

Case Study: How Does a Bike-Share Navigate Speedy Success?

Scenario

Cyclistic, is a bike-share company in Chicago. The director of marketing believes the company's future success depends on maximizing the number of annual memberships. Therefore, your team wants to 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. But first, Cyclistic executives must approve your recommendations, so they must be backed up with compelling data insights and professional data visualizations.

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?

Prepare:

Dataset is provided by Cyclistic company , hence it is credible.

The given dataset is in a spreadsheet with almost 100,000 entries.

The dataset contains only the trip details and no personnel information of the customer , hence high privacy, security isn't required.

Process:

1. The initial Pre-Processing and cleaning is done using spreadsheet.
2. R studio is used for further processing.
3. Tableau for data visualization

Pre-processing and cleaning:

- Check for null values for columns `ride_id`, `rideable_type`, `started_at`, `ended_at`, `member_causal` using filters.
- Check for consistent data formats as it is crucial for `started_at` and `ended_at` to be of type timestamp and not string.
- Spell check `rideable_type`(classic,electric,docked) and `member_causal`(casual,member) for spell check.
- Remove duplicate entries to avoid misleading of data and trim spaces

Data Transformation:

- Create a separate column called `ride_length` which calculates the duration by using formula : `ended_at-started_at`.
- Create a separate column called `day` which stores the day of the week using formula : `WEEKDAY(started_at,1)`

Analyze:

- Organize and format data.
- Perform calculations.
- Identify trends.

Data Validation:

- Check for any outliers for `ride_length` and minimum values. the minimum in the above scenario is 1 sec.
- The day column stores numbers 1 to 7 which signifies days of the week , where 1= Sunday and 7= Saturday.
- Use find and replace for converting day column for string i,e 1=sun,2=mon etc.

Rstudio is efficient when working with large dataset. CaseStudy.R contains all the visualization code with comments

Insights :

- Almost 80% of overall users are already members
- There are more casual users who used docked bike
- Casual members tend to be more active during Fri-Sun
- Saturday is the busiest day of the week for casual users
- Casual users on an average tend to spend more time riding compared to members.

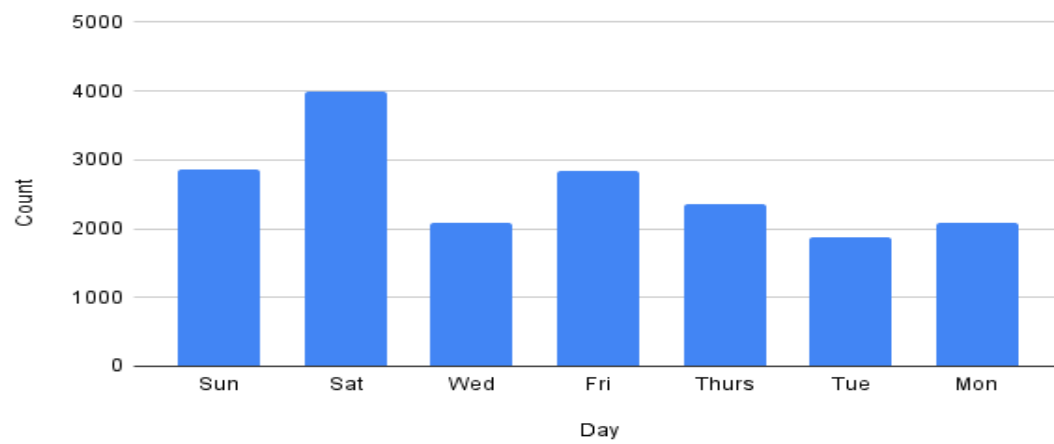
Spreadsheet is efficient for quick visualizations using pivot table

Insights:

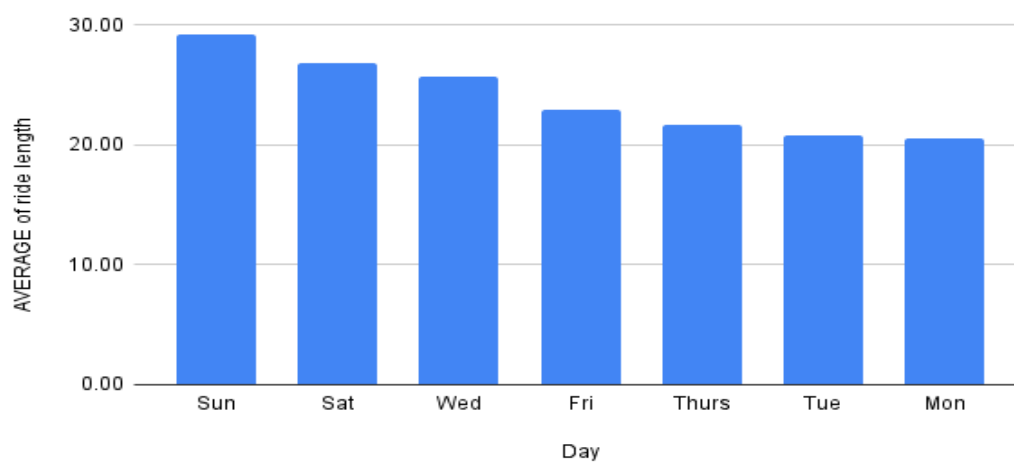
- The no of casual users are highest on Saturday
- Average ride time is highest for casual users on Sunday
- Casual users use classic and electric bikes quite often but the no of users of docked bike are the least among the 3 types.
- Casual users who use docked bike tend to spend more riding.
- Casual users tend to use docked bike compared to members

Visualizations :

Casual users count per week



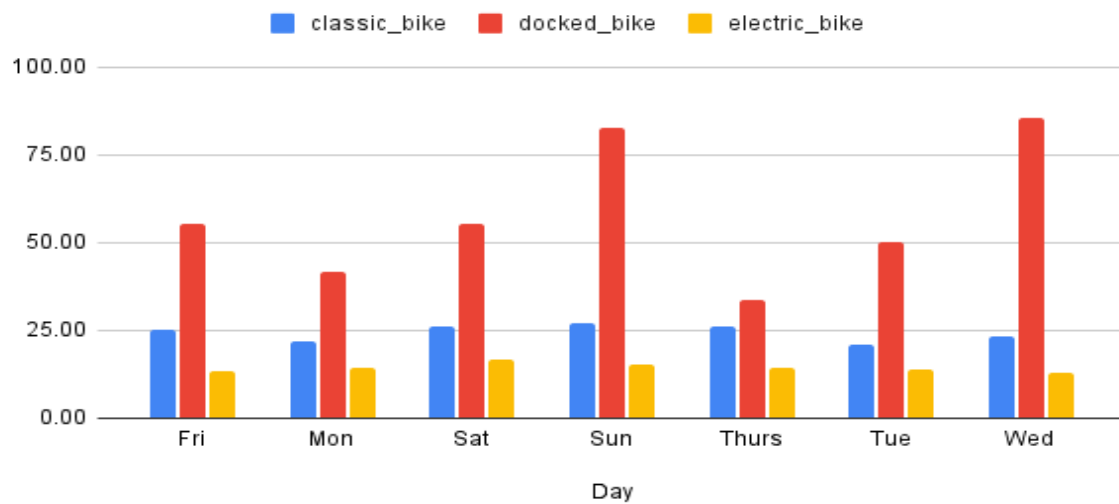
Casual users average ride time



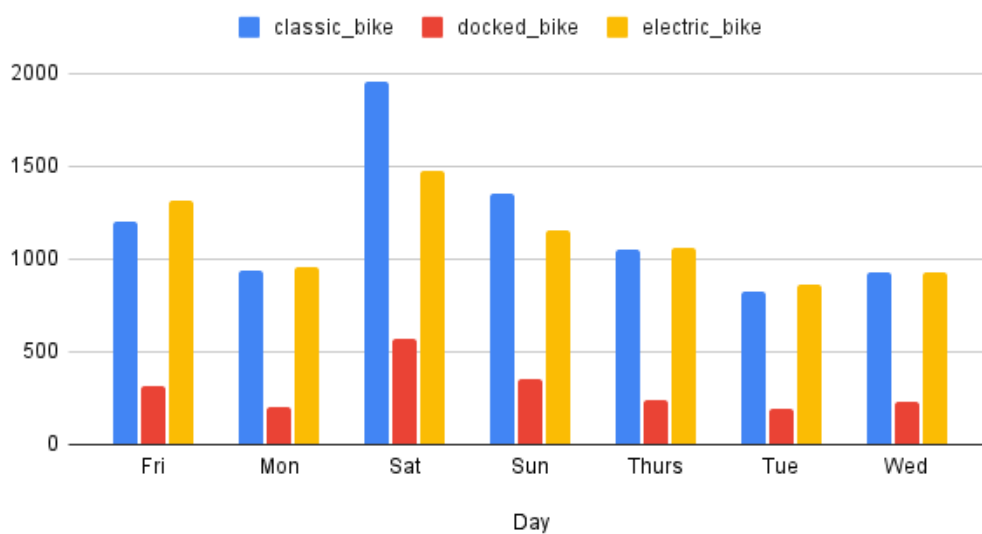
Pattern:

Even though Saturday has the highest traffic, the casual users tend to spend more time riding on the Sundays.

Casual users average ride time per bike in a week



Casual users count per bike in a week

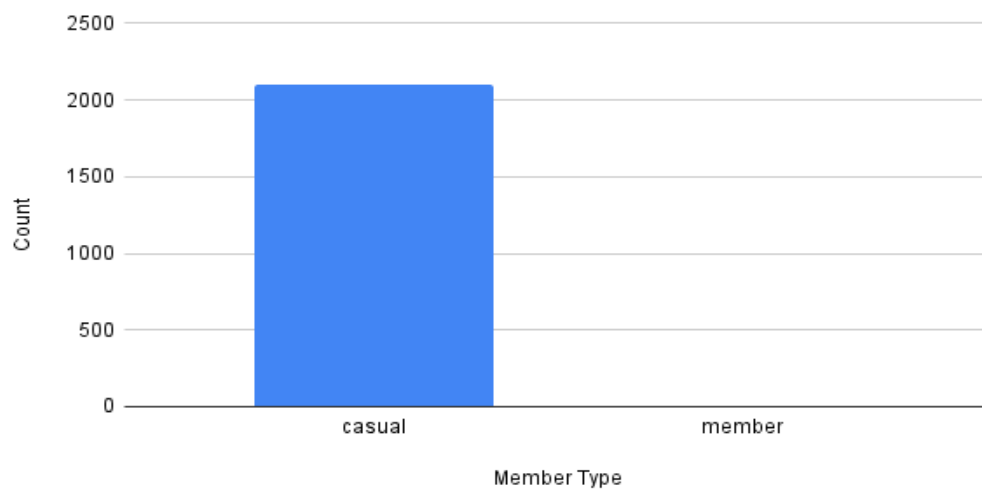


Pattern:

The no of casual users throughout the week who used docked bike are the least but surprisingly they tend to significantly spend more time riding compared to users who use electric or classic bike.

There seems to be a relation between casual users and docked bikes.

Overall docked bike users

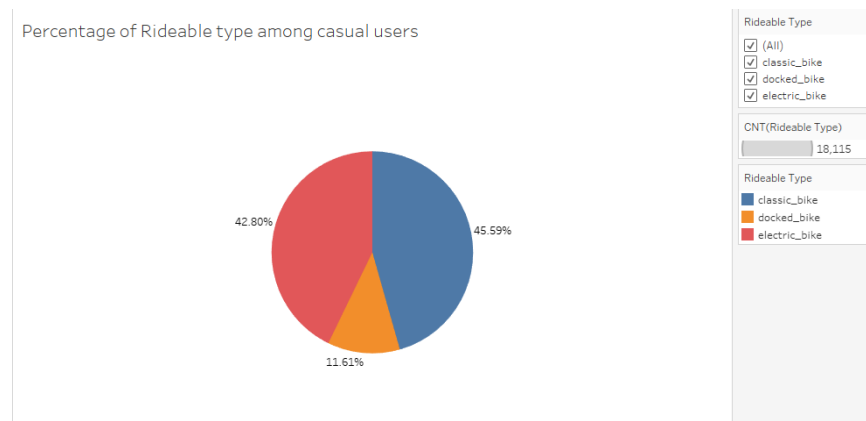


Conclusion : It is quite clear that docked bikes are popular among the casual users

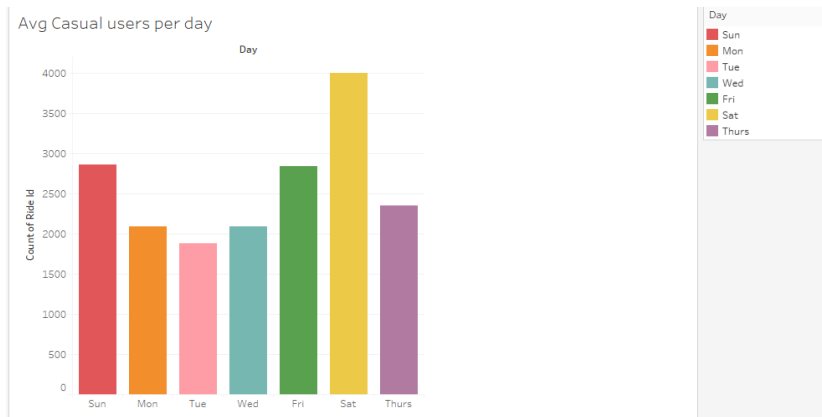
Share:

Tableau for creating a dashboard. Workbook CaseStudyAnalysis contains dashboard with all the visualizations.

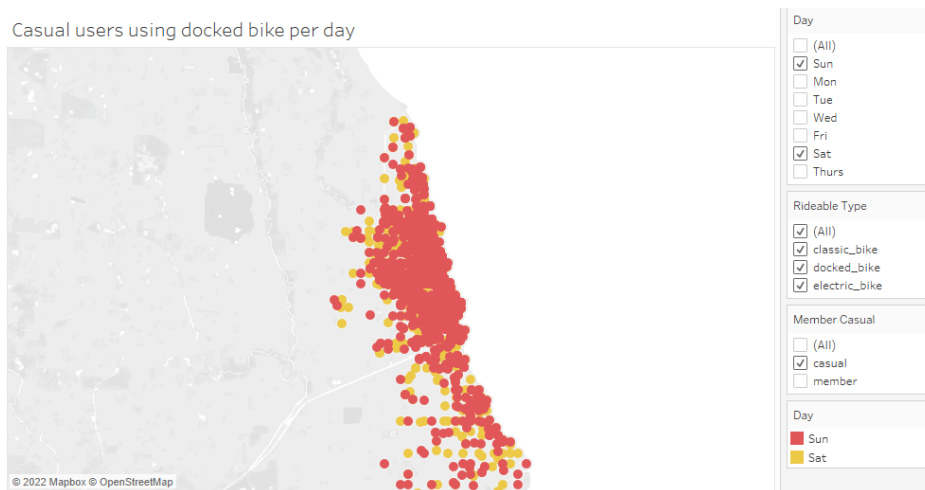
- Pie chart to showcase percentage of users based upon Rideable type



- Bar chart for Avg users count throughout the week



- Map to showcase the density of the users on weekends compared to weekdays



Act:

1.How do annual members and casual riders use Cyclistic bikes differently?

A : casual riders who use docked bike tend to spend more than the average time riding bike.
annual members almost never use docked bike.

2.Why would casual riders buy Cyclistic annual memberships?

A: casual riders would buy membership if there would be discount offers or deals on docked bikes.

3.How can Cyclistic use digital media to influence casual riders to become members?

A: digital media can be used to advertise offers and deals for users of docked bikes on weekends as average traffic and ride time among casual users is the highest.