

CASE STUDY: CYCLISTIC BIKE-SHARE ANALYSIS

In this case study, I will perform many real-world tasks of a junior data analyst. I will work for a fictional company, Cyclistic, and meet different characters and team members. The data is taken from a real company DIVVY Bicycle sharing system which is a proxy for Cyclistic Data.



ASK

Three questions will guide the future marketing program:

1. How do annual members and casual riders use Cyclistic bikes differently?
2. Why would casual riders buy Cyclistic annual memberships?
3. How can Cyclistic use digital media to influence casual riders to become members?

Moreno has assigned you the first question to answer: **How do annual members and casual riders use Cyclistic bikes differently?**

Key tasks

1. Identify the business task
2. Consider key stakeholders

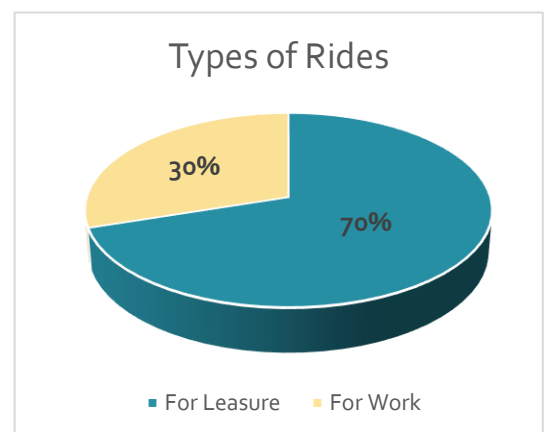
CHARACTERS AND TEAMS:

1. Customer:

- **Cyclist:** A bike-share program that features more than 5,800 bicycles and 600 docking stations. Bike-share more inclusive to people with disabilities and riders who can't use a standard two-wheeled bike, by offering:
 - Reclining bikes
 - Hand tricycles
 - Cargo bikes
 - Traditional bikes

The majority of riders opt for traditional bikes; about **8% of riders use the assistive options.**

Cyclistic users are more likely to ride for leisure, but about 30% use them to commute to work each day.



2. Interested Parties:

- **Stakeholders:**
 - **Lily Moreno: The director of marketing and your manager.** Moreno is responsible for the development of campaigns and initiatives to promote the bike-share program. This is done through:

- a) Email
 - b) Social media
 - c) Other channels
- **Cyclistic executive team:** The notoriously detail-oriented **executive team will decide whether to approve the recommended marketing program.**
- **Cyclistic marketing analytics team:** : A team of data analysts who are responsible for collecting, analyzing, and reporting data that helps guide Cyclistic marketing strategy.
As a being a part of the team I have been learning about Cyclistic’s mission and business goals and how to help Cyclistic achieve them.

SENARIO:

- You are a junior data analyst working in the marketing analyst team at Cyclitic.
- **The director of marketing believes the company’s future success depends on maximizing the number of annual memberships**
- Understand how casual riders and annual members use Cyclistic bikes differently.
- From these insights, your team will design a new marketing strategy to convert casual riders into annual members.
- Cyclistic executives must approve your recommendations, so they must be backed up with compelling data insights and professional data visualizations.

CYCLISTIC BIKE-SHARE

About the Company:

In 2016, Cyclistic launched a successful bike-share offering. Since then, the program has grown to a fleet of 5,824 bicycles that are geotracked and locked into a network of 692 stations across Chicago. The bikes can be unlocked from one station and returned to any other station in the system anytime.

Cyclistic’s marketing strategy relied on building general awareness and appealing to broad consumer segments.

One approach that helped make these things possible was the flexibility of its pricing plans:

- single-ride passes
- full-day passes
- Annual memberships - also referred to as Cyclistic Member

Give below are the pricing used for Cyclistic Bike-Share (DIVVY Bicycle sharing system) for its casual and member users:

Types of bikes	Single Ride	Day Pass	Divvy
	\$1 + \$0.17/min	\$16.50/day	\$130.90/year
Classic bike prices	\$1 unlock + \$0.17/min	3 hours free, then \$0.17/min	45 min free, then \$0.17/min
Scooter prices	\$1 unlock + \$0.42/min	Free unlocks + \$0.42/min	Free unlocks + \$0.27/min
Ebike prices	\$1 unlock + \$0.42/min	Free unlocks + \$0.42/min	Free unlocks + \$0.17/min

Q. WHAT IS THE PROBLEM YOU ARE TRYING TO SOLVE?

Primary Analysis Discovery:

1. Annual members are much more profitable than casual riders.
2. Although price flexibility brings new customers, maximizing the number of annual members will be key to future growth.
3. Rather than creating a marketing campaign that targets all-new customers, there is a very good chance to convert casual riders into members as they are already aware about Cyclistic programs and they already use it.

Marketing Goal:

Design marketing strategies aimed at converting casual riders into annual members by doing the following:

- Understand how annual members and casual riders differ, why casual riders would buy a membership.
- how digital media could affect their marketing tactics.
- Analyze the Cyclistic historical bike trip data to identify trends.

PREPARE

Key tasks

1. Download data and store it appropriately.
2. Identify how it's organized.
3. Sort and filter the data.
4. Determine the credibility of the data.

DATA SOURCE:

[Download the previous 12 months of Cyclistic trip data.](#) (Note: The datasets have a different name because Cyclistic is a fictional company. For the purposes of this case study, the datasets are appropriate and will enable you to answer the business questions. The data has been made available by Motivate International Inc. under this license.)

This is public data that you can use to explore how different customer types are using Cyclistic bikes.

Preparing Data for analysis:

1. Where is your data located?

The data used is from the period of [June 2022 to May 2023](#) from **divvy-tripdata** (which plays as a proxy for the data analysis for **Cyclistic bike-share**)

2. How is the data organized?

The Data is organised in an excel spreadsheet. The data spans over a period of 12 months form of [June 2022 to May 2023](#).

The data structure is a DataFrame consisting the following rows and column:

Column Name	Data Type	Description
ride_id	STRING	Unique ID for the ride
rideable_type	STRING	Type of bike used for the ride
started_at	TIMESTAMP	Start date and time of the ride
ended_at	TIMESTAMP	End date and time of the ride
start_station_name	STRING	Name of the station at the start of journey
start_station_id	STRING	ID of start station
end_station_name	STRING	Name of the station at the end of journey
end_station_id	STRING	ID of end station
start_lat	FLOAT	Start station latitude
start_lng	FLOAT	Start station longitude
end_lat	FLOAT	End station latitude
end_lng	FLOAT	End station longitude
member_casual	STRING	Membership Type: Member or Casual

3. Are there issues with bias or credibility in this data? Does your data ROCCC?

There are no issues or biases found with the Data.It meets with ROCCC standards.

- R – Reliable: As it is collected from the original data source by the company.
- O – Original: The data source is original as it is collected from the direct source, i.e. customers of the company.
- C – Comprehensive: The data perfectly compares the type of membership each customer uses which in turn helps answer the problem that is being researched on
- C – Current: The data is up to date. As we need to analyze the previous 12 months of ridership of the company, the data is pretty latest and up to date.
- C – Cited: The data seems to be cited. The data is used in this case study is sourced from the website: [Index of bucket "divvy-tripdata"](#). For the purpose of this case study the company's name has been changed from "DIVVY Bikes" to "Cyclistic" forming a fictional company.

4. How are you addressing licensing, privacy, security, and accessibility?

- **Data License:** The data has been made available by Motivate International Inc. under this license. The licence agreement can be found at [Data License Agreement | Divvy Bikes](#). The data is used according to the terms mentioned in the agreement.
- **Privacy and security:** The data provided on the website is provided under **Data anonymization**, i.e. does not include any personally identifiable information (PII), this means that the data analysis won't be able to connect pass purchases to credit card numbers to determine if casual riders live in the Cyclistic service area or if they have purchased multiple single passes. This ensures the compliance with data privacy regulations.
- **Accessibility:** The data can be easily accessible by visiting the website [Home | Divvy Bikes](#) and [Index of bucket "divvy-tripdata"](#)

PROCESS

Key tasks

1. Check the data for errors.
2. Choose your tools.
3. Transform the data so you can work with it effectively.
4. Document the cleaning process.

Data cleaning, manipulation and processing:

1. Unzip the file: The file was downloaded from the data source, which was converted and saved into a folder.
2. Covert to .csv: The downloaded files were converted and save in a .csv format and moved to an appropriate folder.
3. Preparing the data: All the raw data in all the .csv files of data spanning 12months, was edited, cleaned and manipulated to make it appropriate for analyzing.
4. Excel Modification: A column called "ride_length" calculating the length of each ride was added, which subtracted the "started_at" from the column "ended_at". Another two columns called "day_of_week," and "name_of_day" was added indicating the day od the week using the "WEEKDAY" command, noting that 1 = Sunday and 7 = Saturday, and Formating the cell with "dddd" to get the name of the day.

Clean and transform data:

- Add columns day_of_week, name_of_day, start_month, end_month to get the weekday and month of the rides with the formula of date time. Where you format the cell with "dddd" – Day of week and 'mmmm' for the month name.

ride_id	rideable type	started_at	ended_at	day_of_week	name_of_day	Start_month	end_month
94DD1FB2367EA8B6	docked_bike	15-06-2022 07:56	10-07-2022 04:57	4	Wednesday	June	July
59F28D6FACEC86EB	docked_bike	10-06-2022 16:13	03-07-2022 04:16	6	Friday	June	July

- Subtract columns **started_at** from **ended_at** to get the total length of the ride in column **ride_length** which **indicates the total time duration of the travel**, format the cell in which the answer is given to days hours minutes seconds "dd:hh:mm:ss". This is done as there are certain rides which last for more than 24 hours spanning for multiple days.

ride_id	rideable_type	started_at	ended_at	ride_length
94DD1FB2367EA8B6	docked_bike	15-06-2022 07:56	10-07-2022 04:57	24:21:00:38
59F28D6FACEC86EB	docked_bike	10-06-2022 16:13	03-07-2022 04:16	22:12:02:58

- While analyzing these column, one thing was pointed out that there are a lot of members that have ride length(in the ride_length column) is less than 00:01:00 minute. Showing the rides in just a few seconds. This showed that there must have been a glitch while collecting the data from the app and the ride length must have not been recorded

correctly. Hence to have a better result, rides below the ride_length of 1 min is not considered as it might bring the actual average down.

ride_id	rideable_type	started_at	ended_at	ride_length
D25C1498571E601B	electric_bike	01-07-2022 00:15	01-07-2022 00:16	00:00:00:12
C781C1D212DBB6EA	electric_bike	01-07-2022 00:32	01-07-2022 00:33	00:00:00:12

- There was also an issue where the column started_at was of a larger number then the ended_at, as mentioned below. This must be an error with the bike-share app. As this did not give a correct calculation of the ride length of the user, the riders with this glitch were deleted.

ride_id	rideable_type	started_at	ended_at	ride_length
38B9F148CE80499B	electric_bike	07-06-2022 19:23:03	07-06-2022 17:05	#####
B897BE02B21FA75E	electric_bike	07-06-2022 19:15:39	07-06-2022 17:05	#####

- Columns such as start_station_name, start_station_id, end_station_name, end_station_id, start_lat, start_lng, end_lat, end_lng has an inconsistency in data where many of the rows are missing data. The glitch in the data must have been due to not registering the start and end location properly. Although these columns were not changed and the data belonging to it was still used as the riders must have been legitimate riders.

start_station_name	start_station_id	end_station_name	end_station_id
Wells St & Hubbard St	TA1307000151	Wells St & Hubbard St	TA1307000151
DuSable Lake Shore Dr & North Blvd	LF-005		
Broadway & Waveland Ave	13325	Broadway & Waveland Ave	13325
		DuSable Lake Shore Dr & Diversey Pkwy	TA1309000039
		Lakefront Trail & Wilson Ave	639
Sheffield Ave & Webster Ave	TA1309000033	Sheffield Ave & Webster Ave	TA1309000033

- The data also was cleaned for any blank cells and duplicates. These were deleted and then the cleaned data was used for analysis

ANALYZE

The data now is stored appropriately and has been prepared for analysis

Key tasks

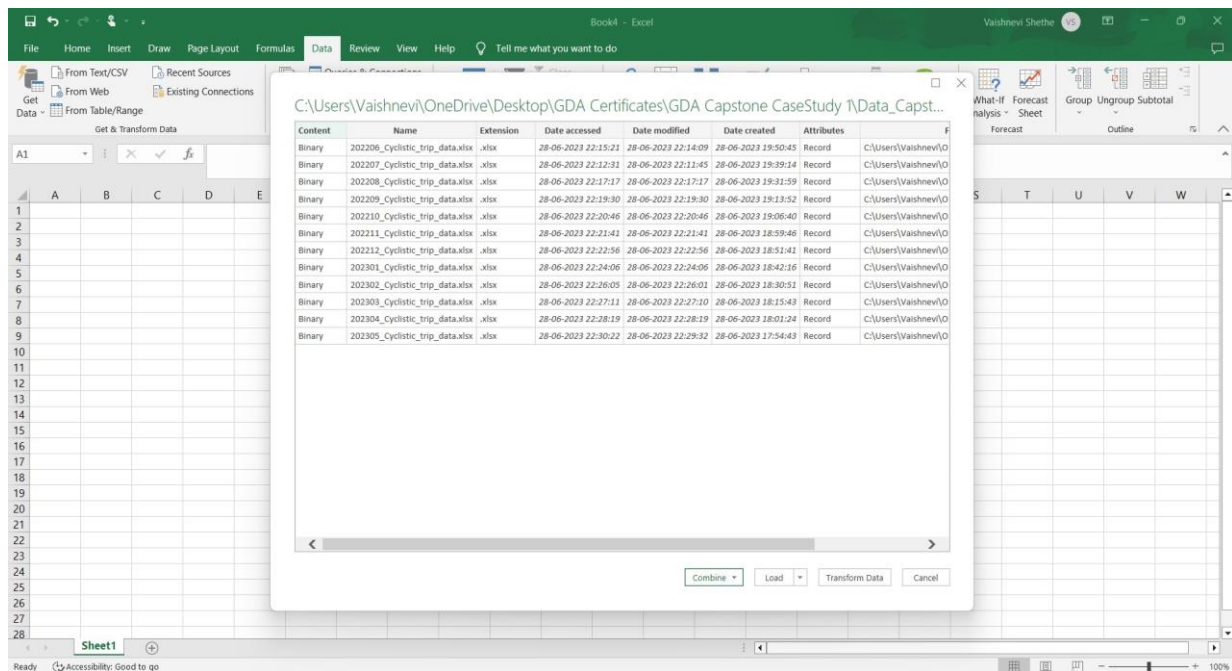
- Aggregate your data so it's useful and accessible.
- Organize and format your data.
- Perform calculations.
- Identify trends and relationships.

XANALYZING DATA WITH SPREADSHEET:

Analyzing data with excel spreadsheet and power Query:

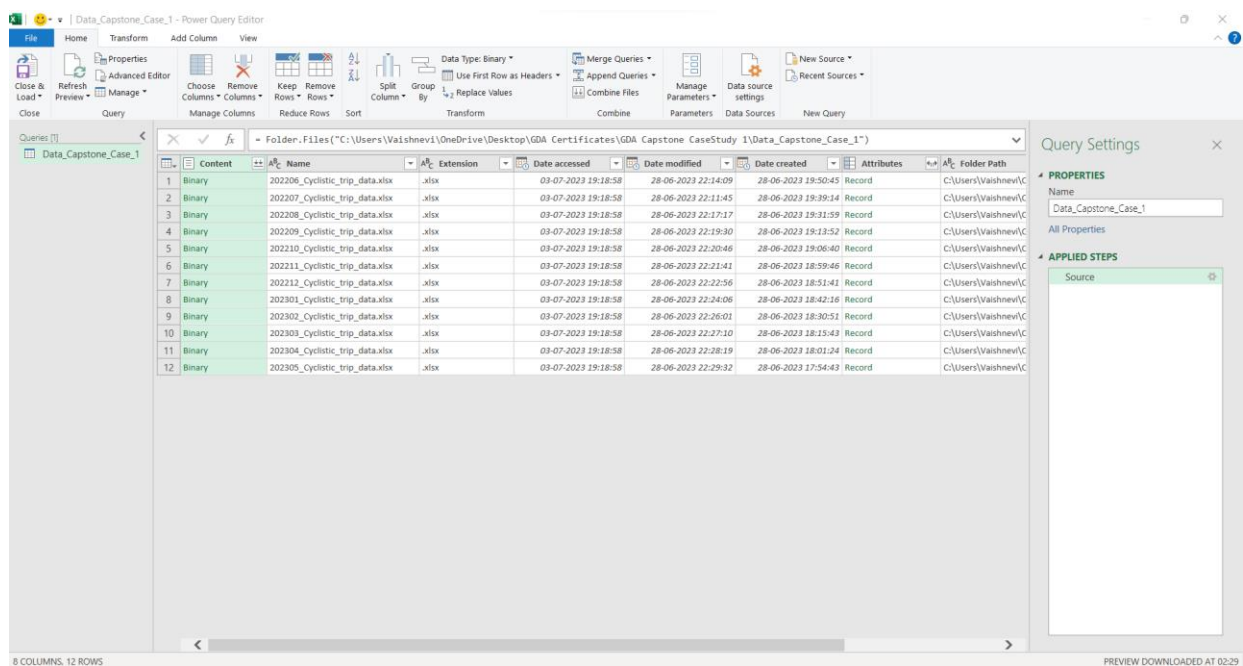
1. Open excel and load data:

Load data from Data -> Get Data -> From Folder and load all the data in power query. Click combine and load data, as shown in the screen below.



2. Transform data in Power Query:

Transform the data and combine all the files in one sheet to edit. It can be done by clicking on content to combine all 12 files.



3. Edit Data:

Edit data in the power query window. Remove all the blank rows and any errors. Change the required data types e.g.; the day of week column and the ride length column and format to required format.

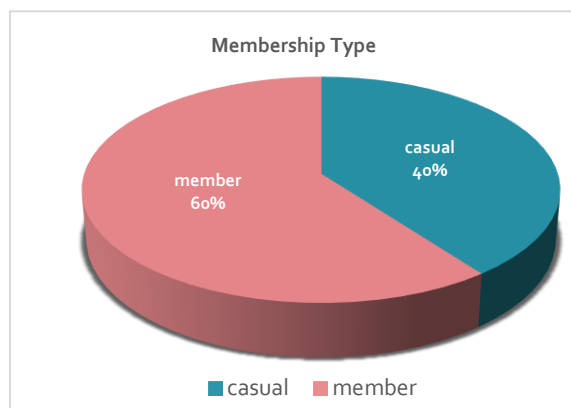
The screenshot shows the Power Query Editor window with a table of bike ride data. The table has columns: ride_id, rideable_type, started_at, ended_at, ride_length, day_of_week, name_of_day, and start_month. The 'ride_length' column is being edited with a formula: Table.TransformColumns(#'Changed Type1', ({'name_of_day', each Date.DayOfWeekName(_), type text})). The 'day_of_week' column is set to 'day_of_week' and the 'ride_length' column is set to 'ride_length'. The 'name_of_day' column is set to 'name_of_day'.

ANALYZING THE DATA: POWER QUERY, PIVOT TABLES AND TABLEAU (FOR GRAPHS) FOR : HOW DO ANNUAL MEMBERS AND CASUAL RIDERS USE CYCLISTIC BIKES DIFFERENTLY?

1. Membership Type:

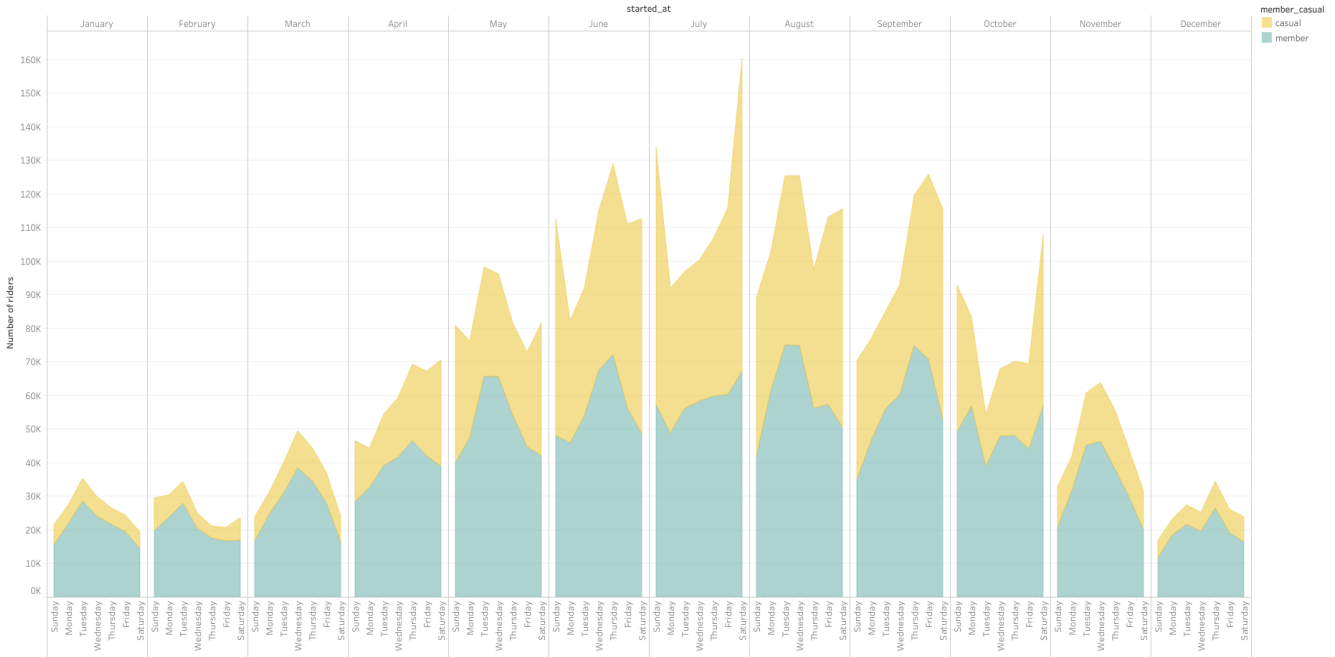
The data consists of list of cyclicistic bikeshare riders with different membership status – casuals and members.

Membership	Count of ride_id	Average of ride_length
casual	2258289	00:00:28:52
member	3424768	00:00:12:48
Grand Total	5683057	00:00:19:11



The graph below depicts the weekly distribution of both sorts of riders over a 12-month period. The graph shows that casual riders are far more active than members throughout specific months. The app is used by a lot of casual riders and this may be used to target certain riders and turn them into members.

Ride Type Monthly on Weekly Basis

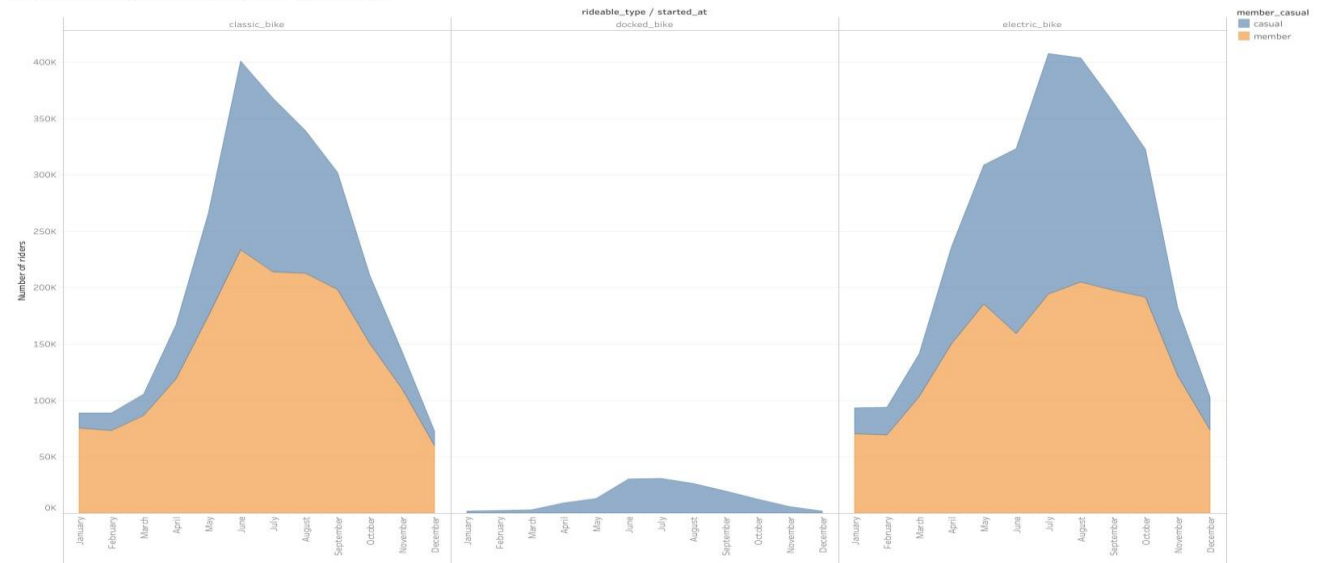


2. Types of bikes and types of users:

The data has different type of bikes that the users of Cyclistic Bikeshare app can opt for – Classic bikes, docked bikes and electric bikes. These bikes have been used by both members and casual users for varied duration of time. As seen in the graph below the majority of users are the members using the classic and electric bikes and docked_bike are majority used by casual riders.

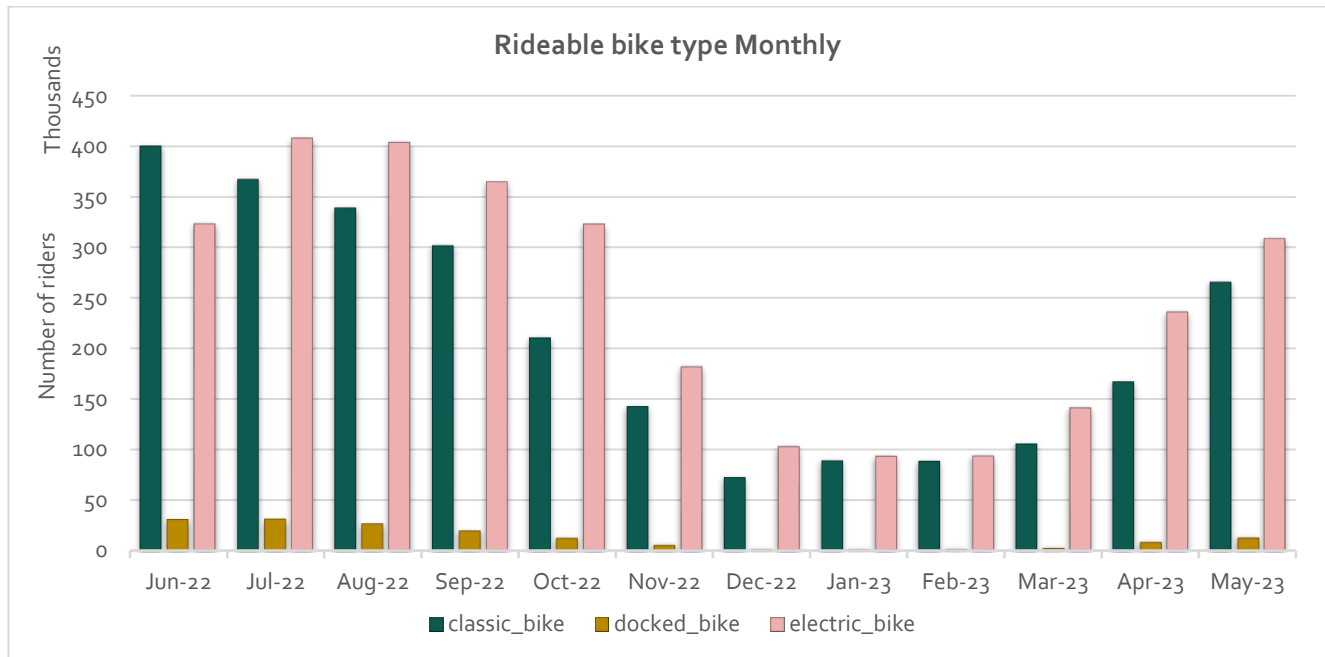
Bike Types	Casual User	Member User
classic_bike	8,45,194	17,04,369
docked_bike	1,55,745	
electric_bike	12,57,350	17,20,399

Membership Type with rideably bike type Monthly



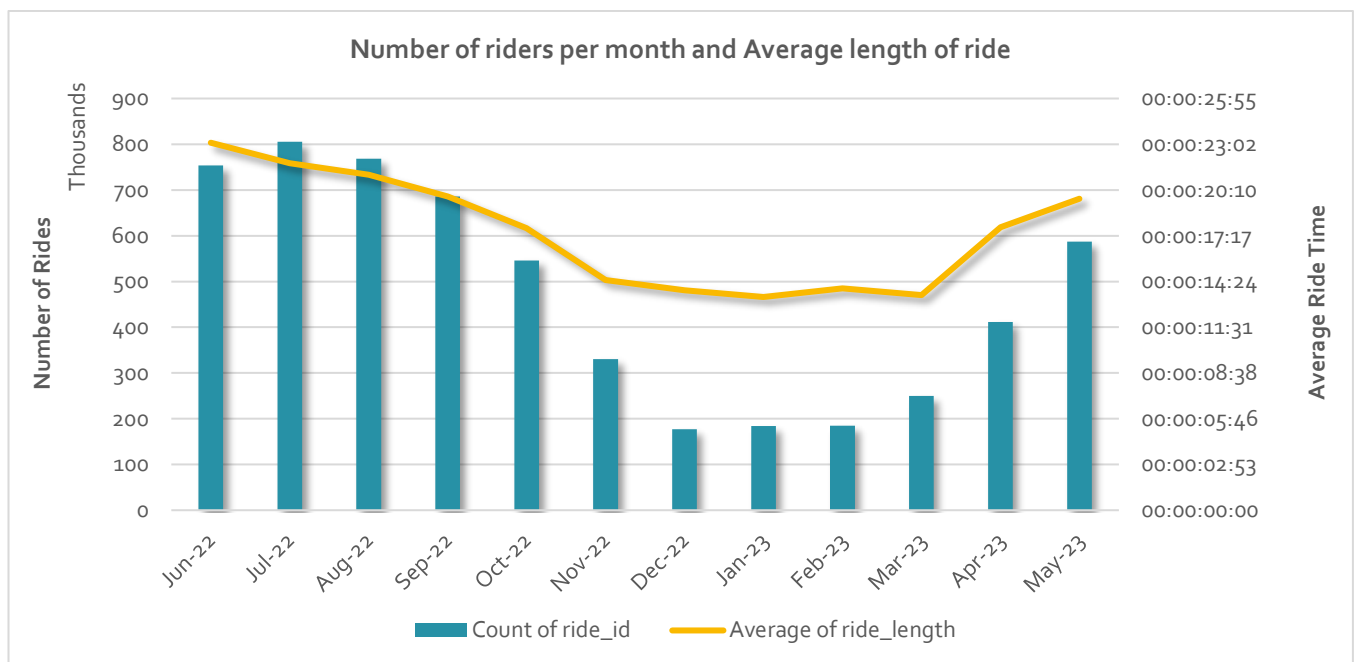
3. Number of Rideable Bike types (Monthly):

The graph below depicts the types of bikes used by users over a 12-month period, revealing that electric bikes are used 52% of the time, followed by classic bikes with 45% of usage and docked bikes with only 3% of the time, mostly by casual riders.



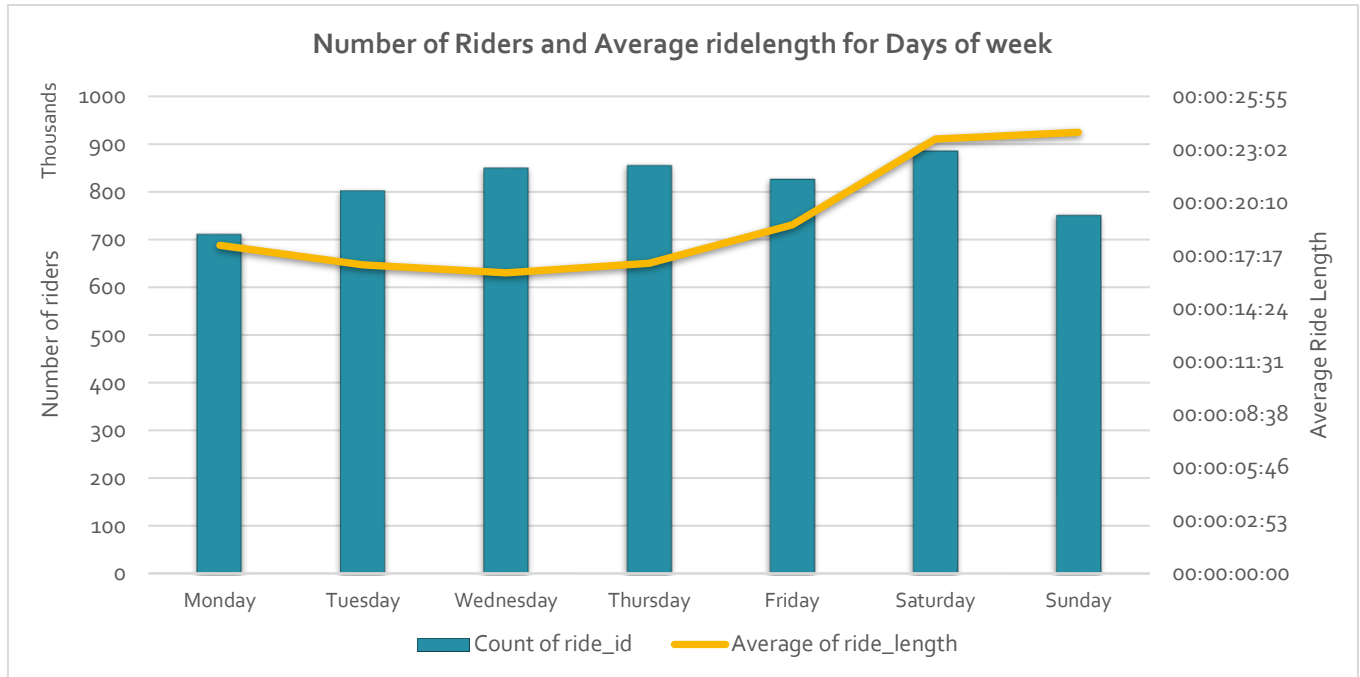
4. Number of riders and the average ride length (Monthly):

The data show the number of riders every month and the average ride time. The data indicates that the Cyclistic riders are most active during the spring-summer months from May to August and decline during autumn-winter months from October to February.



5. Number of riders and the average ride length (Weekly):

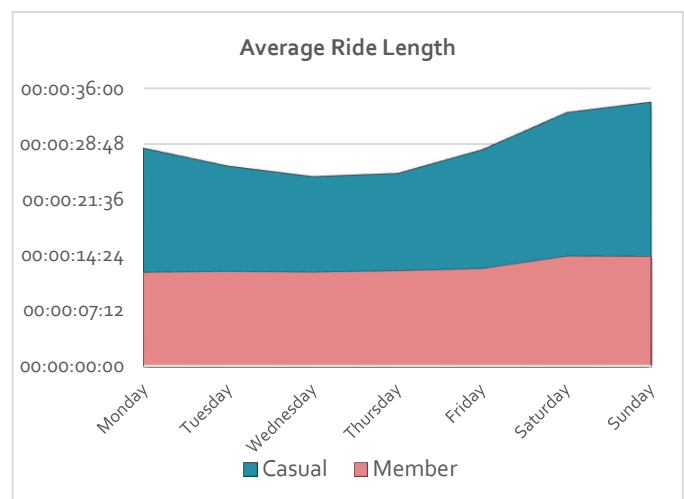
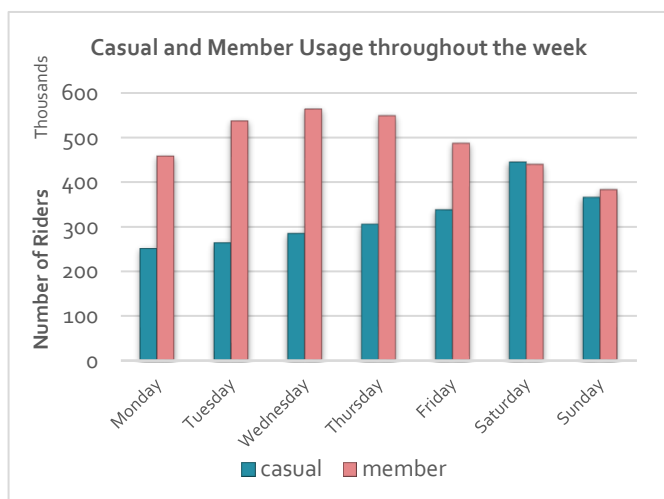
The graph below shows the number of riders that use Cyclistic Bikeshare users for the year from June 2022 to May 2023 on each day of week. Overall usage of the bikeshare app thorough out the week seems consistent. During the weekend increase there can be seen an increase in usage peaking on Saturdays. The average ride time of all the is ranging from 15 min to 25 min throughout the period of a week.



6. Comparison between Member and Casual riders behaviours:

• Weekly usership of Members and Casual Users:

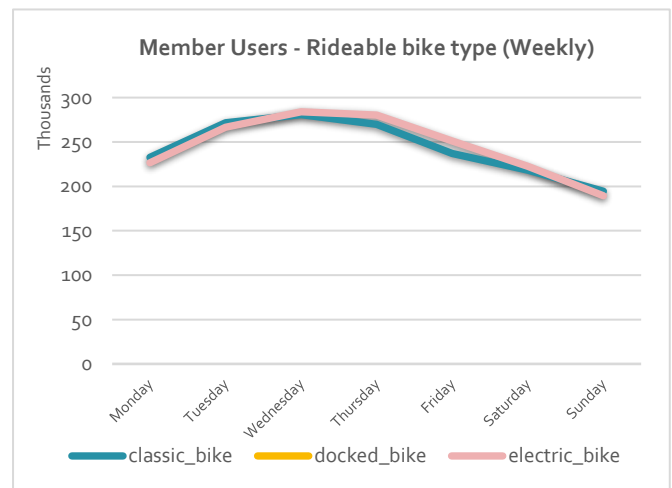
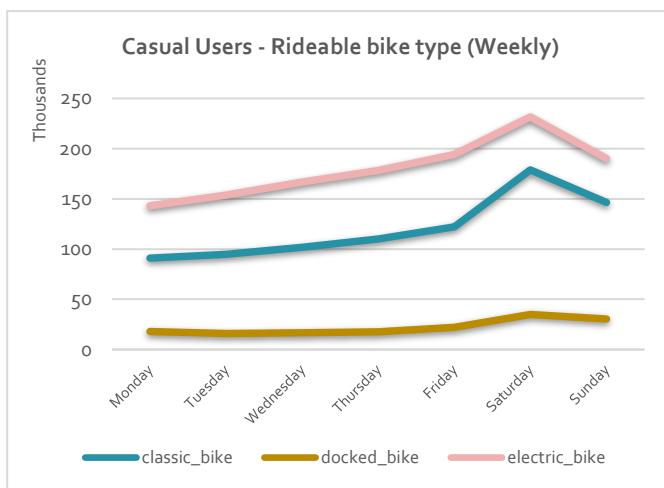
The graph below represents the daily usage of Cyclistic Bikeshare users on a weekly basis for the period of 12 months and the average ride length of each user. The Members usage during the week is pretty consistent with a slight reduction on the weekend indicating that the members most probably would be the using the app to travel for work purpose. Whereas the Casual users have a lower usage during the week and peaks on the weekend, indicating that the casual users seems to be using it for leisure purpose. Although the casual users have less users than the member, the Average ride time is higher than the Members. Highest peaking on the weekends.



- **Rideable bike types – Members vs Casual(Weekly basis):**

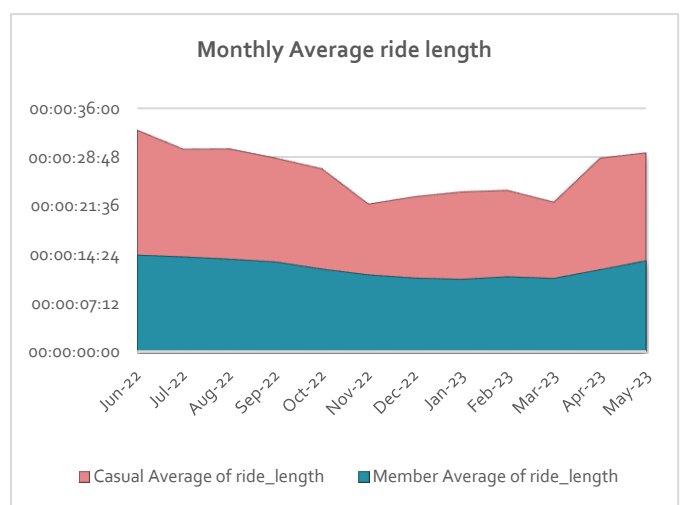
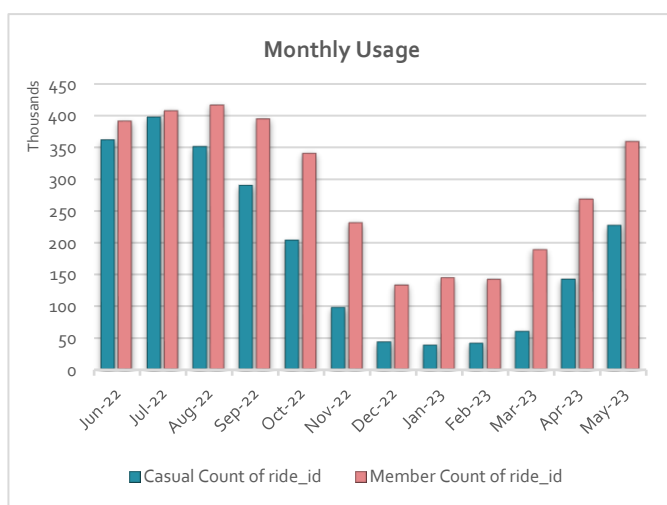
The graphs below represent the number of rides taken by Member users and Casual user. The Casual users have more usage of the electronic bikes than the classic bikes and docked bikes. The member user has approximately equal usage of both the classic_bike and the electric_bike, whereas casual riders have more usage of electric_bike followed by classic_bike and least used are the docked_bike.

With the pattern seen below, members are usually most active on the weekdays and then reducing over the weekend, indicating that the members might be using for work travel. Whereas casual riders have less usage as compared to the weekends, especially peaking on Saturday. This indicates that casual riders must be using the bikes for leisure purpose.



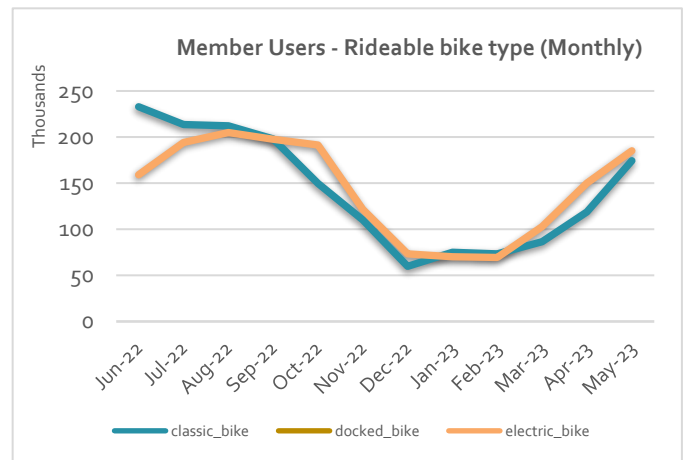
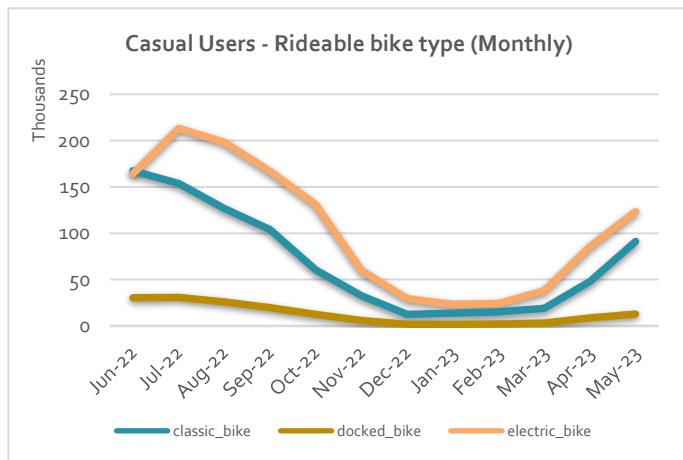
- **Monthly usership of Members and Casual Users:**

The data below shows the usage of Members and Casual users throughout the year. As seen that the overall usage is peaking in the summer months from June 2022 to August 2022. The Membership users have more demand than the Casual users, even during the winter months, indicating that the members use the cyclistic app for work purpose. Although the casual riders using the Cyclistic bikes share bike less than the members, the Ride time far surpasses the member users. The casual users might be using it for a longer time for as it most probably might be for leisure purpose.



- Rideable bike types – Members vs Casual(Monthly basis) :**

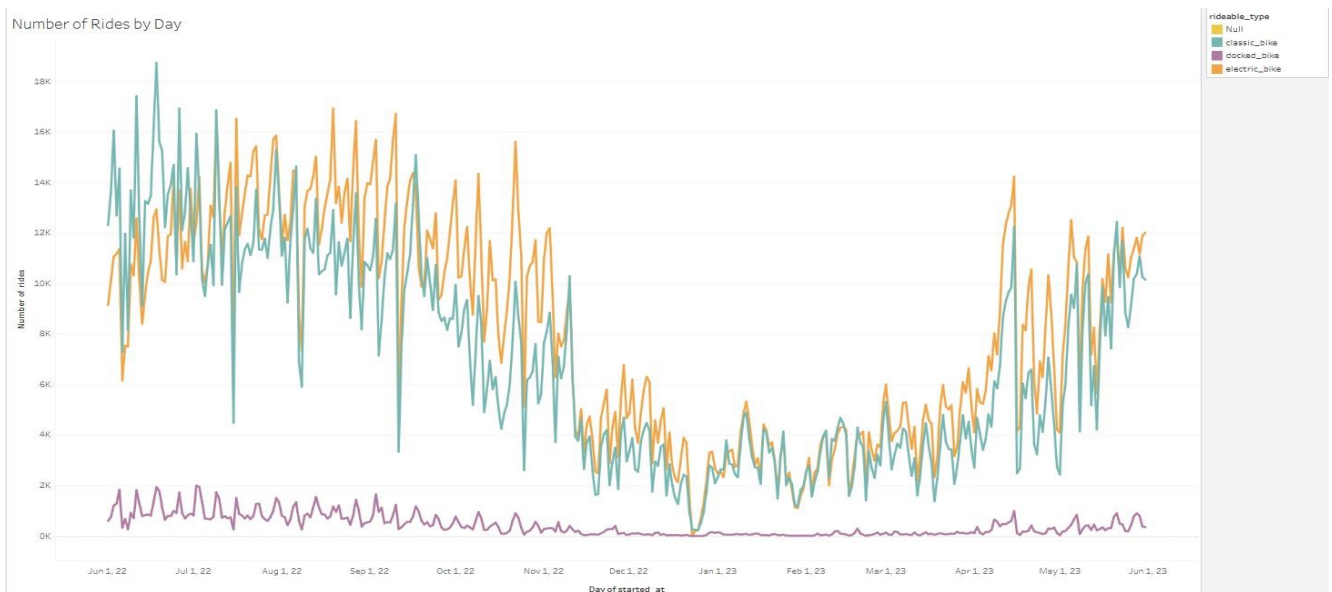
From the given graphs below the Casuals riders have more usage of the electronic bikes than the classic bikes and docked bikes. The member user has approximately equal usage of both the classic and the electric bikes



7. Comparison of average time on electric and classic on yearly and weekly basis

- Rides on a Daily basis for 12-month period:**

The graph below shows the daily usage of all three – types of rideable bikes and their usage. On a daily basis both members and casual riders can be seen majority opting for classic and electric bikes and classic_bike. Hence, the following part will be concentrating on the behavioural patterns of riders pertaining to electric_bike and classic_bike. This will help to figure out how to convert casual riders into members specially based on the most common type of bikes used for travel.



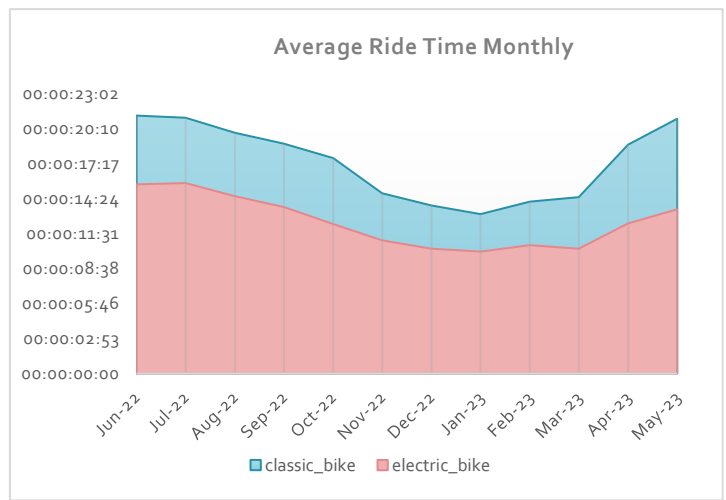
Membership	classic_bike	Percentage	electric_bike	Percentage
casual	8,45,194.00	33%	12,57,350.00	42%
member	17,04,369.00	67%	17,20,399.00	58%
Grand Total	25,49,563.00	100%	29,77,749.00	100%

- Members and Casual Riders Average Ride Time on electric and classic bikes (Monthly):**

The graph below shows the average ride time of Members and casual riders with classic and electric_bike. Although the number of riders that use electric_bike are more, the average ride time of classic_bike is more than electric_bike. With 67% of members and 33% of casual users riding classic_bike, there can be a possibility that these riders ride the choose to ride the bikes for a longer time than riders choosing electric bikes.

This might be due to over all the price of classic_bike is cheaper with casual riders paying \$1 unlock + \$0.17/min for single ride & \$1 unlock + \$0.17/min for a day pass and members paying 45 min free, then \$0.17/min for every ride. Where as electric_bike cost \$1 unlock + \$0.42/min for both single ride and day pass for casual riders and for members Free unlocks + \$0.17/min. This might be the reason that both casual and members choose longer rides with classic bikes.

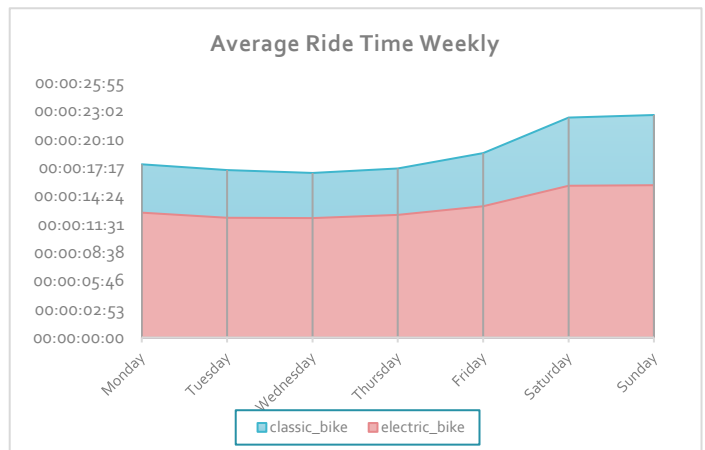
Months	classic_bike	electric_bike
Jun-22	00:00:21:13	00:00:15:33
Jul-22	00:00:21:02	00:00:15:40
Aug-22	00:00:19:48	00:00:14:36
Sep-22	00:00:18:54	00:00:13:42
Oct-22	00:00:17:43	00:00:12:18
Nov-22	00:00:14:50	00:00:10:57
Dec-22	00:00:13:49	00:00:10:17
Jan-23	00:00:13:06	00:00:10:02
Feb-23	00:00:14:09	00:00:10:34
Mar-23	00:00:14:30	00:00:10:17
Apr-23	00:00:18:50	00:00:12:21
May-23	00:00:20:57	00:00:13:31



- Members and Casual Riders Average Ride Time on electric and classic bikes (Weekly):**

The graph below shows average ride time on a weekly basis. It can be seen that both casual and members ride classic_bike for a longer period of time than electric_bike. As indicated in the above section it can be due to the pricing structure of these bikes. casual riders paying \$1 unlock + \$0.17/min for single ride & \$1 unlock + \$0.17/min for a day pass and members paying 45 min free, then \$0.17/min for every ride. Where as electric_bike cost \$1 unlock + \$0.42/min for both single ride and day pass for casual riders and for members Free unlocks + \$0.17/min. With cheaper pricing for classic_bike the riders might be choosing a longer ride time.

Weekday	classic_bike	electric_bike
Monday	00:00:17:36	00:00:12:41
Tuesday	00:00:17:01	00:00:12:10
Wednesday	00:00:16:42	00:00:12:07
Thursday	00:00:17:10	00:00:12:27
Friday	00:00:18:43	00:00:13:20
Saturday	00:00:22:21	00:00:15:24
Sunday	00:00:22:36	00:00:15:28



8. Abnormalities in docked_bike average and max ride time:

In the data collected from June 2022 to May 2023, the docked_bike was only used by casual riders. There were a lot of abnormalities in the data that was found. A lot of rides with docked_bike exceeded 24 hours of ride time and spanned for days. This might be due to the casual riders not stopping the ride at the ride time, forgetting to clock out or the bikes being stolen.

• Average of ride length

Month	classic_bike	docked_bike	electric_bike
Jun-22	00:00:21:13	00:02:09:02	00:00:15:33
Jul-22	00:00:21:02	00:01:53:35	00:00:15:40
Aug-22	00:00:19:48	00:02:19:09	00:00:14:36
Sep-22	00:00:18:54	00:02:25:22	00:00:13:42
Oct-22	00:00:17:43	00:02:39:40	00:00:12:18
Nov-22	00:00:14:50	00:01:55:59	00:00:10:57
Dec-22	00:00:13:49	00:03:27:29	00:00:10:17
Jan-23	00:00:13:06	00:03:33:12	00:00:10:02
Feb-23	00:00:14:09	00:02:32:29	00:00:10:34
Mar-23	00:00:14:30	00:02:13:26	00:00:10:17
Apr-23	00:00:18:50	00:02:25:02	00:00:12:21
May-23	00:00:20:57	00:02:16:38	00:00:13:31

Day of week	classic_bike	docked_bike	electric_bike
Monday	00:00:17:36	00:02:08:56	00:00:12:41
Tuesday	00:00:17:01	00:02:12:18	00:00:12:10
Wednesday	00:00:16:42	00:02:02:02	00:00:12:07
Thursday	00:00:17:10	00:02:04:26	00:00:12:27
Friday	00:00:18:43	00:02:14:57	00:00:13:20
Saturday	00:00:22:21	00:02:24:31	00:00:15:24
Sunday	00:00:22:36	00:02:25:06	00:00:15:28

Member	classic_bike	docked_bike	electric_bike
casual	00:00:28:43	00:02:15:33	00:00:15:45
member	00:00:14:00		00:00:11:36

• Max of ride length

Month	classic_bike	docked_bike	electric_bike
Jun-22	01:01:00:26	24:21:00:38	00:10:14:24
Jul-22	01:01:00:55	23:18:08:49	00:08:00:30
Aug-22	01:01:00:21	19:12:49:22	00:08:00:29
Sep-22	01:00:59:57	19:05:37:34	00:08:00:26
Oct-22	01:00:59:57	28:17:47:15	00:08:00:24
Nov-22	01:00:59:56	13:14:52:36	00:08:00:21
Dec-22	01:00:59:56	13:07:17:06	00:08:00:18
Jan-23	01:00:59:57	23:08:03:44	00:07:59:58
Feb-23	01:00:59:56	13:02:25:46	00:08:01:22
Mar-23	01:01:59:56	11:16:08:04	00:08:00:27
Apr-23	01:00:59:57	12:18:35:29	00:08:01:24
May-23	01:01:00:31	20:06:50:31	00:08:00:22

Day of Week	classic_bike	docked_bike	electric_bike
Monday	01:00:59:57	22:05:55:27	00:08:00:25
Tuesday	01:00:59:57	21:14:05:51	00:10:14:24
Wednesday	01:00:59:58	24:21:00:38	00:08:00:29
Thursday	01:00:59:57	21:13:03:30	00:08:00:24
Friday	01:01:00:21	22:12:02:58	00:08:00:27
Saturday	01:01:59:56	28:17:47:15	00:08:01:24
Sunday	01:01:00:55	23:08:03:44	00:08:00:27

Membership	classic_bike	docked_bike	electric_bike
casual	01:01:59:56	28:17:47:15	00:08:00:27
member	01:01:59:40		00:10:14:24

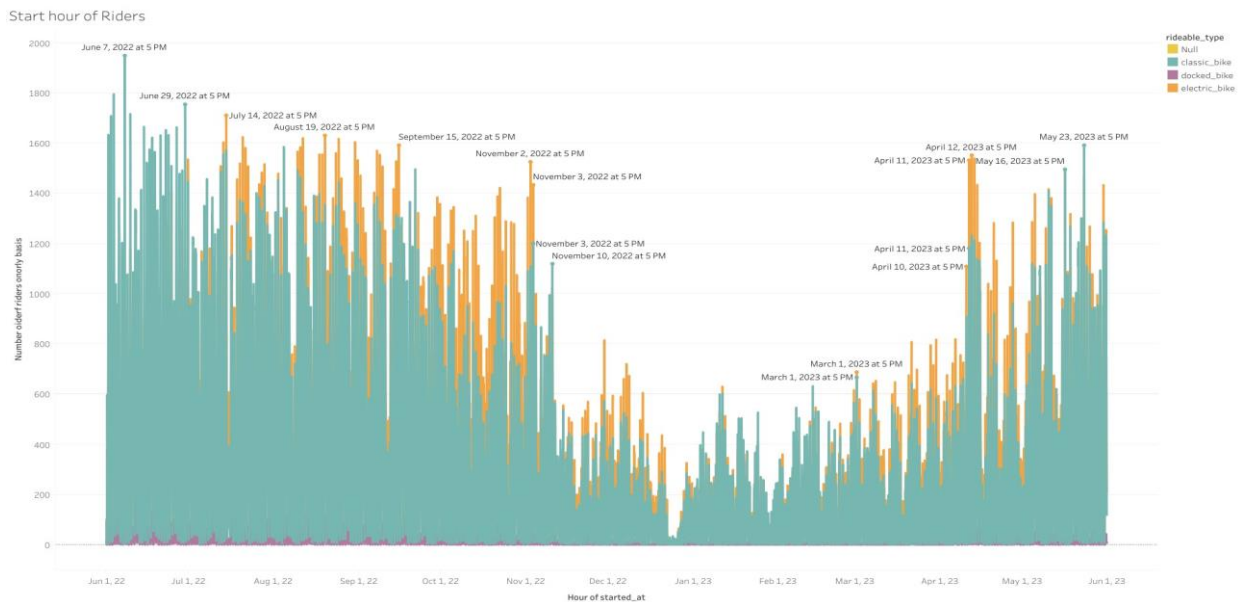
9. Mode of Week Day:

The day of week where both the type of the riders is at peak is on Saturday. As seen in the above analysis, the ride time and the number of riders peaks on the weekends, with casual riders exceeding member riders. Saturday being the day where the number of riders is at peak with the highest ride time.

Day of week	Count of ride_id
Monday	7,11,013
Tuesday	8,02,830
Wednesday	8,49,920
Thursday	8,55,868
Friday	8,26,740
Saturday	8,85,977
Sunday	7,50,709

10. Most common ride start time:

As seen in the graph below the most common time where both casual and members start their ride time is in the evenings at 5 pm. During the spring-summer months from May to August you can see the maximum riders starting in the evening at 5pm. This can be due to favourable climate conditions. We can see that the most popular ride type are the electric_bike followed by classic_bike. Although in winter months of November to February the number of riders is quite less owing to the weather. Over all evening around 5pm are the most popular ride time for both types of riders.



SHARE AND ACT

The objectives of the analysis discussed above are to inform the stakeholders of the insights and results and to provide advice for the business that can assist in accomplishing the assignment that Moreno has given : How are Cyclistic bikes used differently by yearly members and casual riders?

All the data gathered through analysis with Spreadsheet, Power Query, and Tableau is visualised in the page up top.

SUMMARY OF THE PROJECT:

- The Member riders make up 60% and casual riders make of 40% of the total riders. Summer-Spring months from May to September the ridership is at its peak with July being the month with the most ridership by member and casual riders. Autumn - Winter months have the lowest ridership, majority of which is by the member riders.
- During the weekdays members make 64% and casual riders make 36% of the ridership. On weekends the ridership of both casuals and member riders is quite equal making 50% each on Saturdays and Sundays, Saturday being the day with ridership at its peak.
- Members and casual riders both preferred electric_bike following by classic_bike, docked_bike were only used by casual riders. Although electric_bike being more popular, the ride time of classic_bike of both the riders far exceed electric_bike. This might be due to the difference in the price range of both the bikes, classic bikes price being cheaper than electric bikes

- On an average Casual riders were making longer rides than members. In autumn-winter months of October to February the difference in ride duration between members and casual riders is lower than as compared to the ride duration in spring-summer months where casual rider's duration far exceeds the members. The longest rides have been made from April to July. The shortest rides have been made in December and January. On weekends the ride duration is higher for casual riders and on weekdays the ride duration is higher for member riders
- There is an anomaly seen with the ride duration of docked bikes. The bikes are mostly used by casual riders have a duration that far exceeds the time of 24 hours. This might be due to the casual riders not clocking out the ride time correctly or the bike being stolen.
- The most common time that the bikes will be used by both the members and casual is 5pm in the evening, with summer months having the most ridership at 5 pm and winter months the least.

The riders' activity over a year, week, and day, as well as their differing behaviour patterns on weekdays and weekends, may be explained by the rides' aims. Both casual riders and members appear to utilise their motorcycles for leisure on weekends, which may explain why we see similar ridership by members and casual riders on weekends. Summer months have an overabundance of casual bikers. Members appear to utilise bikes for work purposes more frequently, which explains their high activity during the weekdays and throughout the autumn-winter months.

RECOMMENDATIONS FOR THE BUSINESS

1. To reach casual riders:

- Contact those who have previously registered as corporate bike riders using the customer contact information.
 - Customers who have used the company's bikes on a regular basis but have not yet purchased an annual membership should be targeted through emails, SMS and other social media platforms.
 - Customers who have previously purchased an annual membership but did not renew it for the following year should also be targeted mainly through emails and social media.
- Choose the optimum dates, times, and places for the new marketing campaign to target the main clientele:
 - Use map charts with popular locations to determine the best places for offline ads such as banners, flyers, ads at docking stations and public transportation and to configure the target group for online ads
 - Run the new marketing campaign in the most popular hour of usage of bikes by its users.

2. Encourage casual riders to buy an annual membership:

- Offer various types of perks to the existing members and to the new casual rider joining an annual plan:
- Generate a point system which can be based on the ride duration of all riders and these perks can be only used if the rider is a member. This may include further discounts on ride pricing, extra free rides up to a certain kilometre or time duration. This can be done for those who are frequent casual riders who might be using the bike not only for leisure but also for work purpose

THANK YOU

Any feedback is appreciated!!!