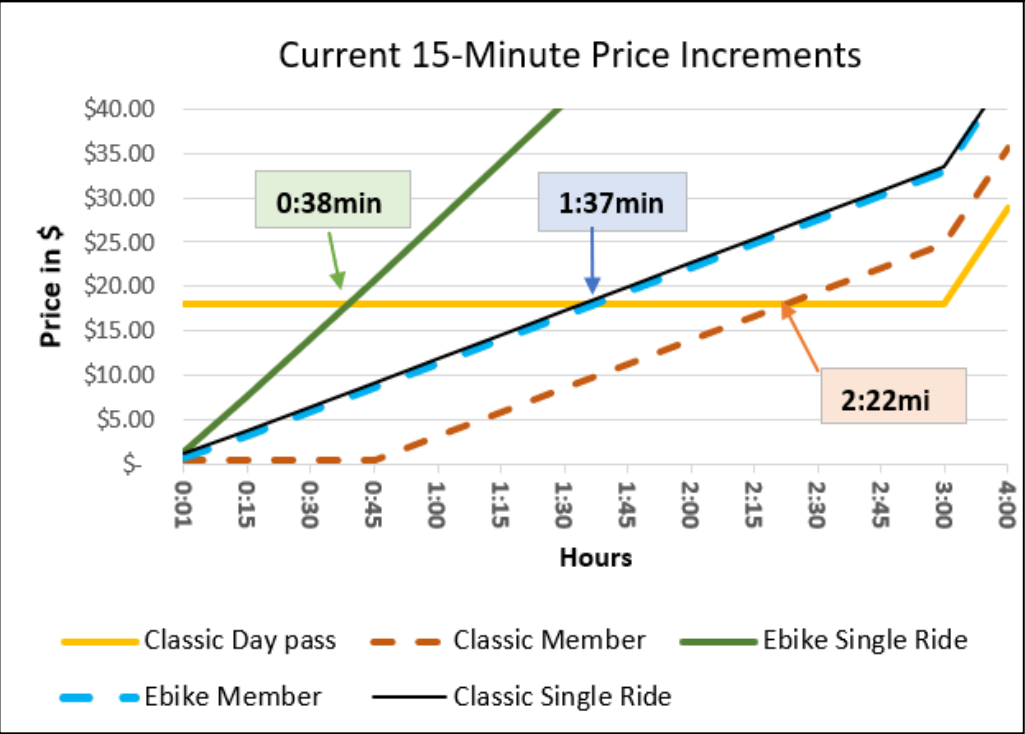
Considering the very small count of trips during the cold season, it is doubtful that promotions for riders during this period would be effective. However, better prices overall can attract casual riders in any season.



Promotions, such as offering a complimentary month of membership, can effectively convert casual riders into members during April and May. Initially, people will pay attention to the weather, followed by the promotion.

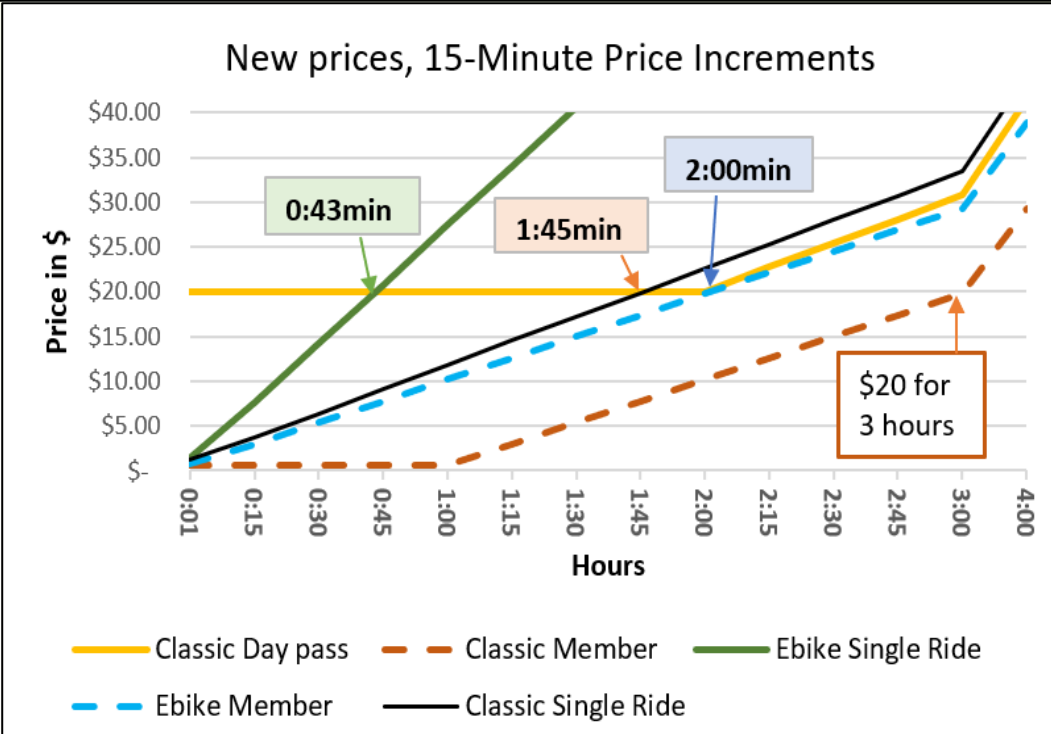
Additionally, the Trip Count chart indicates that casual riders use electric bikes more frequently than classic bikes, whereas classic bikes dominate in trip duration for both members and casual riders. Therefore, offering free single rides on electric bikes during certain holidays for members could attract casual riders to purchase an annual membership.

[Here is a link](#) to a PDF file that is a copy of an Excel spreadsheet with a Price table & charts. Prices were taken from <https://divvybikes.com/pricing>. Pricing Analysis is on the page 15 of the [description](#).



Day Pass	\$ 18.10
Classic Single Rid.	\$ 0.18
Classic (Casual)	\$ 0.18
Classic Member	\$ 0.18
Ebike Single Ride	\$ 0.44
Ebike Member	\$ 0.18

Let's glance at the current price table on the left without analyzing it. Seems everything is per 18 cents. Even this is not true, it makes me feel that something is not right. So, let's analyze it!



Day Pass	\$ 20.00
Classic Single Rid.	\$ 0.20
Classic Day Pass	\$ 0.18
Classic Member	\$ 0.16
Ebike Single Ride	\$ 0.44
Ebike Member	\$ 0.16

Pricing insight 1: Compare the thin black line and blue dash line. Will you pay \$143.90 or \$1 to unlock plus \$0.18 per minute? (Despite that these are different bikes). Our brains won't calculate that it is cheaper - \$0.55 a day for members than \$1 for one unlock. That is especially true if we use bikes not regularly.

	Percentile	Minutes
97%	0.97	75.1
98%	0.975	81.4
98%	0.98	89.7
99%	0.985	101.1
99%	0.99	118.5
100%	0.995	153.2
100%	1	719.4

Pricing insight 2: According to the percentile table (on the left), 98% of trip durations for casual riders are below 90 minutes. Will casual riders prefer to buy a Day Pass or use a Classic Single Ride? For two 30-minute bike trips, it will cost \$11.80 plus \$2 for two unlocks with the Classic Single Ride, which is less than the \$18.10 cost of a Day Pass. (Refer to the Prices table [link](#))

Pricing insight 3: (Refer to previous Slide) Time stamps in the price chart show where lines cross the yellow Classic Day Pass line. Before these points, trips are cheaper than a Day Pass. After, the Classic Day Pass becomes more economical. This setup is unfair to Members, whose benefits should surpass those of Casual customers.

Pricing insight 4: Chart with a larger scale. Casuals are **winners** of lower prices over members with Day Pass on long trips.



Pricing insight 5: The prices at the end of the chart's lines show the cost for a 12-hour ride for reference (on the left)—nobody wants to ride that long and pay such a bill.

Pricing insight 6: For electric bikes, the Day Pass does not include a 'single free ride.' Consequently, it is often not cost-effective for customers, as they are charged \$18.10 plus an additional \$0.44 per minute. To make the Day Pass more economical, a customer would need to unlock the bike at least 19 times in one day. This lack of benefit results in fewer customers purchasing the Day Pass for electric bikes.



Key findings

Current analysis shows that casual riders are very active, especially on weekends, and during warm seasons of the year. The consistency of these chart's patterns shows that casual riders like to ride much longer than members, mainly for leisure, cardio, and a healthy lifestyle. This provides a good opportunity to convert them to annual members.

This 12-month combined dataset contained 5,380,725 rows that represent the number of trips taken in 2023. This was not necessarily the number of customers, but it is evidence of the fact that the Cyclistic's bike-sharing service is well-known. The analysis substantiates the opportunity of converting Casuals into Members will be more profitable than creating a marketing campaign that targets all-new customers.

To set up correct leverage of prices, review current prices and compare them with those suggested after detailed observation of related charts from the analysis above to make a membership a better choice in all respects. It is recommended to keep the annual membership price the same at \$143.90 unless other market analysis suggests otherwise.

People should see a difference in prices between members and casual riders at first glance! It works as a difference of \$0.99 & \$1 and prompts them to evaluate the benefit of freedom of everyday bike use, which is important for casual riders. Otherwise, these benefits are hidden by the same price (\$0.18 in this case).

Before		After	
Day Pass	\$ 18.10	Day Pass	\$ 20.00
Classic Single Rid.	\$ 0.18	Classic Single Rid.	\$ 0.20
Classic (Casual)	\$ 0.18	Classic Day Pass	\$ 0.18
Classic Member	\$ 0.18	Classic Member	\$ 0.16
Ebike Single Ride	\$ 0.44	Ebike Single Ride	\$ 0.44
Ebike Member	\$ 0.18	Ebike Member	\$ 0.16



Key findings

The analysis of current prices shows evidence of unreasonable prices for the Day Pass for the electric bike. Currently, the same price per minute of use applies to Classic Single Ride and E-bike Members, which makes a membership not as beneficial.

Day Pass: Even though I use in my Price chart a new “free ride” time of 2 hours (instead of the current 3 hours), it is reasonable to change a Day Pass to 90 minutes of “free ride” because 98% of casual riders use trip durations up to 90 minutes. Therefore, it will be not overly coercion but a gentle prompt to become an annual member.



Key findings

If people use bikes for leisure, exercise, entertainment, and a healthy lifestyle, then increasing "free ride" time up to 1 hour for classic bikes and better prices per minute for members will attract casual riders. This approach will work because it aligns with the nature of casual riders. By becoming members, they can enjoy more freedom every day by taking as many bike trips as they want on the same day.

The number of trips for casuals during the cold season dramatically falls. So, very unlikely, that offering a complimentary month of a full membership in the winter months or in March will attract many casual riders. This offering can be effective in converting casuals into members in April and May because initially, people will pay attention to the weather, followed by the promotion.



Key findings

Offer free single rides for electric bikes on some holidays or weekends for members, in such a way that attracts casuals to buy an annual membership. Overall, all members should have customer appreciation days, competitions, and activities that make bike rides fun.

If the bike usage is by the nature of riders (commute/leisure), then, there is no good reason to change the price between workdays and weekends or price at a certain hour (of course these are rush hours). Inasmuch using bikes during these hours can feel as rushed as commuting to work. People want to choose their day and often can't ride on weekends. Such marketing risks customer loss, won't convince the casuals to become members, and will only disappoint riders because it ruins the nature of leisure.



Key findings

Digital media can help in marketing tactics. The Cyclistic's website and phone app should include advertisement pop-ups, interstitials, and banner ads. The following advertisement messages may be successful in drawing Casuals towards a membership:

- Annual memberships cost the same as only 8 Day Passes.
- With the new prices, members can have a single ride of classic bikes for 3 hours at the same price that Day Pass users pay for just 2 hours.
- New pricing adjustments showing off advantages for members.
- Details of the benefits for members such as the health benefits of riding bikes, spending time outdoors, and staying healthy.
- Posters at the docking stations encouraging membership.

1. What actions Ciclistic company should perform after seeing these trends?

Review and adjust prices for annual members and casual riders so that it is more beneficial and attractive to buy an annual membership.

Review and change “free ride” time for annual members up to 1 hour and for casual riders to 1.5 – 2 hours.

Provide members with appreciation days, competitions, and activities for fun, and offer casual riders a complimentary month of membership in April or May.

Offer free single rides for electric bikes on some holidays or weekends for members, in such a way that attracts casuals to buy an annual membership.

2. What actions Ciclistic company should perform after seeing these trends?

Re-design the company's website and phone app for better advertising of new Ciclistic membership prices and benefits. Make ads on Instagram, Facebook, or similar platforms.

Suggested areas for further exploration:

Add an encrypted customer ID to datasets that allow a deeper analysis without access to personal information.

Provide more information about reclining bikes, hand tricycles, and cargo bikes, to find a way to continue this service.