

Cyclistic: This Year's Membership Overview (Sept 2023 - Sept 2024)

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Agenda

Based on Google's **Data Analytics** steps



1. **Ask:** The business task statement
2. **Prepare:** Data sources used
3. **Process:** Data cleaning and manipulation
4. **Analyze:** Insights summary
5. **Share:** Visualizing insights
6. **Act:** Recommendations and call to action



Executive summary

- **Annual members** mainly use **bicycles for weekday rides**, while **casual riders** prefer less common methods like **scooters for weekend rides**.
- From September 2023 to September 2024:
 - Electric scooters only took up **2% of the total ride count** compared to bikes.
 - The least popular day to ride is **Monday** and have mostly members, while the most popular day is **Saturday** with casual members taking up a large chunk of the weekends.
- To convert more casual riders into annual members, **Lily Moreno** should focus on Cyclistic's **advertising efforts on electric scooters** and providing **membership benefits for riding on the weekends**.



**Ask: The business task
statement**





Cyclistic stakeholders

- **Cyclistic** is a bike sharing service based in Chicago, Illinois, that was founded in 2016. They offer bikes and electric scooters, including those for the disabled that can't use traditional bikes or scooters.
- Current staff:
 - **Alyssa Ayala:** The presenter, Junior Data Analyst for Cyclistic's marketing analytics team. I help them come up with the best marketing strategy according to their company's needs.
 - **Lily Moreno:** The Director of Marketing. She develops the campaigns that the marketing team uses to promote Cyclistic's services by email, social media, etc.



The problem we're trying to solve

- Cyclistic has three different types of passes: **single-ride**, **full-day**, and **annual memberships**.
 - Single-ride or full-day: **Casual riders**
 - Annual memberships: **Members**
- The financial analysts at Cyclistic have concluded that **annual memberships** are the most profitable passes for the company.
- **Lily Moreno** wants to figure out how the marketing team can convert more **casual riders** into **members**.
- The question this presentation is aiming to answer: **How do annual members and casual riders use Cyclistic bikes differently?**



Prepare: Data sources used





Sources of the datasets

- I got the previous 12 months of data from [this](#) website that has Cyclistic trip data for every month.
- They were all .csv files enclosed in ZIP files. I downloaded and extracted them on my computer, keeping the datasets in a folder separate from my other files.

All files downloaded:

- Sept 2023: [202309-divvy-tripdata.zip](#)
- Oct 2023: [202310-divvy-tripdata.zip](#)
- Nov 2023: [202311-divvy-tripdata.zip](#)
- Dec 2023: [202312-divvy-tripdata.zip](#)
- Jan 2024: [202401-divvy-tripdata.zip](#)
- Feb 2024: [202402-divvy-tripdata.zip](#)
- Mar 2024: [202403-divvy-tripdata.zip](#)
- Apr 2024: [202404-divvy-tripdata.zip](#)
- May 2024: [202405-divvy-tripdata.zip](#)
- Jun 2024: [202406-divvy-tripdata.zip](#)
- Jul 2024: [202407-divvy-tripdata.zip](#)
- Aug 2024: [202408-divvy-tripdata.zip](#)
- Sept 2024: [202409-divvy-tripdata.zip](#)



Dataset specs

- The dates and times of the trips are in **start_time** and **end_time**, where the dates are listed by month, day, and year.
- Whether that rider was **casual** or a **member** was listed via the **membership_type** column.
- The type of rides consisted of **classic_bike**, **electric_bike**, and **electric_scooter**.
- The ride dates and types of rides give us everything needed for analysis. The easiest way to analyze rides by date is by their **day of the week**.
- I made a column called **day_of_week** by using the WEEKDAY() function on column C to get the day of the week of the starting day and time like this: `WEEKDAY(C(num),1)`, where 1 = Sunday, 2 = Monday, etc.
- I did this process for each of the 12 datasets. At this point, nothing had been combined yet.



Process: Data cleaning and manipulation





Importing the data into RStudio

- I used **RStudio** for the rest of the steps until the visualization process.
- First, I installed and loaded the **tidyverse** library using **packages.install()** and **library()**, respectively.
- I used tidyverse's **read.csv()** function to import all of the 12 datasets in this format: *month_year*. The months were abbreviated, and just the last two digits of the year were shown.

```
# Install and load tidyverse library
packages.install("tidyverse")
library(tidyverse)

# Import datasets
sept_23 <- read.csv("202309-divvy-tripdata.csv")
oct_23 <- read.csv("202310-divvy-tripdata.csv")
nov_23 <- read.csv("202311-divvy-tripdata.csv")
dec_23 <- read.csv("202312-divvy-tripdata.csv")
jan_24 <- read.csv("202401-divvy-tripdata.csv")
feb_24 <- read.csv("202402-divvy-tripdata.csv")
mar_24 <- read.csv("202403-divvy-tripdata.csv")
apr_24 <- read.csv("202404-divvy-tripdata.csv")
may_24 <- read.csv("202405-divvy-tripdata.csv")
jun_24 <- read.csv("202406-divvy-tripdata.csv")
jul_24 <- read.csv("202407-divvy-tripdata.csv")
aug_24 <- read.csv("202408-divvy-tripdata.csv")
sept_24 <- read.csv("202409-divvy-tripdata.csv")
```



Combining multiple datasets with RStudio

- I used tidyverse's `bind_rows()` function to combine each month into a new dataset called **trips**.
- Since all of the datasets had the same column names and format, everything was combined with no conflicts.

```
# Combine datasets into one
trips <- sept_23 %>%
  bind_rows(oct_23)

trips <- trips %>%
  bind_rows(nov_23)

trips <- trips %>%
  bind_rows(dec_23)

trips <- trips %>%
  bind_rows(jan_24)

trips <- trips %>%
  bind_rows(feb_24)

trips <- trips %>%
  bind_rows(mar_24)

trips <- trips %>%
  bind_rows(apr_24)

trips <- trips %>%
  bind_rows(may_24)

trips <- trips %>%
  bind_rows(jun_24)

trips <- trips %>%
  bind_rows(jul_24)

trips <- trips %>%
  bind_rows(aug_24)

trips <- trips %>%
  bind_rows(sept_24)
```



Making data readable with R

- Just to make sure, I used tidyverse's **drop_na()** function to delete any entries with null values to only keep verified trips.
- Since the days of the week were integers (1 = Sunday, etc.), I changed the values to their corresponding weekday depending on the number.
- I used tidyverse's **write_csv()** function to save the dataset into a file called **trips.csv**.

```
# Drop entries with null values, incomplete trip data
drop_na(trips)
```

```
# Now assign days of week based on numerical values
trips$day_of_week[trips$day_of_week == 1] <- 'Sunday'
trips$day_of_week[trips$day_of_week == 2] <- 'Monday'
trips$day_of_week[trips$day_of_week == 3] <- 'Tuesday'
trips$day_of_week[trips$day_of_week == 4] <- 'Wednesday'
trips$day_of_week[trips$day_of_week == 5] <- 'Thursday'
trips$day_of_week[trips$day_of_week == 6] <- 'Friday'
trips$day_of_week[trips$day_of_week == 7] <- 'Saturday'
```

```
# Finally, save the dataset
write_csv(trips, "trips.csv")
```



Analyze: Insights summary





Initial analysis

```
> length(which(trips$rideable_type=='classic_bike'))  
[1] 3132850  
> length(which(trips$rideable_type=='electric_bike'))  
[1] 3243728  
> length(which(trips$rideable_type=='electric_scooter'))  
[1] 144337
```

Classic bike trip count: **3132850** | Electric bike trip count: **3243728** | Electric scooter trip count: **144337**

The **electric scooter** is clearly **less popular** than the other two: just **2% of the total trip count**.

```
> tail(names(sort(table(trips$day_of_week))),7)  
[1] "Monday"    "Sunday"    "Tuesday"   "Thursday"  "Friday"    "wednesday" "Saturday"
```

The least popular to most popular days of the week are sorted from left to right.

The least popular day for riding is **Monday**, while the most popular is **Saturday**.



Visualizing the data

How to confirm the initial analysis?

- I used **Tableau** to make the visualizations that were used to make my insights.
- I uploaded the final **trips.csv** file to Tableau, where I made several visualizations like bar graphs to physically see the numbers and their impact, which helped finalize my analysis and recommendations.



Share: Visualizing insights

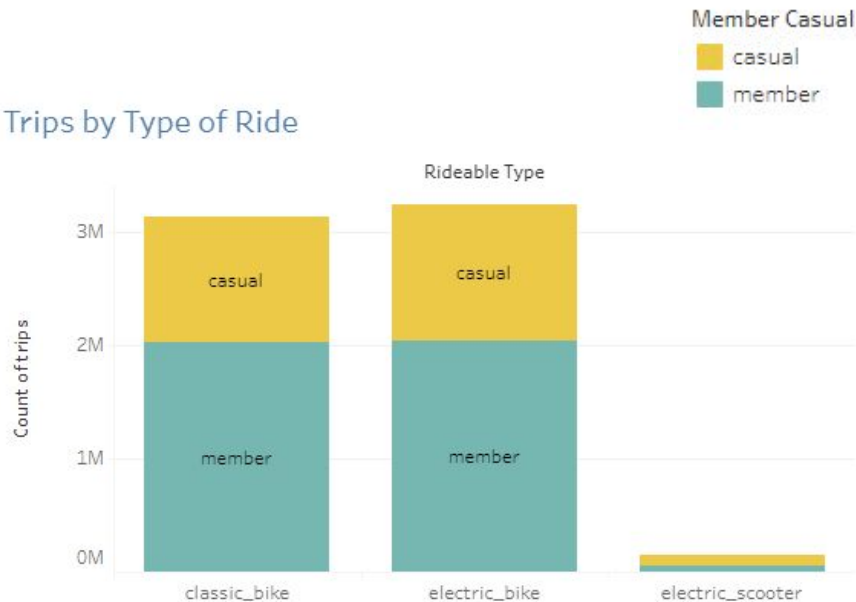




Electric scooters are perfect for long-range travelers

- Most of the **electric scooter** trips are from **casual riders**, with a trip count of 85,215.
- This makes sense since some electric scooters do not require **strenuous exercise** compared to bikes, making them ideal for longer trips.
- But if bikes are more popular than scooters, then **casual riders** may be **discouraged** from investing in a membership plan since their desired vehicle may be **scarce**.

Trips by Type of Ride

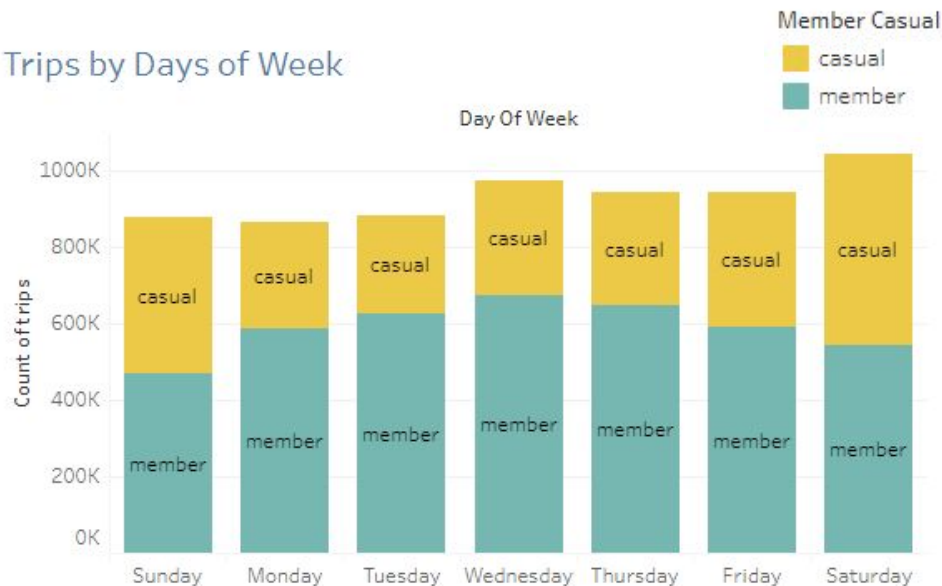




The weekends are popular amongst casual riders

- One reason could be their desire to do recreational activities outside of work.
- Casual riders have a total trip count of 498,570 for **Saturday**, and 411,038 for **Sunday**.
- Meanwhile, **Members** may be using their bikes to **commute** everyday, making them take up more of the weekday (Mon-Fri) trips.

Trips by Days of Week





Act: Recommendations and call to action





Data-driven recommendations

Casual riders and annual members clearly differ in ridership habits, from the **type of ride** they use to **when they prefer to ride**.

1. **Focus your advertising efforts on electric scooters.**

- a. Since electric scooters are not nearly as popular as the bikes, making this type of ride known may even encourage members to start using them. Long-range travelers may also get to know about Cyclistic and get an annual membership plan if they do such travels regularly.

2. **Offer membership benefits for riding on the weekends.**

- a. Casual riders may not use Cyclistic services for commuting to school or work, making weekend trips more popular for them. If they're encouraged to ride on the weekends, they may decide that the annual membership plan is for them.



Call to action

What should **Lily Moreno** do after this presentation ends?

- Start developing plans to **advertise electric scooters** with the marketing team.
 - Think about how you'll do it, the costs, etc.
- Discuss how the marketing team could provide **membership benefits for weekend riders**.
 - Would you give credits or discounts? Free rides for future trips?



Thank you. Questions?