How does a bike-share navigate speedy success?

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

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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.

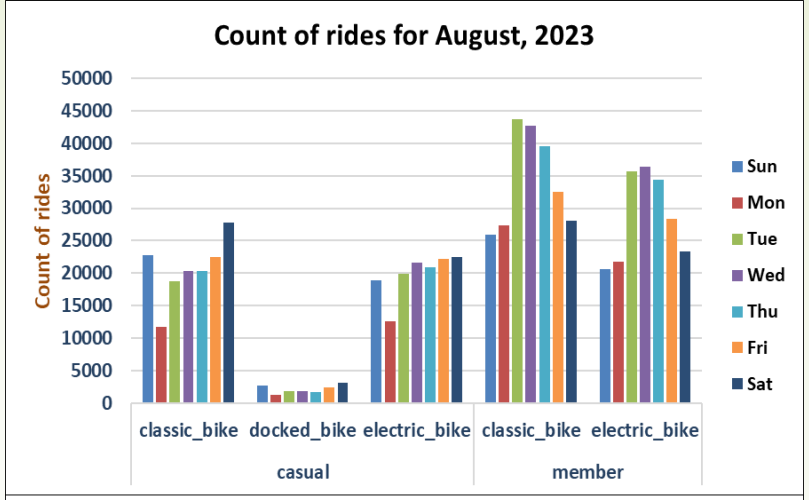
- Link to R Markdown 1 (data cleaning)

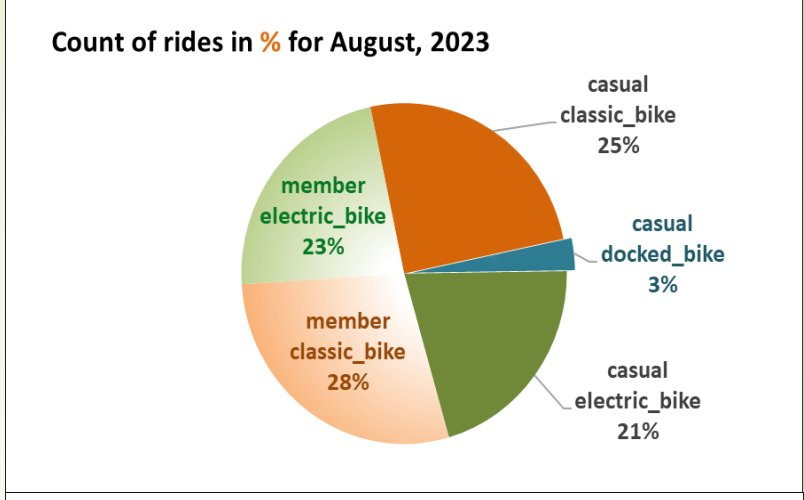
Docked bikes were removed from the dataset as not relevant for analysis

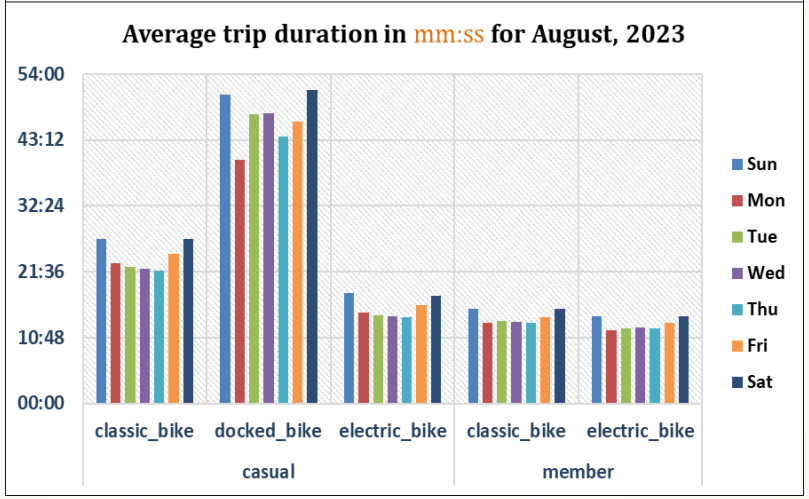
Why were Docked Bikes removed?
1st – not in service anymore.
2nd – (assumption) docked bikes are reclining, hand tricycles, and cargo bikes.
3rd – not present in datasets since 09/2023.
4th – Excel charts on the right show very different behavior of a “docked bike” - an extremely small count of rides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

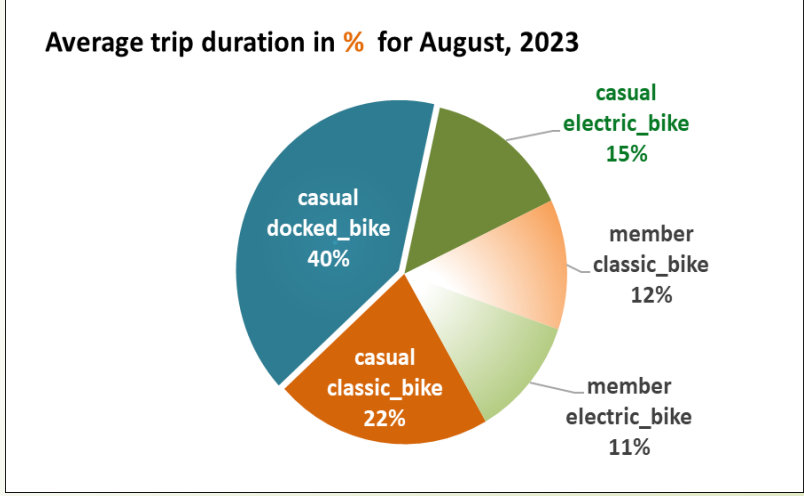
Clean Data Description:

- 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.



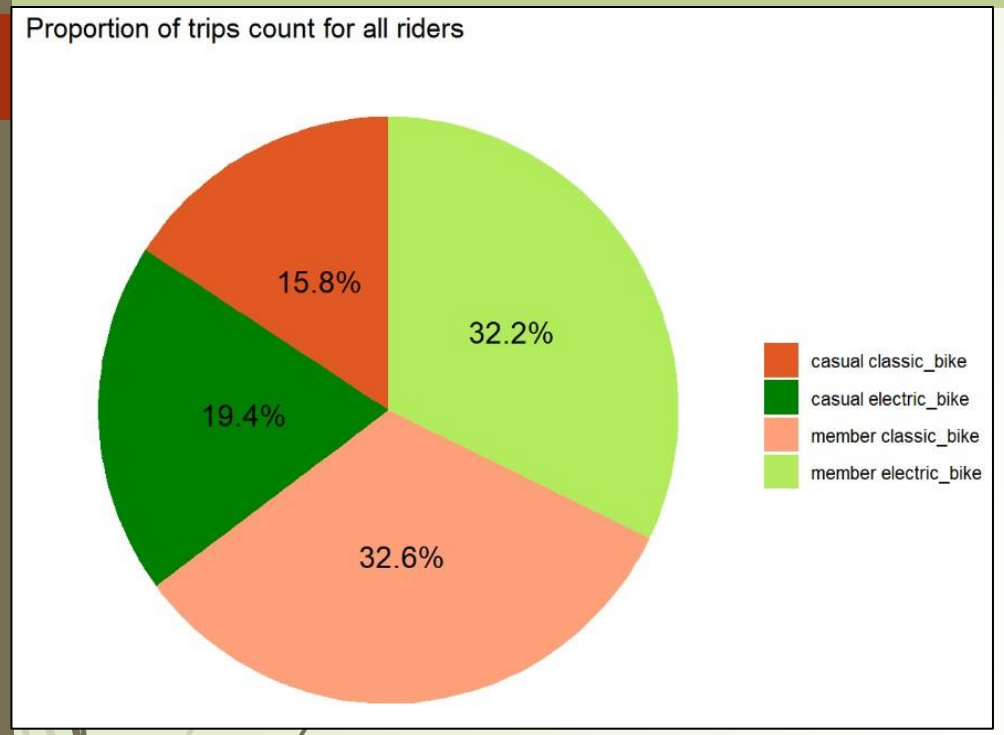






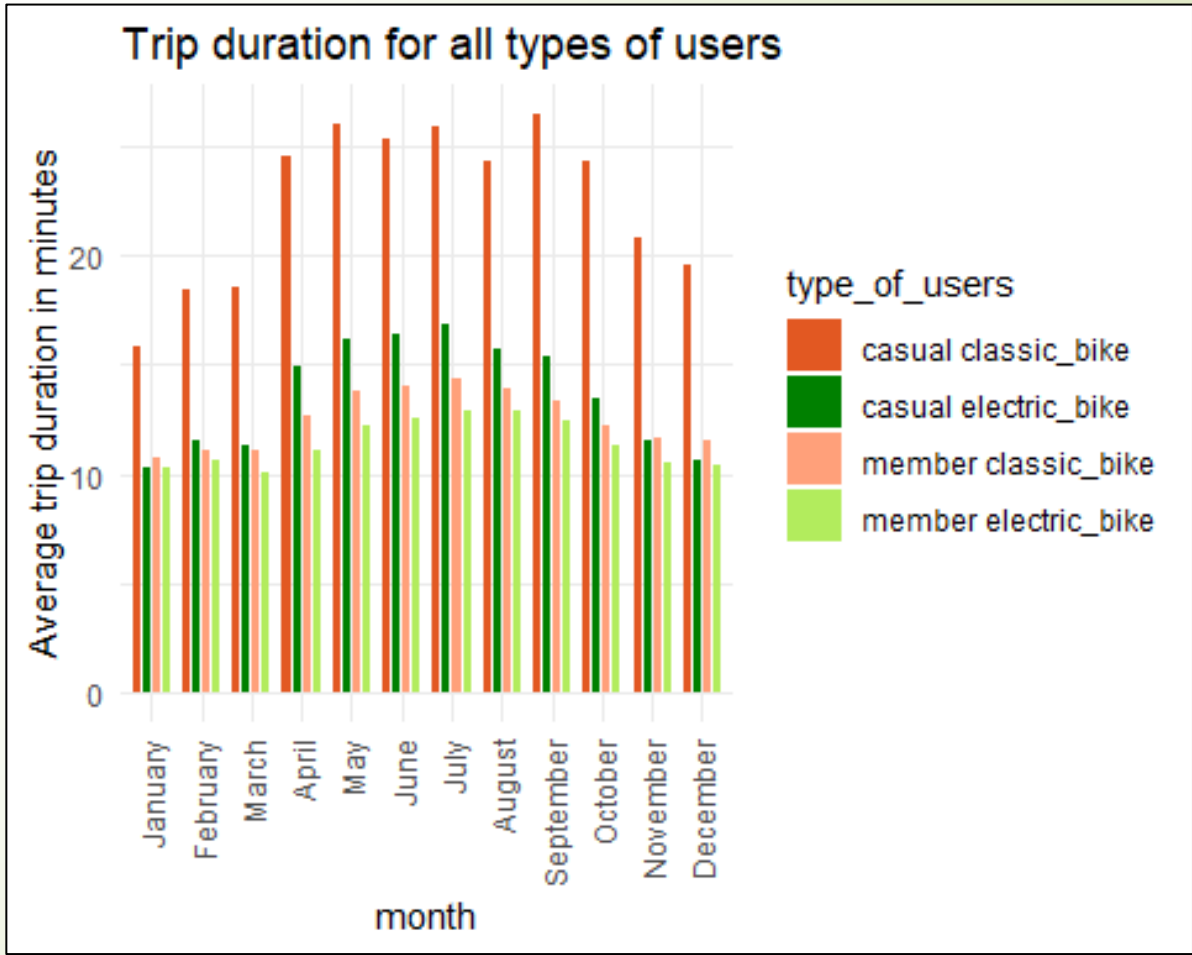
All details regarding data cleaning are explained in the Process Phase description. Evaluation of the extent of data cleanliness based on skim_without_charts() function. (Copy on the left from R Markdown)

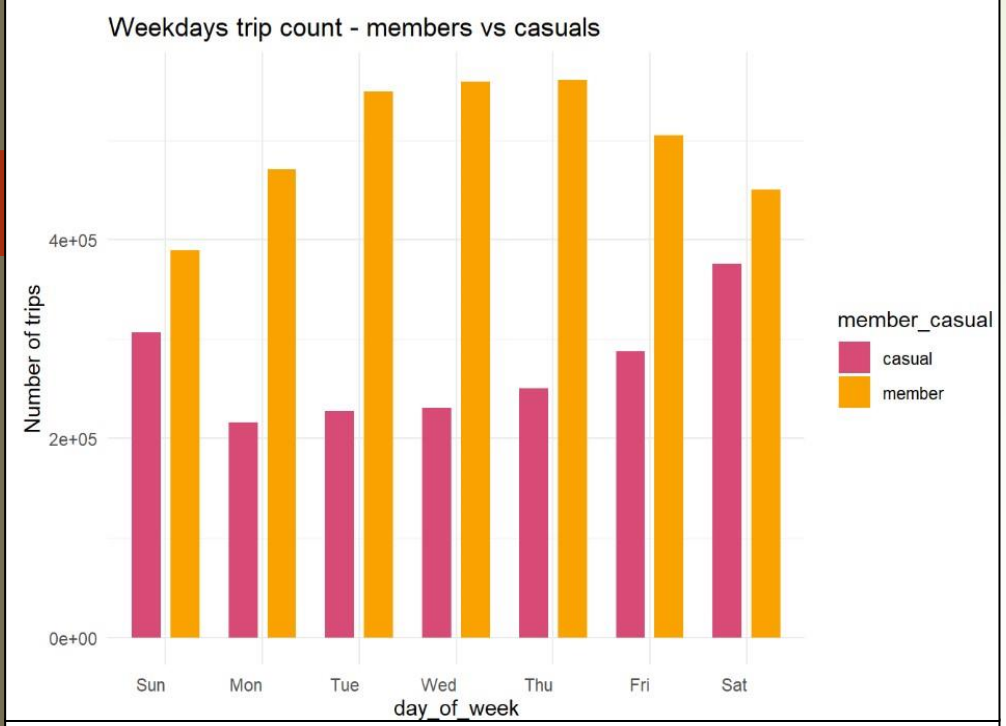
This and the next slides display charts supporting conclusions and recommendations related to the analysis. Refer to the Analysis Phase of the Chicago Cyclistics Case Study for more details. Link to R Markdown 2

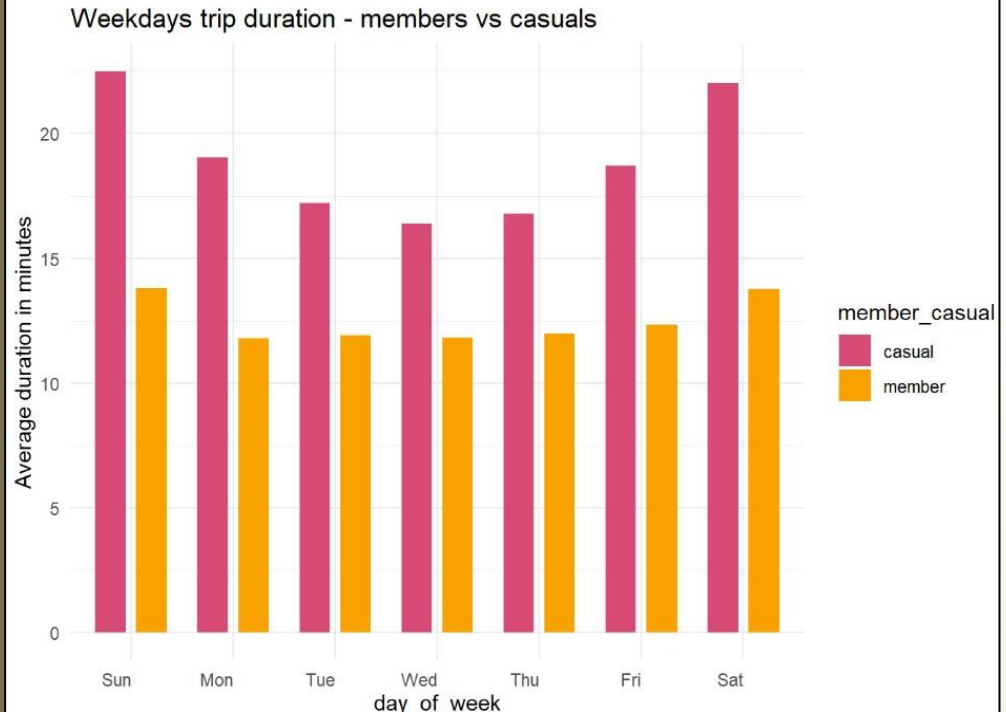


Current analysis proves that casual riders are very active during warm seasons of the year. Also, the consistency of these chart's patterns proves that casual riders like to ride much longer than members, mainly because it is for leisure, cardio, and a healthy lifestyle, which is a good possibility to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

The shown trip count proportion approximately reflects the real ratio of quantity between customer categories.
Ratios: Casuals/Members: 35.2/64.8 ≈ 1/2;
between classic bike users: 15.8/32.6 ≈1/2;
between electric bike users: 19.4/32.2≈2/3.
This difference will impact the most numbers and chart appearance.





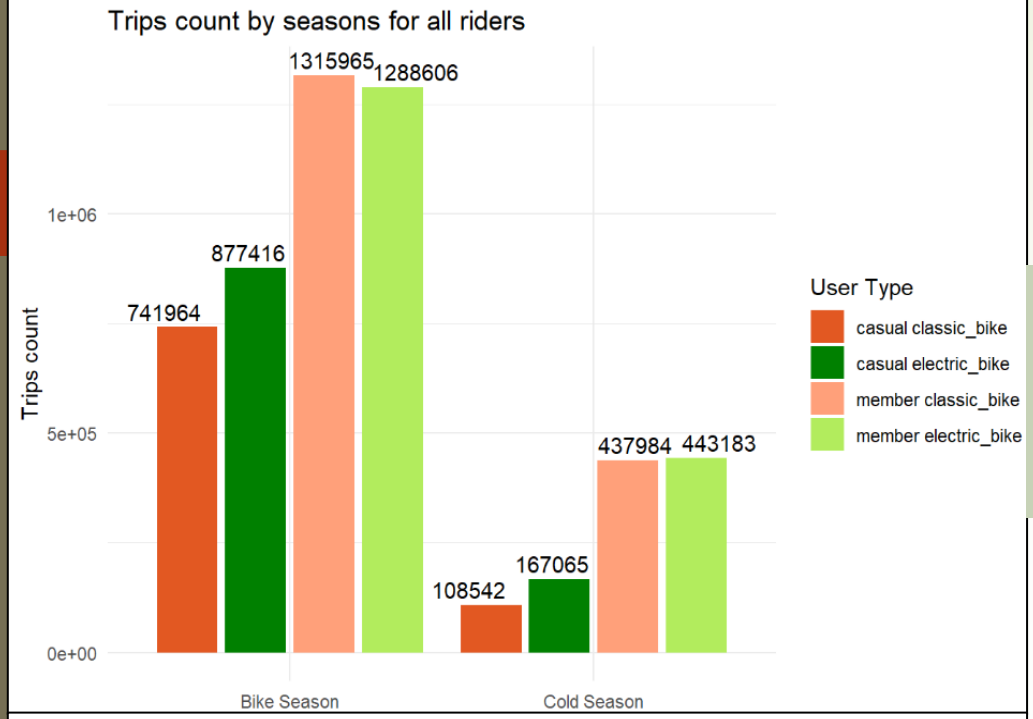


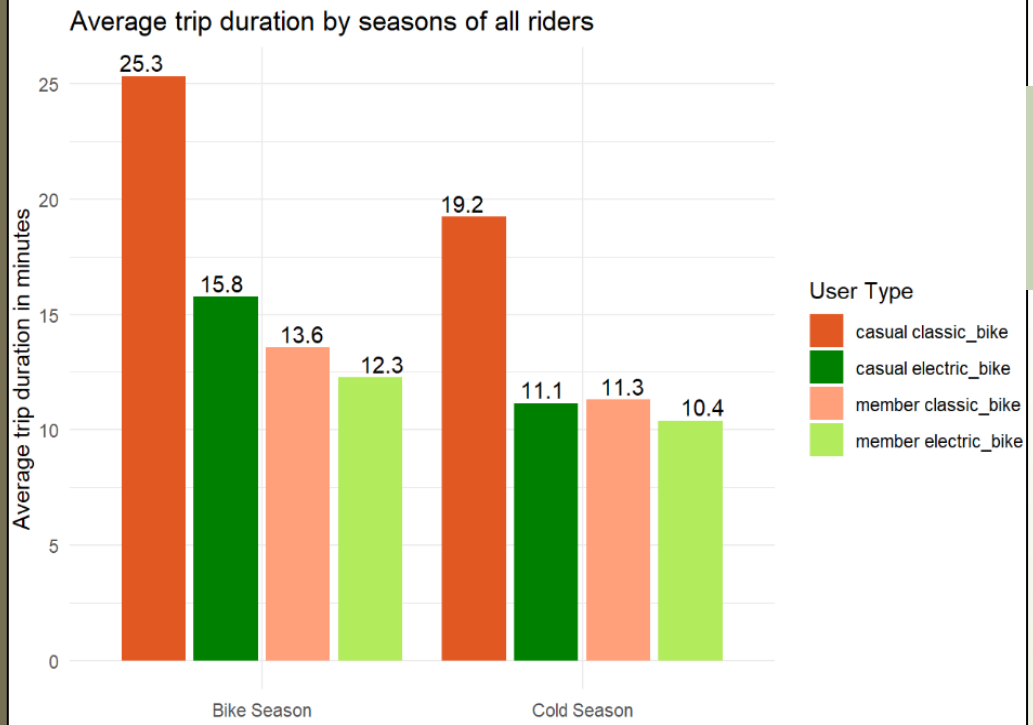
The weekday bar pattern for members reflects that most of them are commuters while on Saturdays they ride for leisure also. Most casual bike riders use bikes for leisure, so normally on weekends & Fridays, their trip amount is increased.
Members who prevail in trips count as a twice larger group than casuals.

2nd chart shows that the weekday average trip duration is greater for casuals, which is natural for this category. Normally, casuals do not hurry to work, and ride longer than members, increasing on weekends as expected.

If this routine is by the nature of riders (commute/leisure), then, there is no good reason to change the price between workdays and weekends. People want to choose their day and often can't ride on workdays. Such marketing risks customer loss, won't convince the casuals to become members, and will only disappoint riders. We need to look for win-win marketing that will lead to success.

Also, if the company increases prices during busy hours, then using bikes during these hours can feel as rushed as commuting to work. Such change takes away from the relaxed nature of leisure and looks like coercion to buy a membership that is unacceptable.





I divide a year into two parts – cold season and bike season. As a reminder, the cold season: is from November to March (5 months), and the bike season is from April to October (7 months). Two compact charts that represent the most riders' activity on the left.

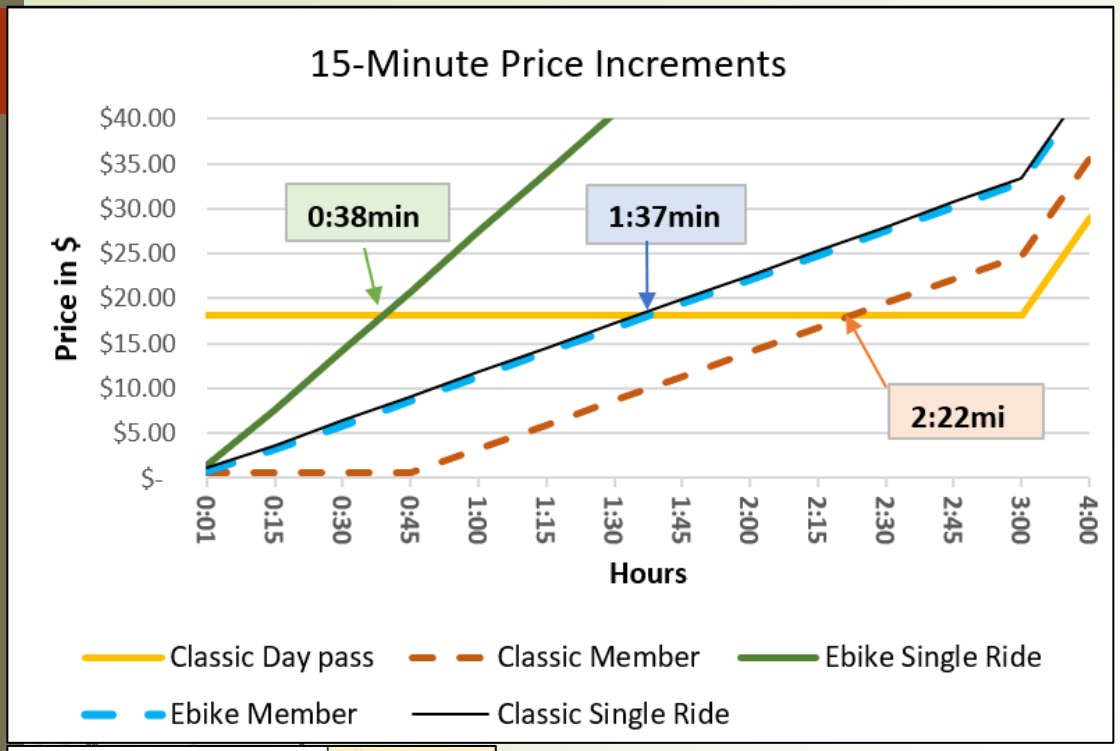
Looking at the very small count of trips during the cold season it is doubtful to take advantage of some promotions for riders during that period, while better prices overall will attract casuals in any season.

Promotions, such as offering a complimentary month of a membership can be effective in converting casuals into members in April and May because it is obvious, that at first people will pay attention what the weather and, second, what promotion.

Especially, the Trip count chart shows that casuals use electric bikes more frequently than classic bikes while in trip duration the classic bikes are dominant for members and casuals.

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

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. For this topic refer to Chicago Cyclistics Case Study.



Here is a brief observation. Use links for explanations in detail.

<<Current

Suggested>>

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, not analyzing it. Seems everything per 18 cents. Even if 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

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

Print the data frame for casuals

```
print(perc_casual2)
```

```
##         Percentile Value
## 97%          0.970  75.1
## 97.5%        0.975  81.4
## 98%          0.980  89.7
## 98.5%        0.985 101.1
## 99%          0.990 118.5
## 99.5%        0.995 153.2
## 100%         1.000 719.4
```

According to the percentile table (on the left), 98% of trip duration for casual riders is below 90 minutes. Will casual riders prefer to buy a Day Pass or use Classic Single Ride? If we need to make 2 bike trips per 30 minutes, it will cost us $11.80 + $2 for 2 unlocks for Classic Single Ride which is less than $18.10 with a Day Pass. (Refer to link with Prices table)

(Look at the previous Slide) The text boxes with time stamps in the current price chart show where each line crosses the yellow Classic Day Pass line. Up to these times, the type of trip crossing the yellow line is cheaper than a Day Pass. After these time points, Classic Day Pass is cheaper than other types of rides. This is not fair for Members because their benefits should be more than Casual customers in all respects.

Same chart with a larger scale. Casuals are winners of lower prices over members with Day Pass on long trips.

The chart's text boxes (on the left) show the prices for 12 hours of the ride just for reference - nobody wishes to ride so long & pay such a bill. The classic Single Ride line is not shown here.

For electric bikes, the Day Pass does not include a "single free ride". It therefore does not benefit the customer in most cases because they are charged $18.10 and an additional $0.44 per every minute they ride. The customer would need to unlock the bike at least 19 times during the day to make purchasing the Day Pass more cost-effective.

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 Cyclistics 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. 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 it is obvious, that at first people will pay attention what the weather and, second, what 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 Cyclistics 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 appreciation days, competitions, activities that make bike rides fun and for casuals 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.