Identifying factors favorable to demand for bike rentals

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The purpose of the model was to analyze the demand for bike sharing and rental using the independent factors provided in the dataset. The project aimed to understand the significant factors to predict the demand and how well these factors describe the demand.

The impact hypothesis **'Higher temperature and less windspeed will be favorable to the demand for bike rentals'** connects the analysis with the business plan.
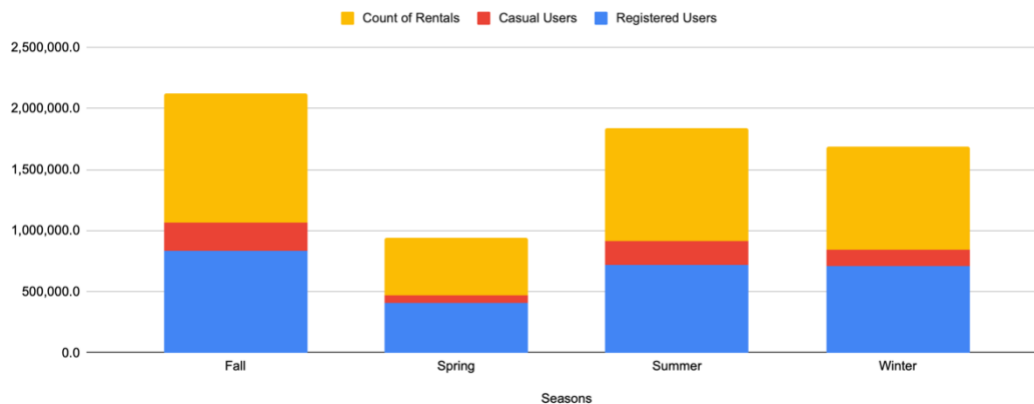
The dataset used in the project was downloaded from UCI depository. After the initial data cleaning and EDA, data was analyzed to understand the correlation among different features using python libraries. Also, Google spreadsheets and Tableau were used to explore relationships between different features and the target variable and to provide business insights.

The final equation for the best fitted line for the regression model is:
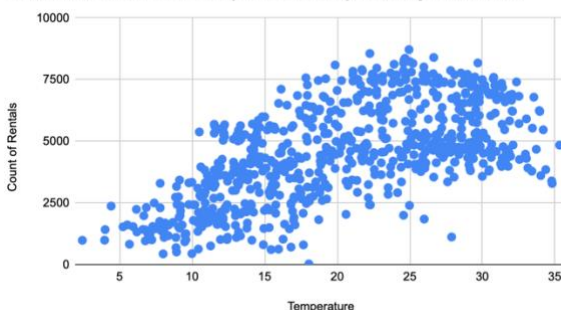- $cnt = 0.143 + 0.225$ x yr -0.076 x holiday + **0.523 x temp - 0.1 x windspeed** + 0.084 x season_summer + 0.125 * season_winter - 0.072 x weather_cloudy - 0.261 * weather_lightrain + 0.092 * mnth_September
- This clearly indicates that temperature is the most important factor to predict the count of rentals.
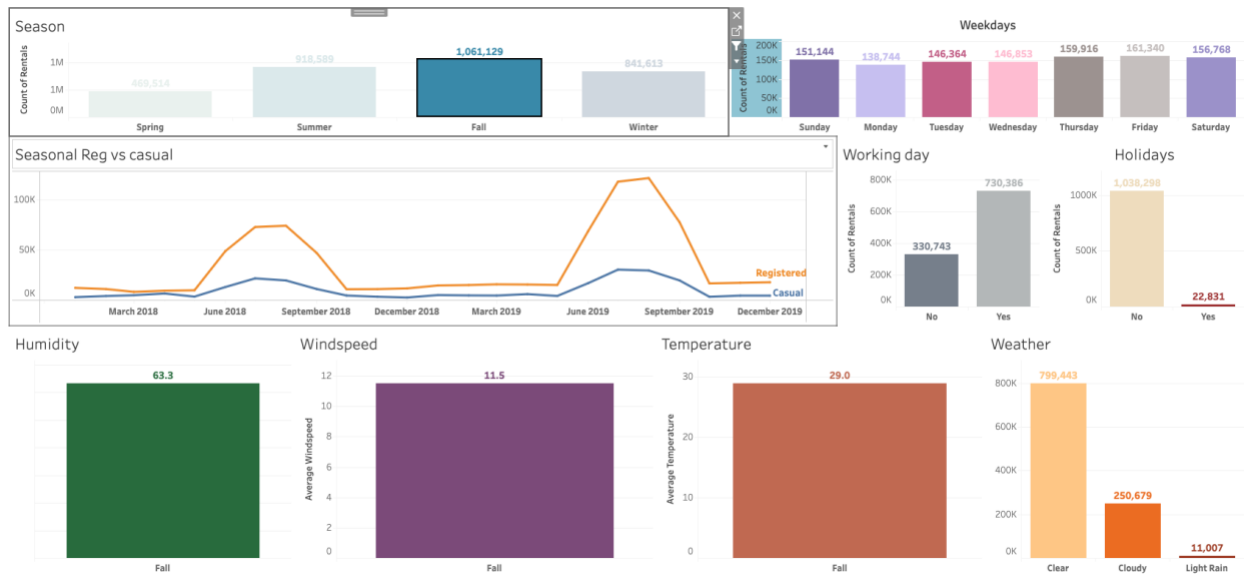- Windspeed has a negative correlation with the count of rentals.

Following are the insights from Google Spreadsheets and Tableau:

Fall is the busiest season for bike rentals

Count of Rentals and temperature are positively correlated

Season

Count of Rentals

- Spring: 469,514
- Summer: 918,589
- Fall: **1,061,129**
- Winter: 841,613

Weekdays

- Sunday: 151,144
- Monday: 138,744
- Tuesday: 146,364
- Wednesday: 146,853
- Thursday: 159,916
- Friday: 161,340
- Saturday: 156,768

Seasonal Reg vs casual

Registered
Casual

March 2018, June 2018, September 2018, December 2018, March 2019, June 2019, September 2019, December 2019

Working day

Count of Rentals

- No: 330,743
- Yes: 730,386

Holidays

Count of Rentals

- No: 1,038,298
- Yes: 22,831

Humidity

Fall: 63.3

Windspeed

Average Windspeed

Fall: 11.5

Temperature

Average Temperature

Fall: 29.0

Weather

- Clear: 799,443
- Cloudy: 250,679
- Light Rain: 11,007

Fall is the busiest season