



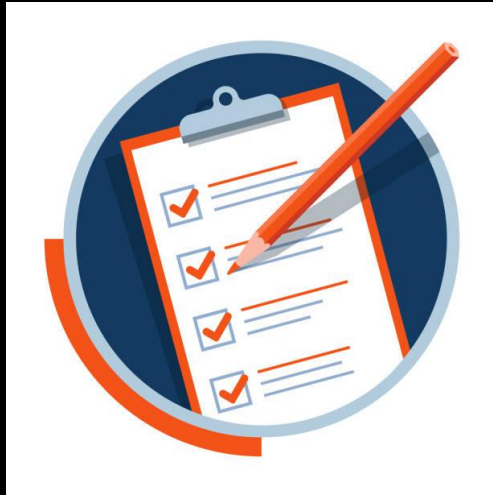
capital bikeshare™

User Engagement

Presented by,
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CODE Analytics
29.11.2024



Agenda



01 Company Overview

02 Introduction to Data

03 Exploratory Data Analysis

04 KPI – SMART

05 Machine Learning Model

06 Conclusion



Company Overview

Company –



Goal – To expand access to bikeshare. In order to help for creating safer and healthier communities. Which also support to reduce traffic and pollution

- ❖ Operated by – Lyft app
- ❖ Working – Scan barcode, Ride and park
- ❖ Bike Types
 - Classic Bike
 - Electric Bike
 - Docked Bike
- ❖ Plans Available :
 - Single ride (\$1+0.5/min)
 - Day Pass (\$8/day)
 - Annual Membership (\$95/year)
- ❖ Metro DC's Capital Bikeshare has :
 - 7,000 bikes
 - 700+ stations across
- ❖ 8 jurisdictions:
 - Washington, DC.; Arlington, VA;
 - Alexandria, VA; Montgomery, MD;
 - Prince George's County, MD; Fairfax County, VA;
 - City of Fairfax, VA; and the City of Falls Church, VA.



Introduction to data

Data Shared by Company

❖ Hourly Data :

- Hourly Rides for Casual and Members
- Hourly Total Rides
- Respective Hourly Weather condition (Humidity , Temp , weather code)

❖ Daily Data :

- Same data as hourly. Only instead of hourly its in daily

❖ Full Data :

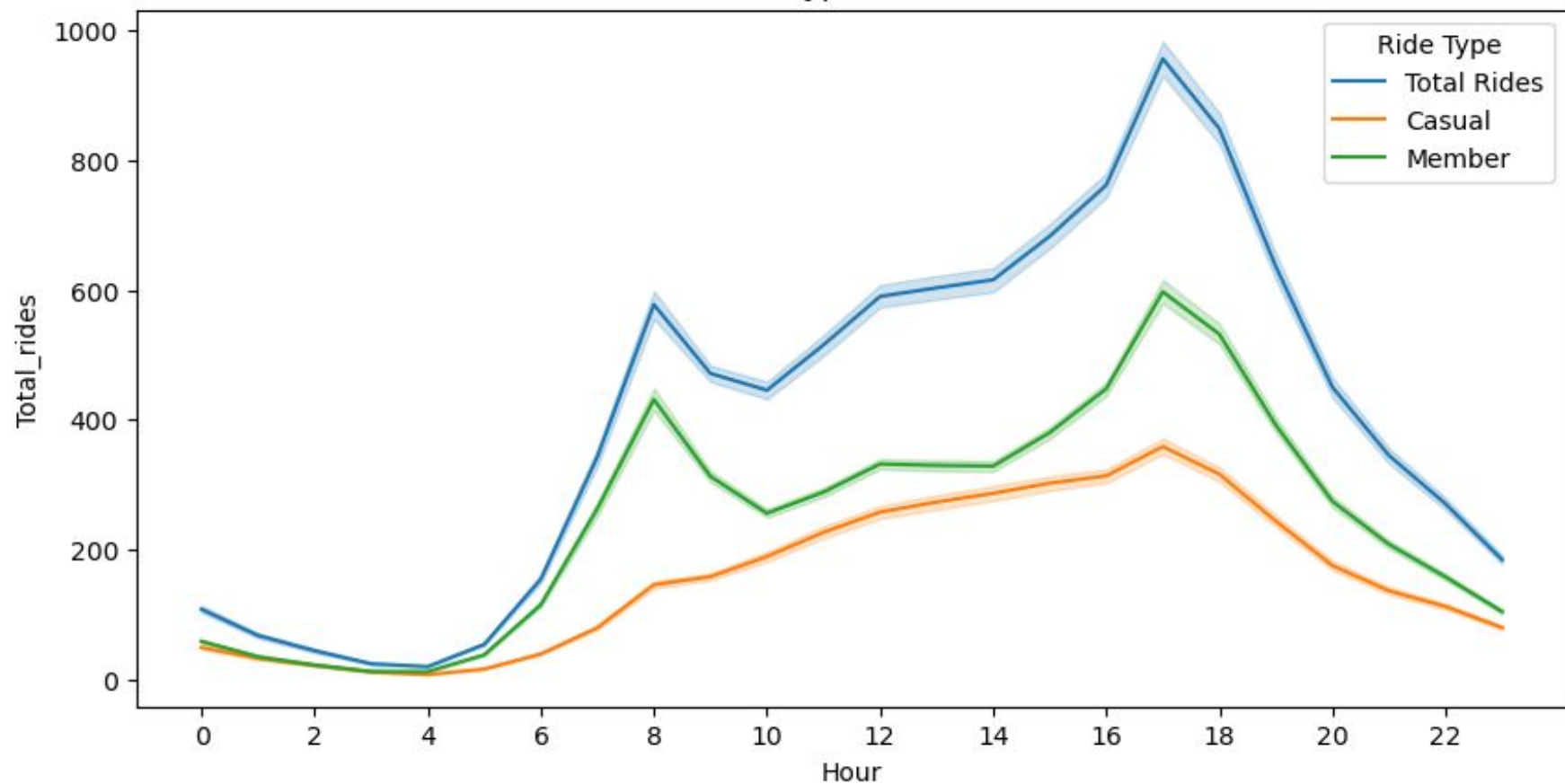
- Data of each Ride for year 2021 to 2023
- Ride starting and Ending point with their respective latitude and longitude
- Member Type – Member / Casual





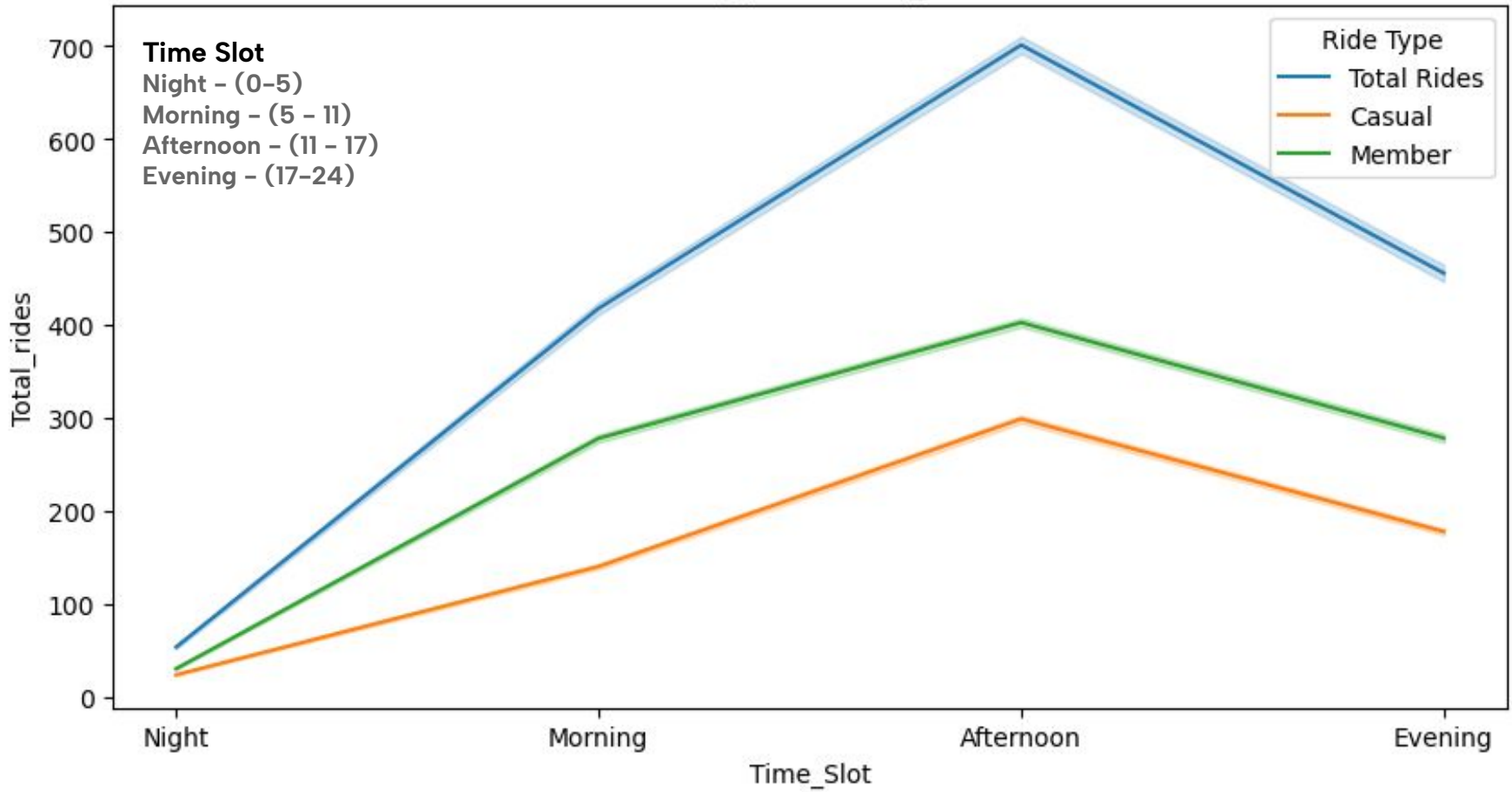
Exploratory Data Analysis

Ride Type VS Hour



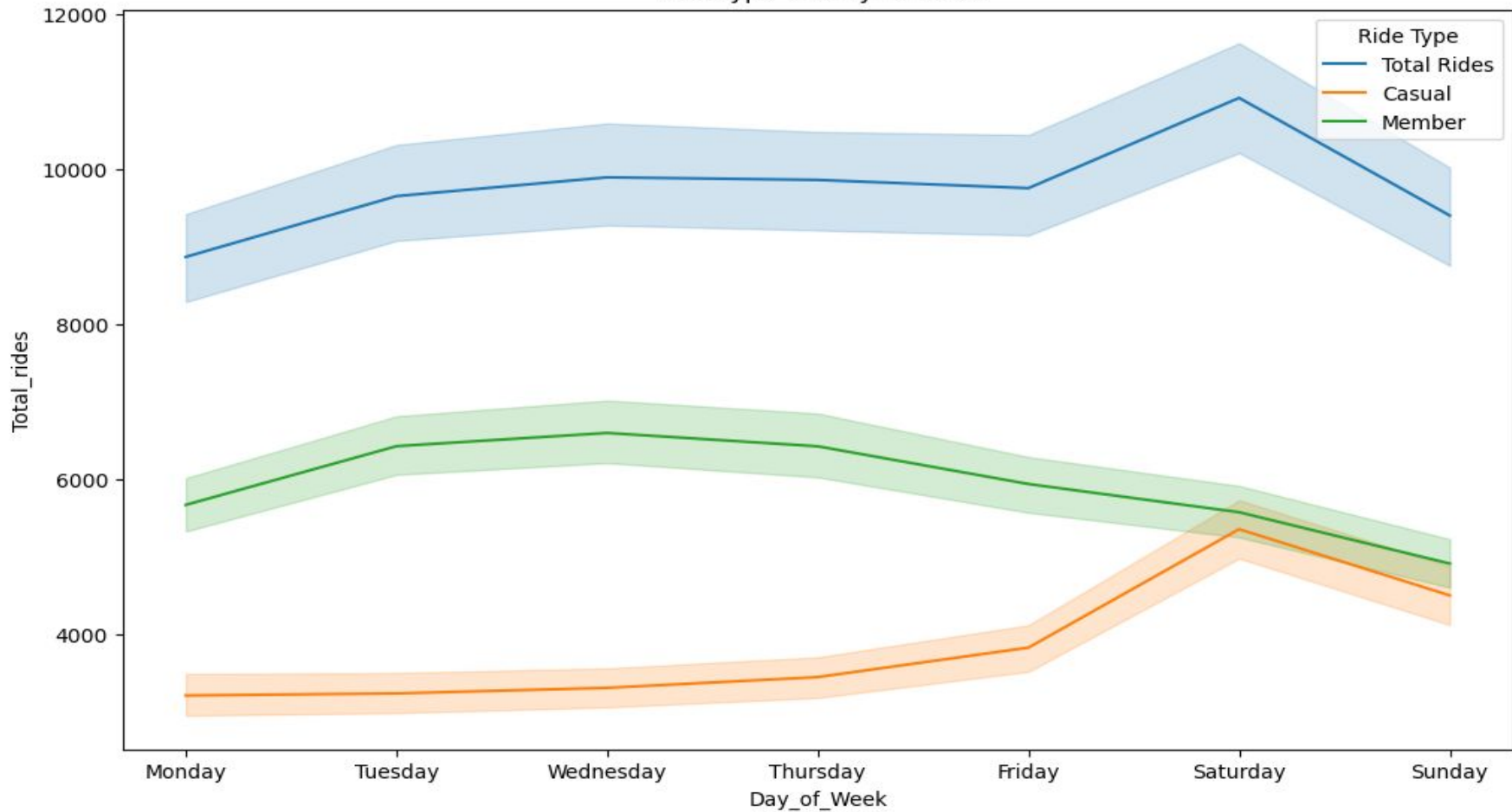
Hourly

Ride Type VS Time_Slot



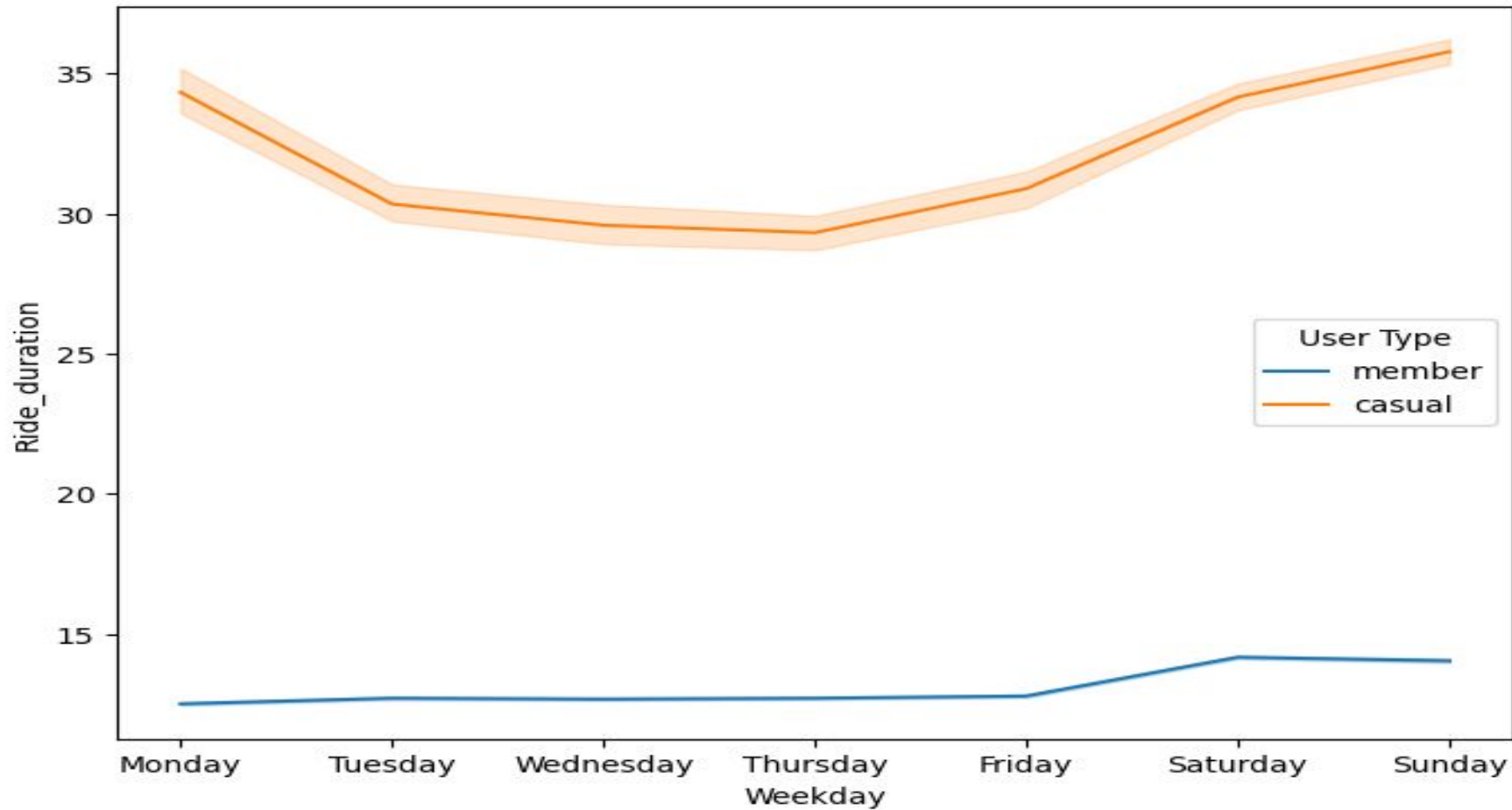
Daily

Ride Type VS Day of Week



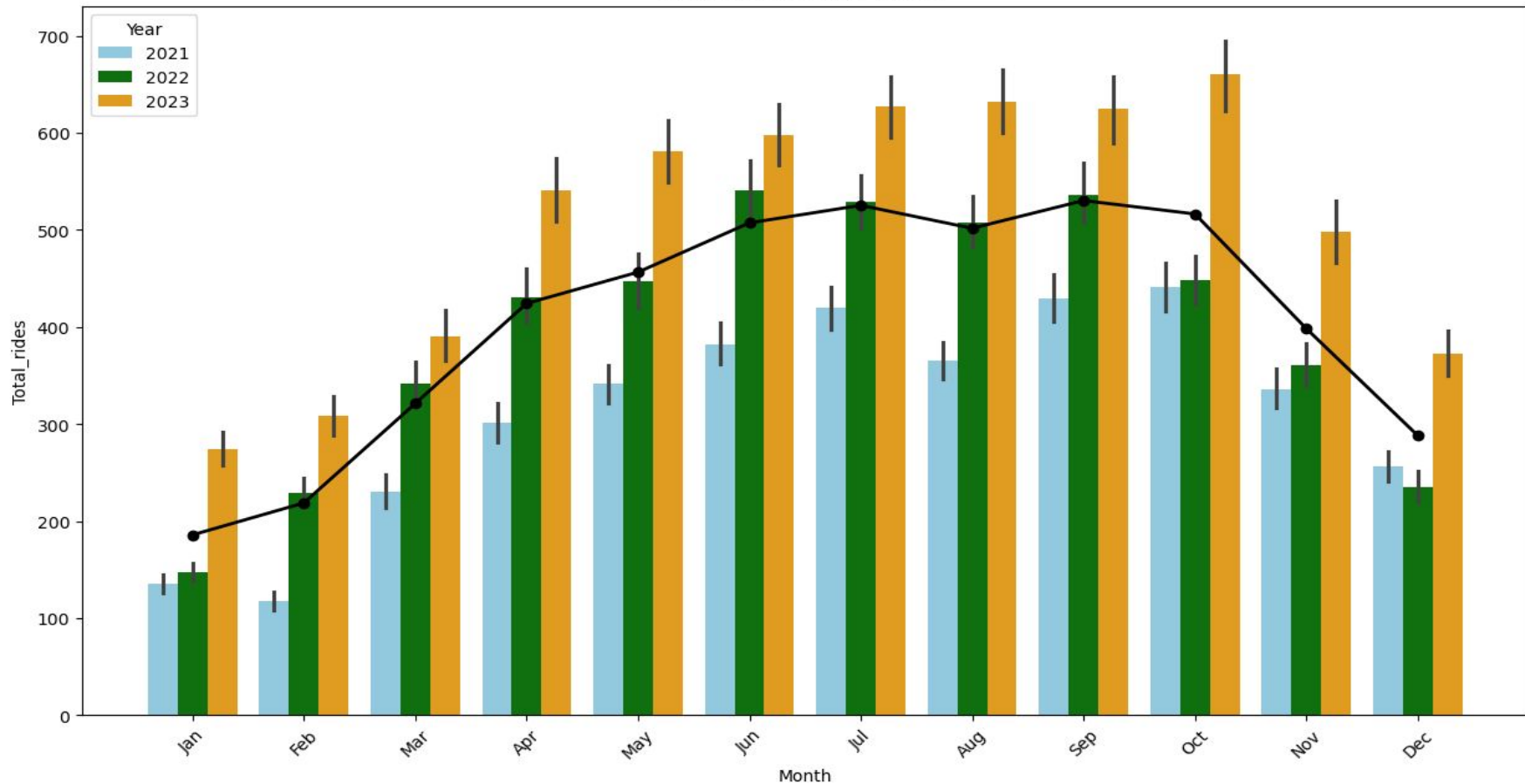
Weekly

Ride duration VS Week

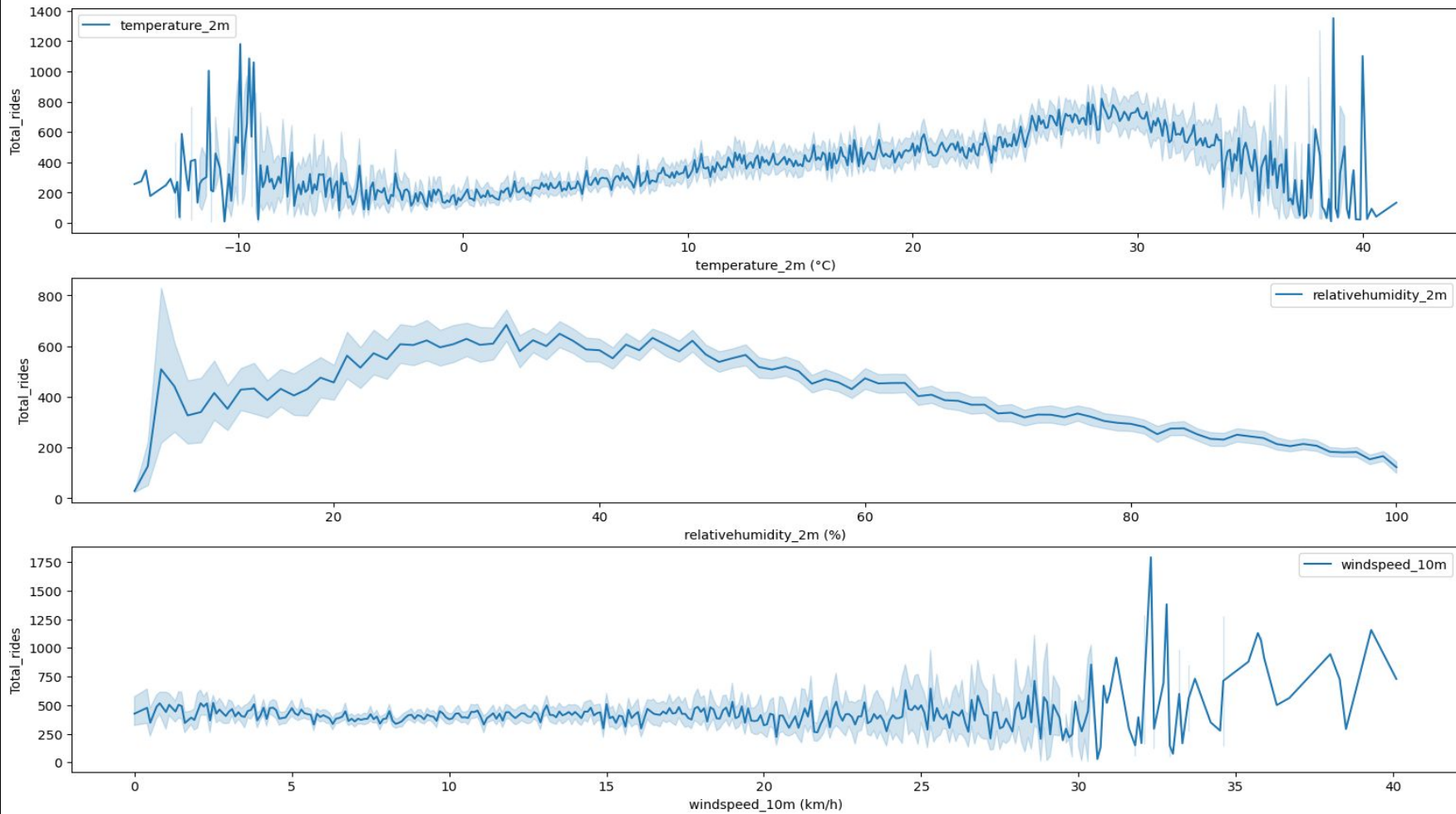


Weekly Time Duration

Total Ride VS Month Vs Year

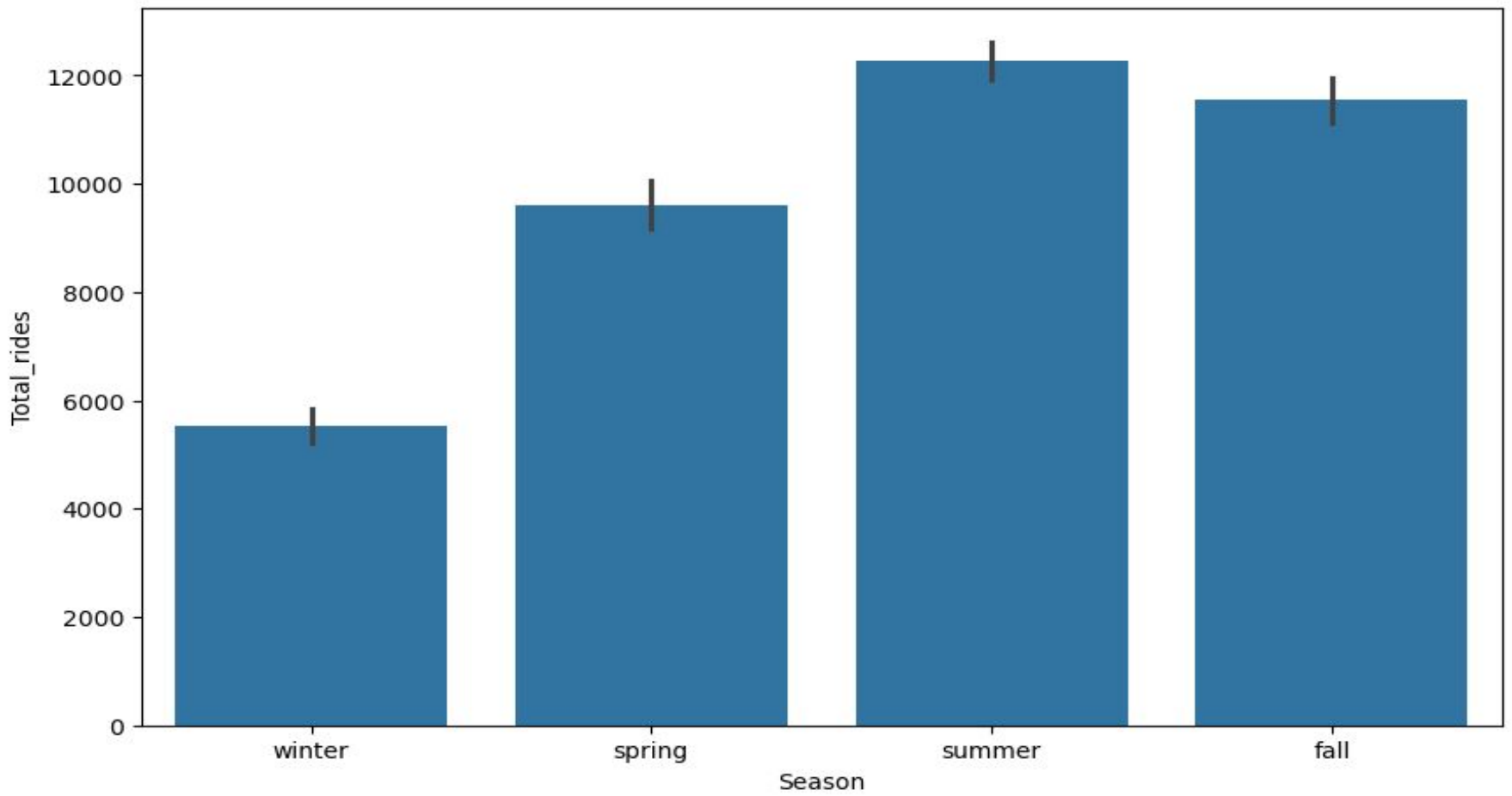


Monthly



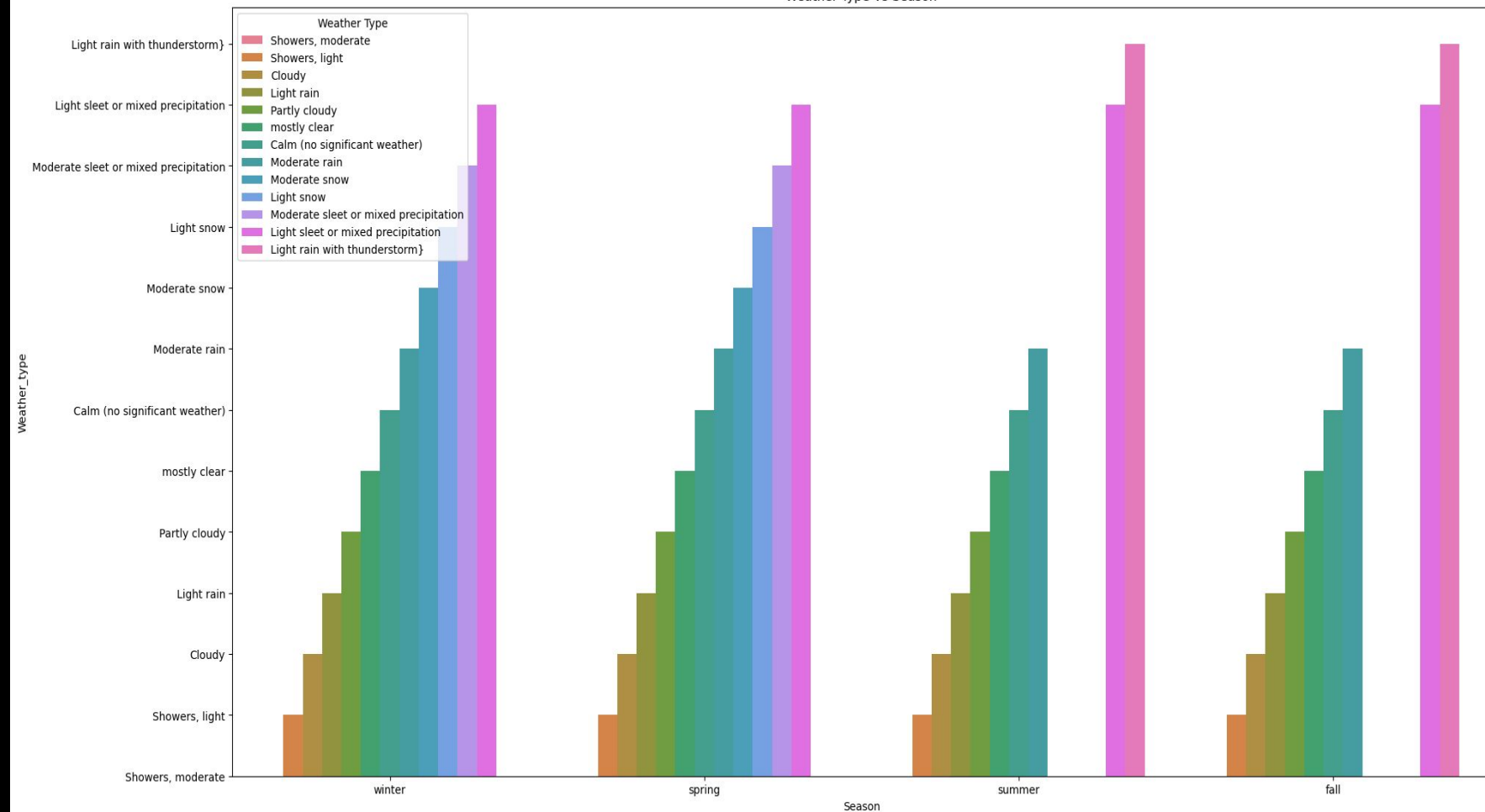
Weather

Total rides VS Season

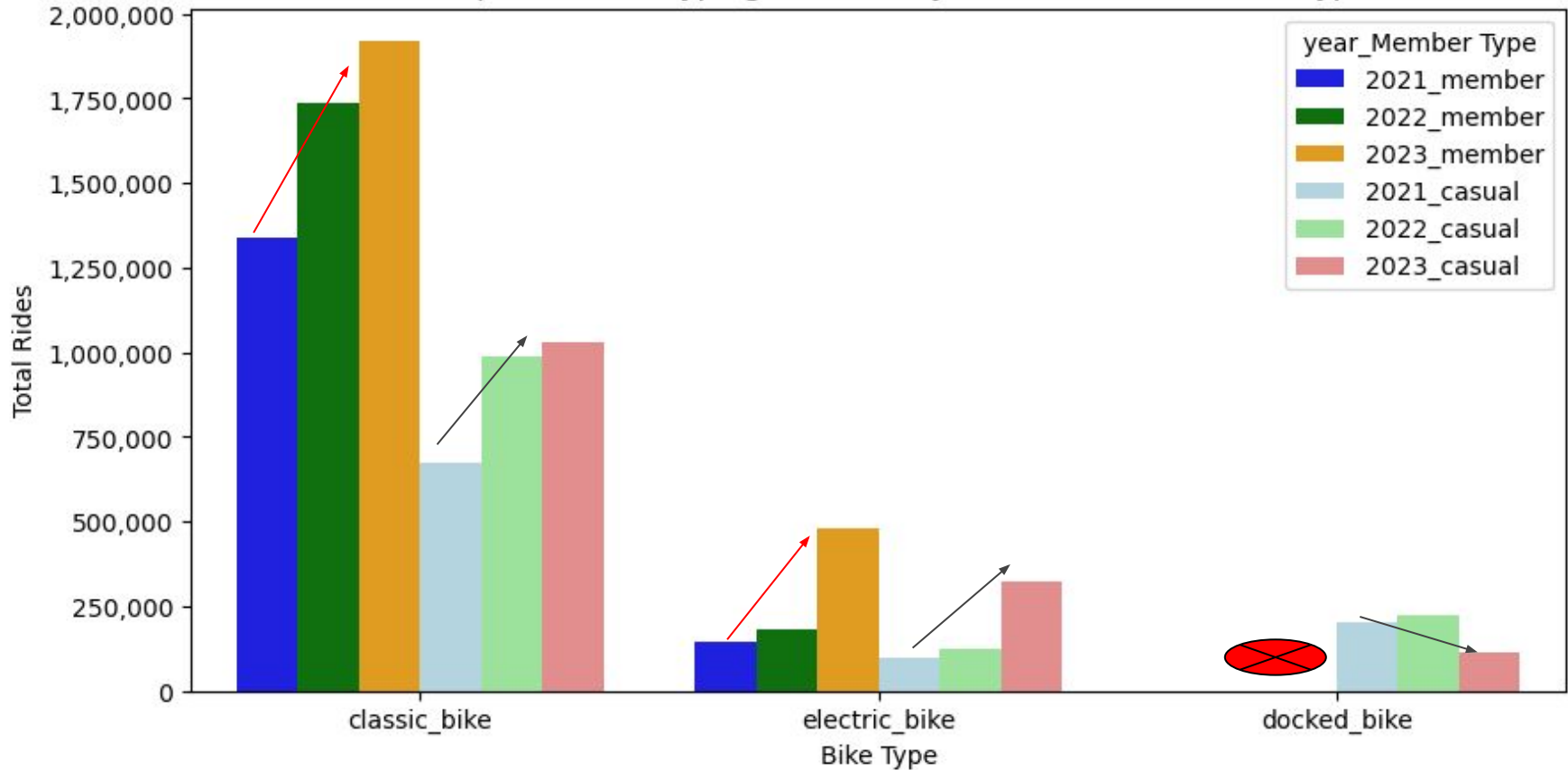


Weather

Weather Type Vs Season



Rides per Member Type growth over years with different Bike Type



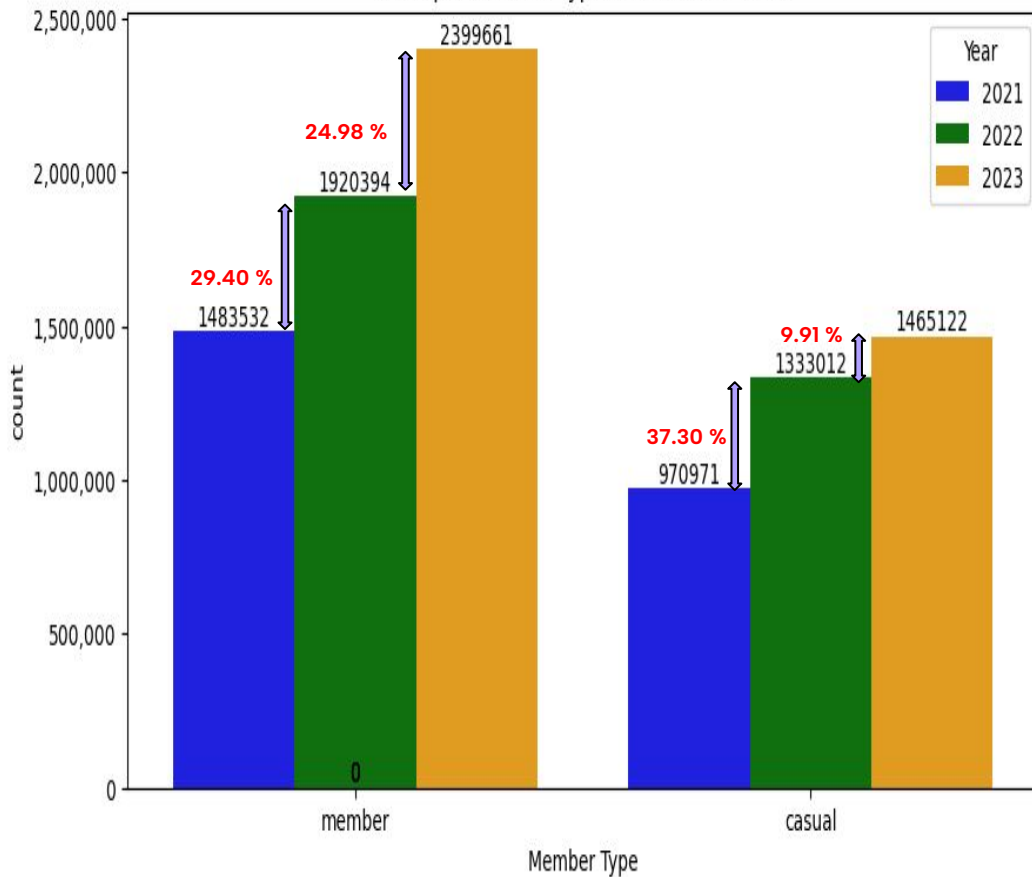
Product based



KPI – SMART



Rides per Member Type Growth Over Years



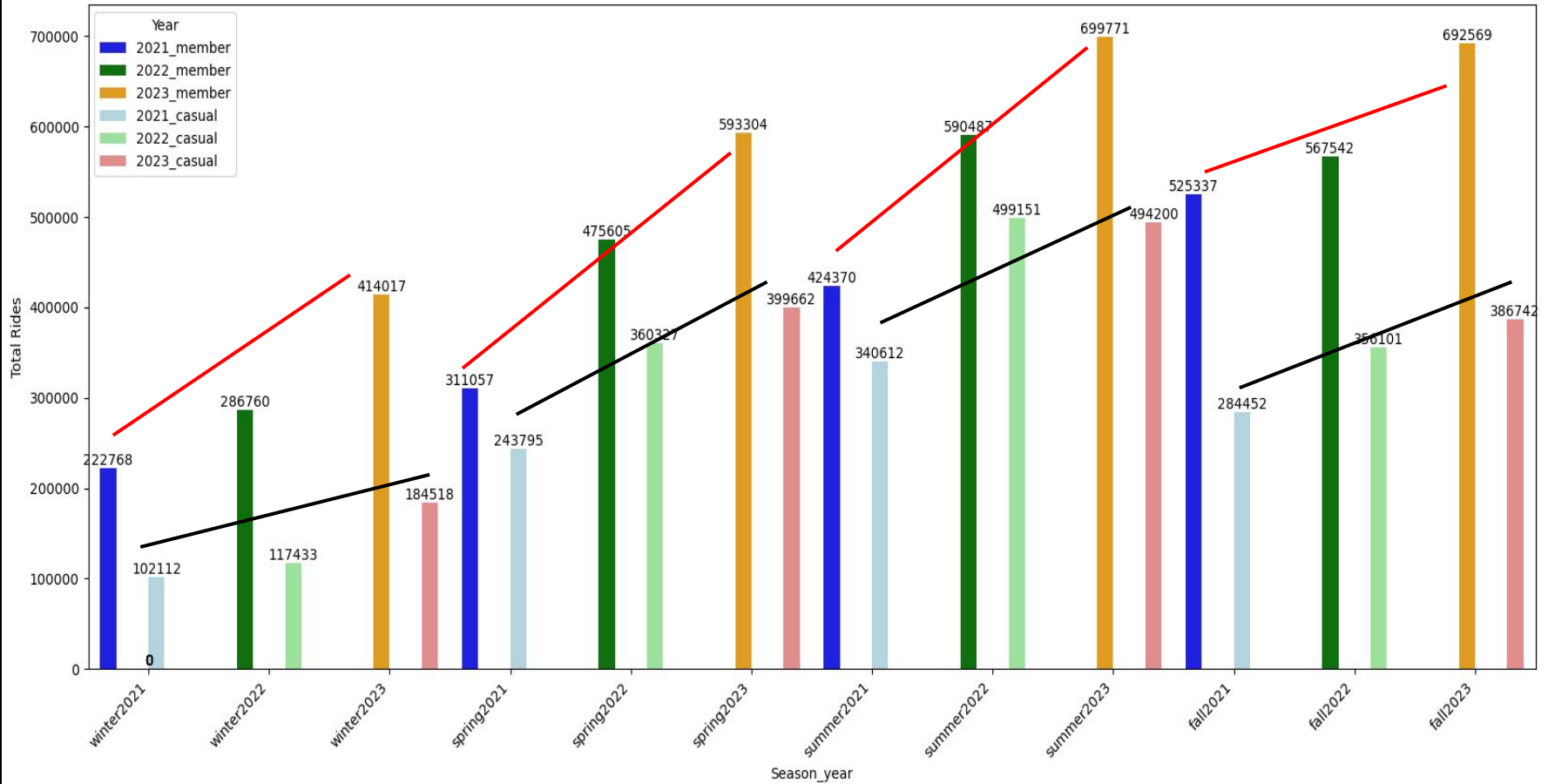
SMART

Specific

Increase the engagement of user in 2024 by increasing,

- ❖ Rides of members by 27.90 % with Total Rides value 3,050,220
- ❖ Rides of casual by 23.6 % with Total Rides value 1,812,914
- ❖ Average Percentage Increase for 2024 is calculated = $[(29.4+24.9)/ 2] \approx 27.19\%$

Total Ride each Season with each Year



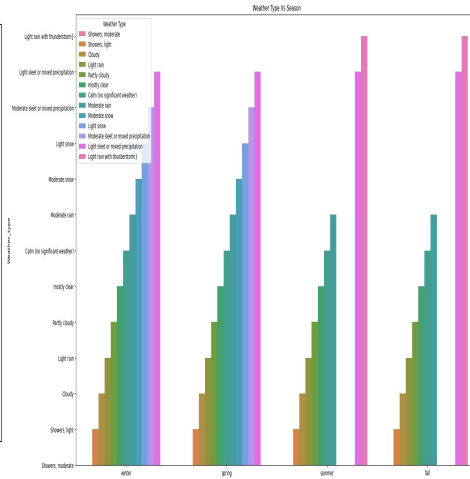
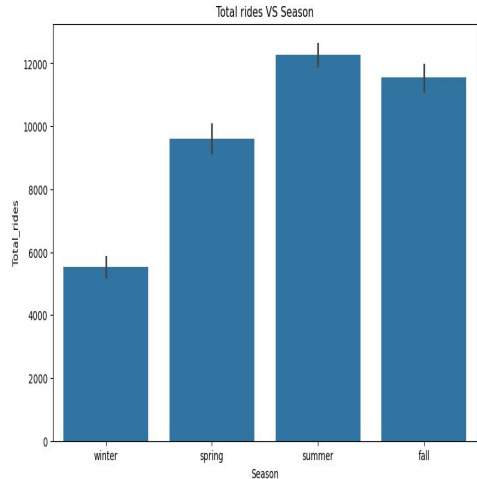
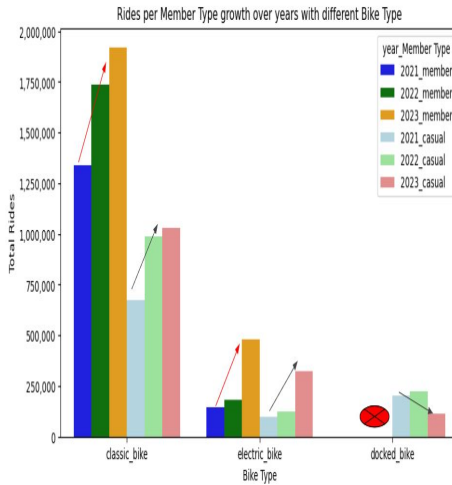
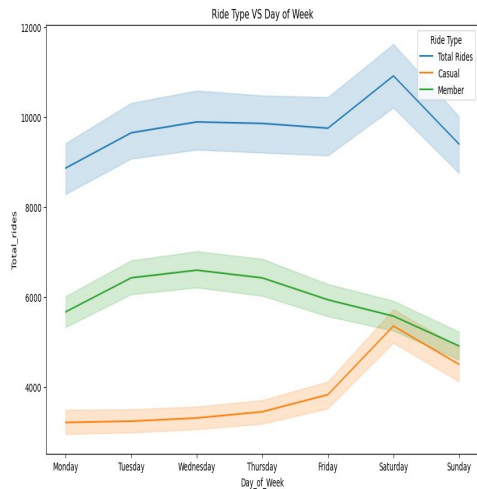


SMART

Measurable

- ❖ We measure the Rides every Season (every 3 months) by member and casuals
- ❖ Member Rides each season wise Targets are in Red color
- ❖ Casual Rides each season wise targets are in Green color
- ❖ It increases Total Rides from Goal
 - Member – 33,169
 - Casual – 15,086
- ❖ In order add more Extra percentage Need to focus on the points from Achievable.

Season	Member Type	2021-2022	2022-2023	Forecast for Year 2024	Forecasted number for Year 2024
Winter	Member	28.70%	44.30%	36.50%	5,65,780
	Casual	15%	57.10%	36.10%	2,50,797
Spring	Member	52.09%	24.70%	38.80%	8,22,100
	Casual	48%	10.90%	29.40%	5,17,384
Summer	Member	39.01%	18.05%	28.80%	8,99,053
	Casual	47%	-1.00%	22.80%	6,07,289
Fall	Member	8.00%	22.00%	15.00%	7,96,456
	Casual	25%	8.60%	16.95%	4,52,423



Achievable

- ❖ **Weekdays** – Provide extra discount for Casuals on Weekdays or attractive initial offer to become a member
- ❖ **Product** – Increase the percentage of electric bikes, as over the years Rides are going up for this type
- ❖ **Season** – During winter and spring provide seasonal discount so that people tend to use bike.
- ❖ **Weather Type** – focus on weather with Moderate Snow / Moderate Rain as demand is low there



SMART

Relevant

- ❖ Main KPI is to increase number of Total rides
- ❖ It reduces the traffic and Pollution
- ❖ Also makes life safe and Healthy
- ❖ This aligns well with Company's Main focus to To expand access to bikeshare. In order to help for creating safer and healthier communities and support to reduce traffic and pollution





SMART

Time

This KPI is set to achieve over the period of **one Year**

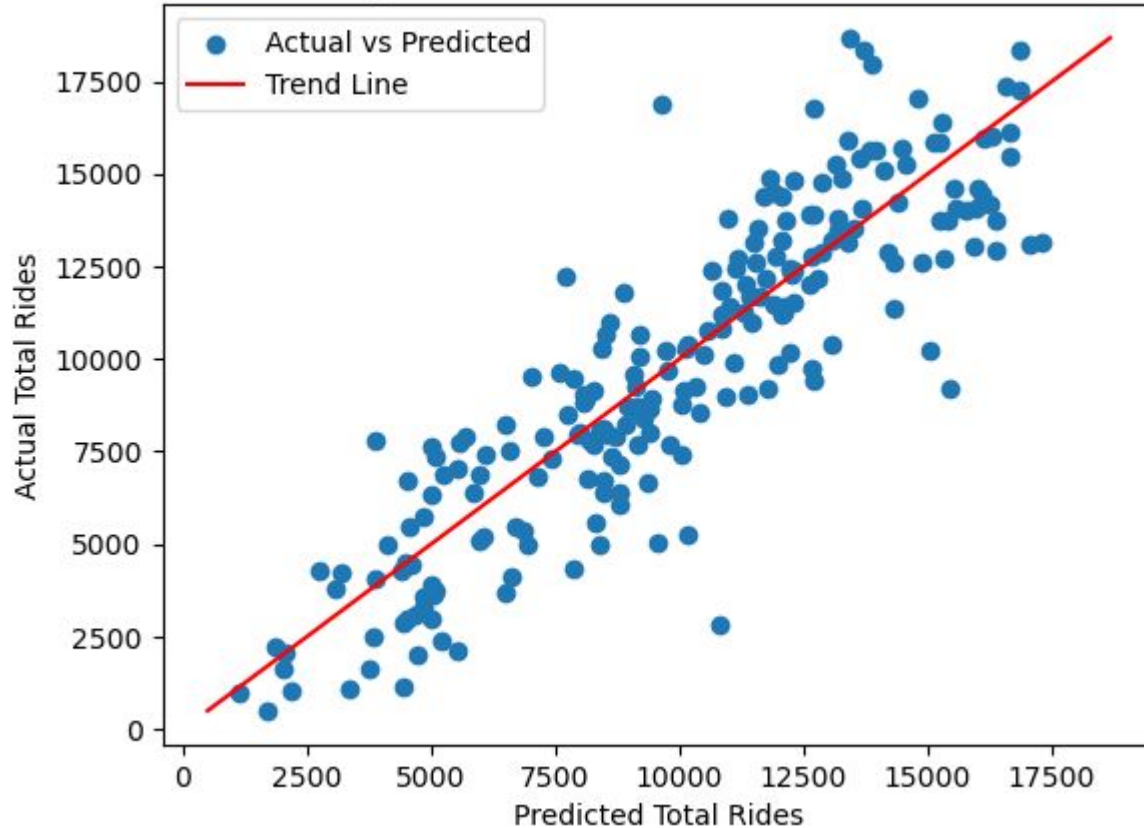




Machine Learning Model



Linear Regression: Actual vs Predicted with Trendline

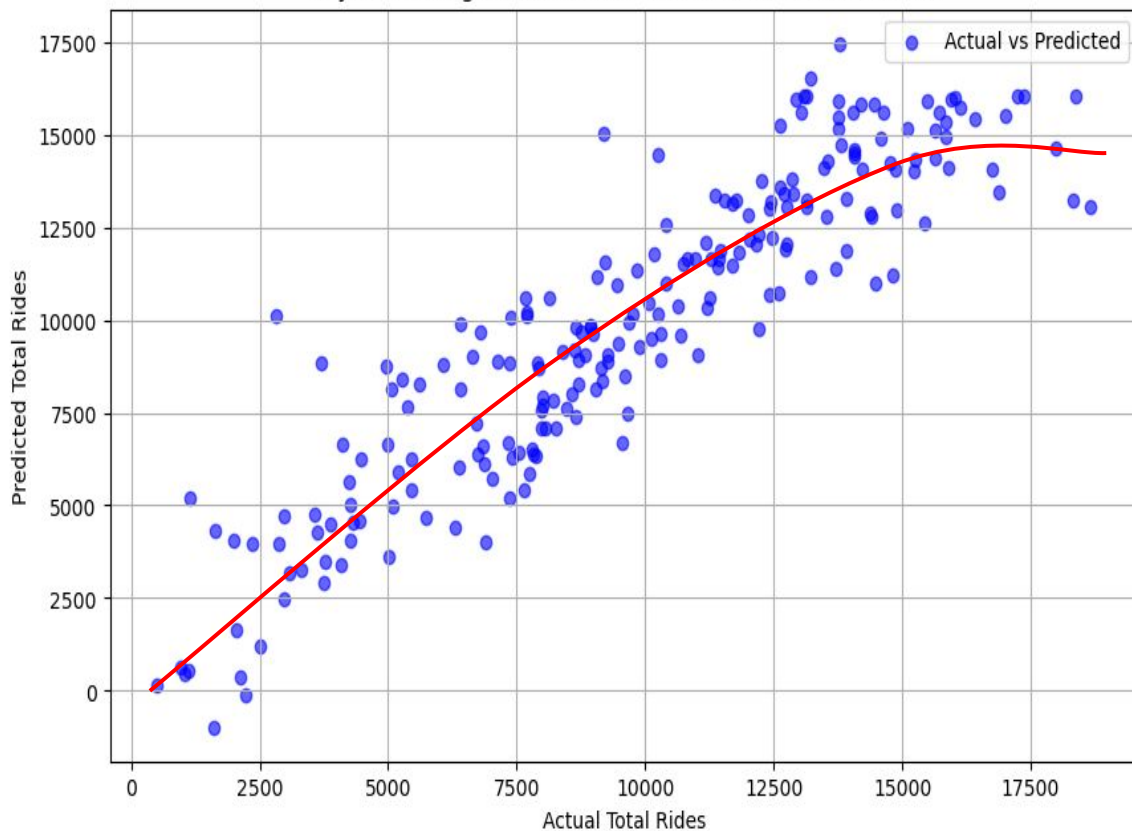


Linear Regression

- ❖ R² Score range: 0 – 1
0 = No Accuracy
1 = Ideal
- ❖ R² score :0.776



Polynomial Regression: Actual vs Predicted with Trendline



Polynomial Regression

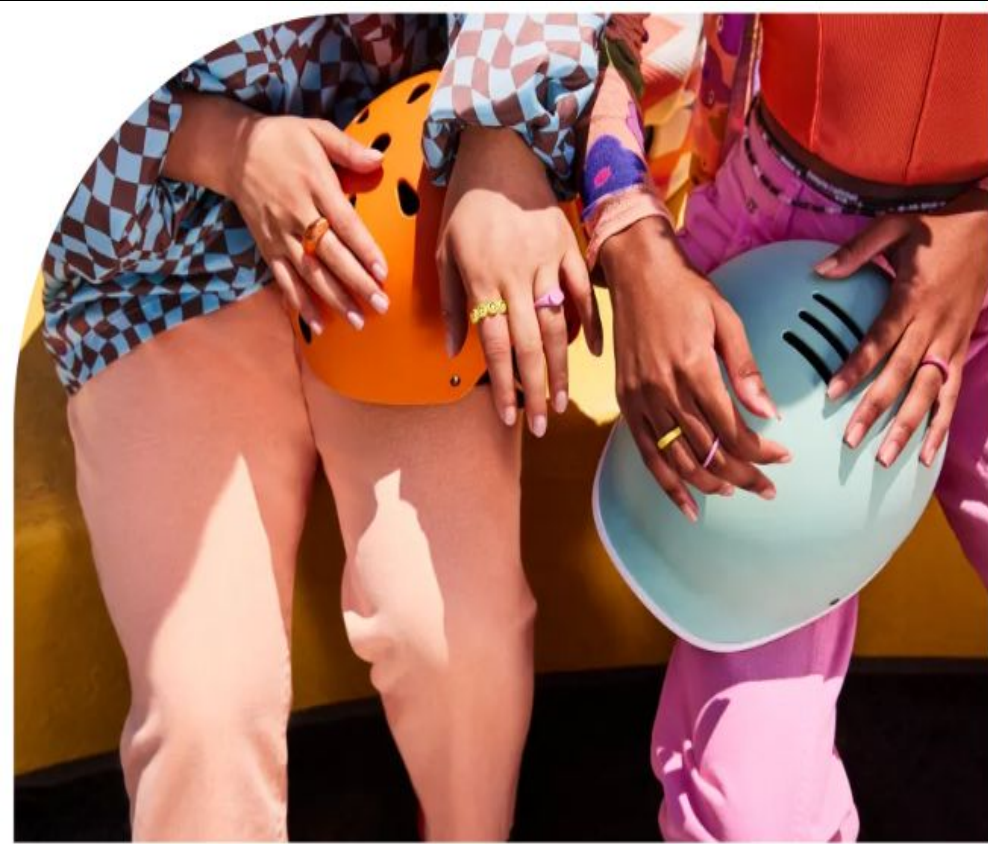
- ❖ R2 Score range: 0 – 1
0 = No Accuracy
1 = Ideal
- ❖ Degree 1
R2 score :0.77596
- ❖ Degree 2
R2 score :0.82152



Conclusion



- ❖ **KPI** – KPI is set for each season of Year – 2024 in order to achieve goal of increasing user Engagement
- ❖ **Weekdays** – Focus on Casuals in order to take more Rides
- ❖ **Weekends** – Focus on members to increase Rides
- ❖ **Product** – Increase the percentage of electric bikes, as over the years Rides are going up for this type
- ❖ **Season** – During winter and spring provide seasonal discount so that people tend to use bike.
- ❖ **Weather Type** – focus on weather with Moderate Snow / Moderate Rain as demand is low there
- ❖ **Model** – Polynomial Regression Degree 2 Model is good for this Goal



THANK YOU

Any Question ?