

Bike Sharing Assignment Submission

Members:
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Introduction

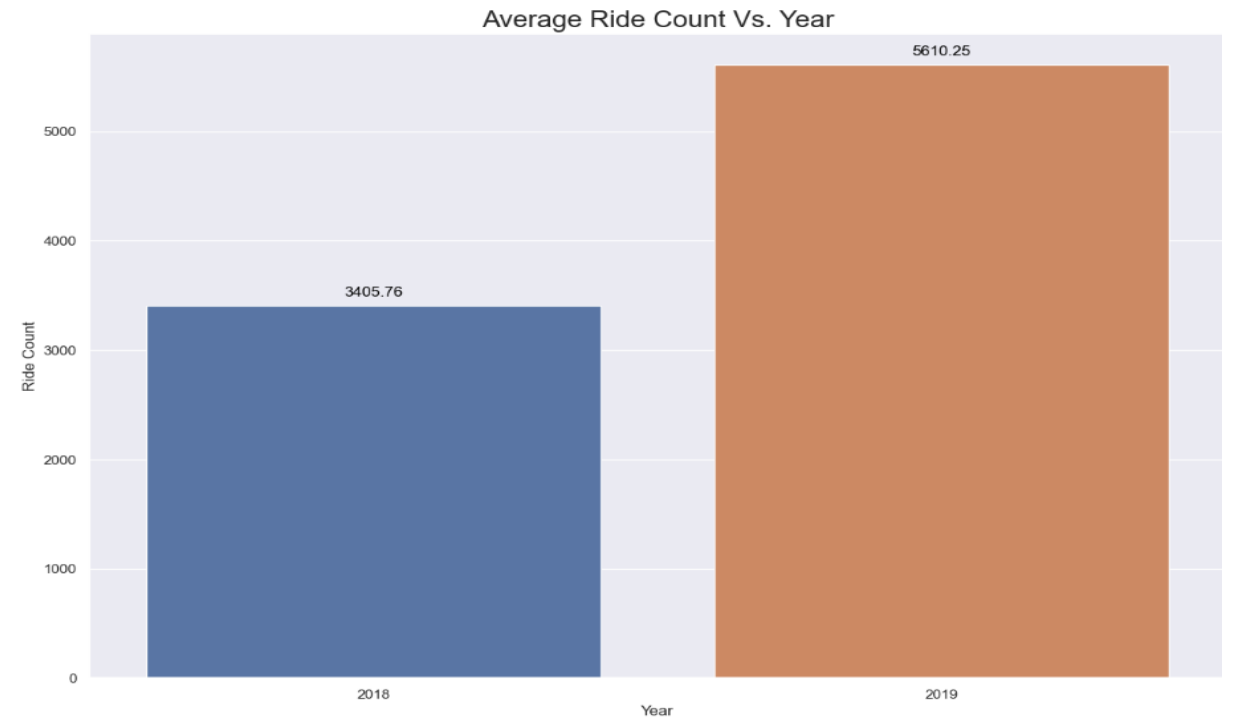
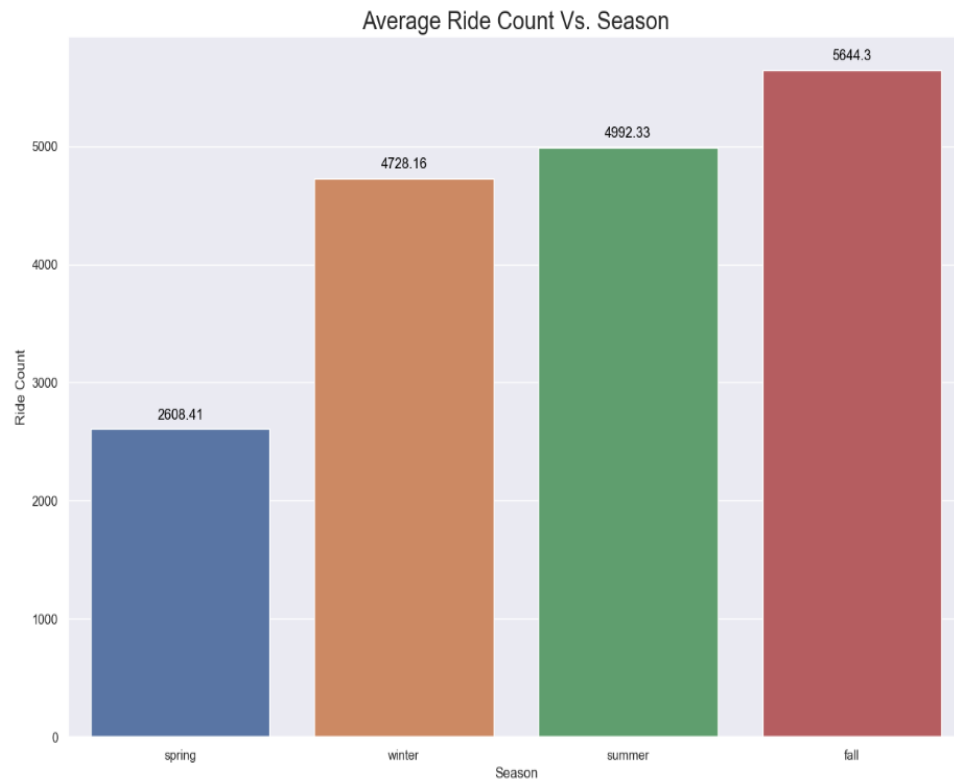
- A bike-sharing system is a service in which bikes are made available for shared use to individuals on a short term basis for a price or free. Many bike share systems allow people to borrow a bike from a "dock" which is usually computer-controlled wherein the user enters the payment information, and the system unlocks it. This bike can then be returned to another dock belonging to the same system.
- A US bike-sharing provider BoomBikes has recently suffered considerable dips in their revenues due to the ongoing Corona pandemic. The company is finding it very difficult to sustain in the current market scenario. So, it has decided to come up with a mindful business plan to be able to accelerate its revenue as soon as the ongoing lockdown comes to an end, and the economy restores to a healthy state.
- In such an attempt, BoomBikes aspires to understand the demand for shared bikes among the people after this ongoing quarantine situation ends across the nation due to Covid-19. They have planned this to prepare themselves to cater to the people's needs once the situation gets better all around and stand out from other service providers and make huge profits.
- Based on various meteorological surveys and people's styles, the service provider firm has gathered a large dataset on daily bike demands across the American market based on some factors.

Objective

- It is required to model the demand for shared bikes with the available independent variables. It will be used by the management to understand how exactly the demands vary with different features. They can accordingly manipulate the business strategy to meet the demand levels and meet the customer's expectations. Further, the model will be a good way for management to understand the demand dynamics of a new market.

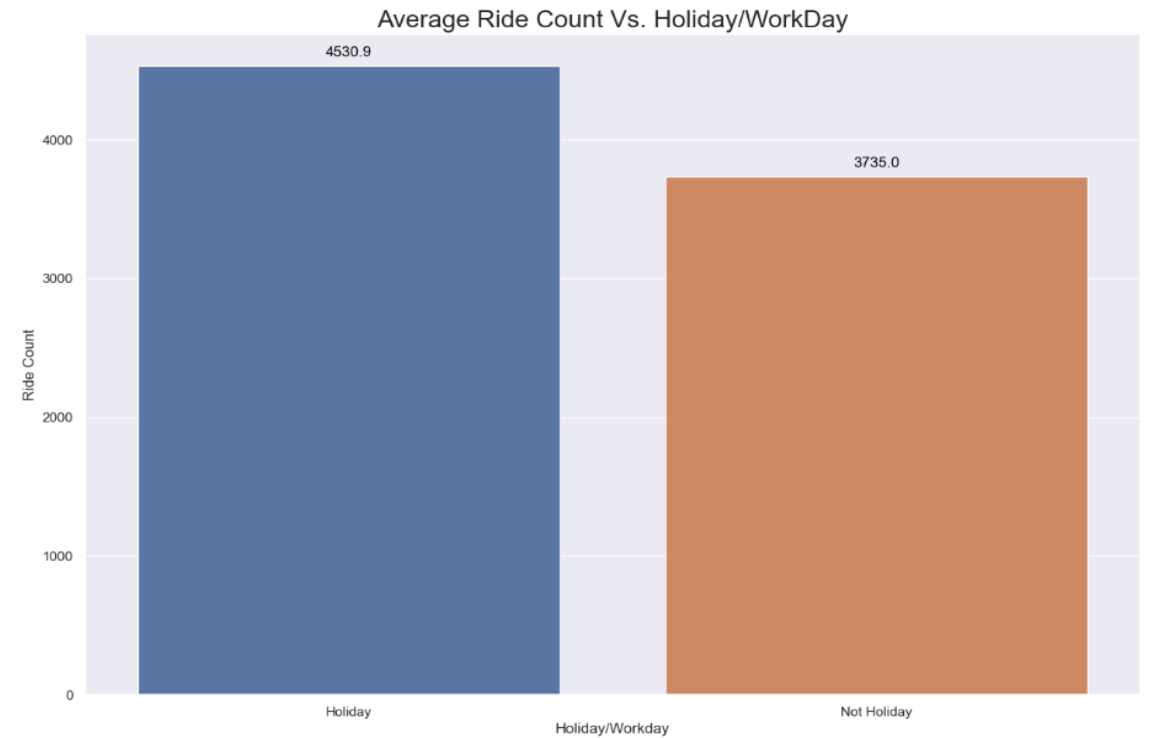
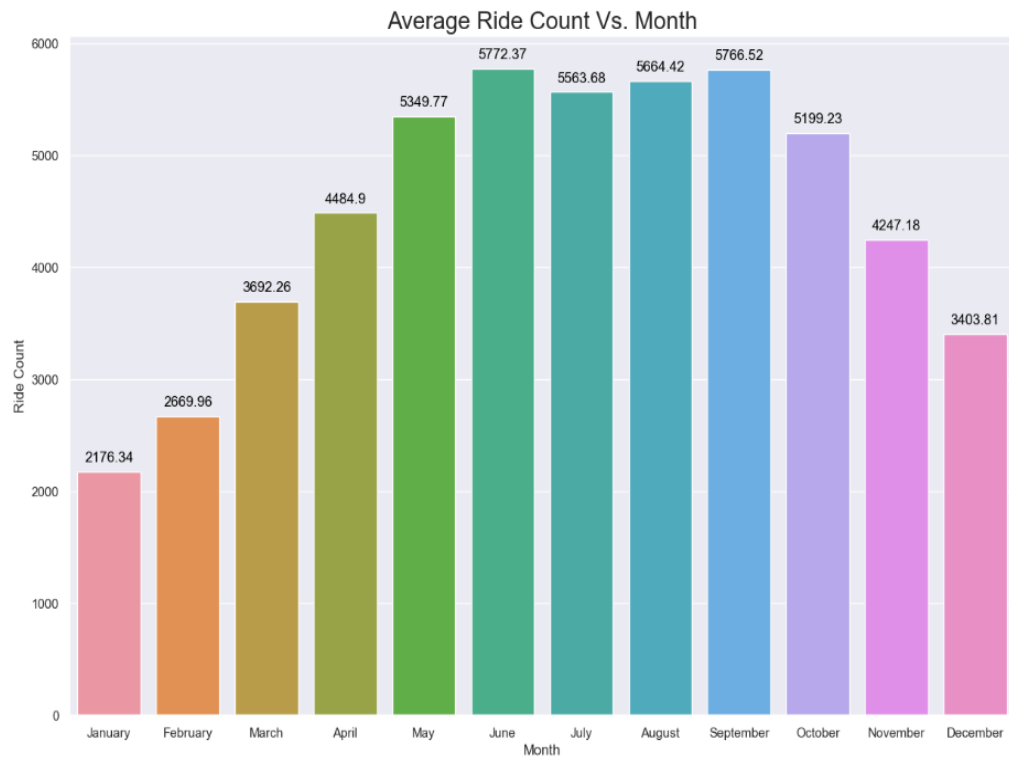
Data Preparation

- Average Ride Count Vs Season
- Average Ride Count vs Year



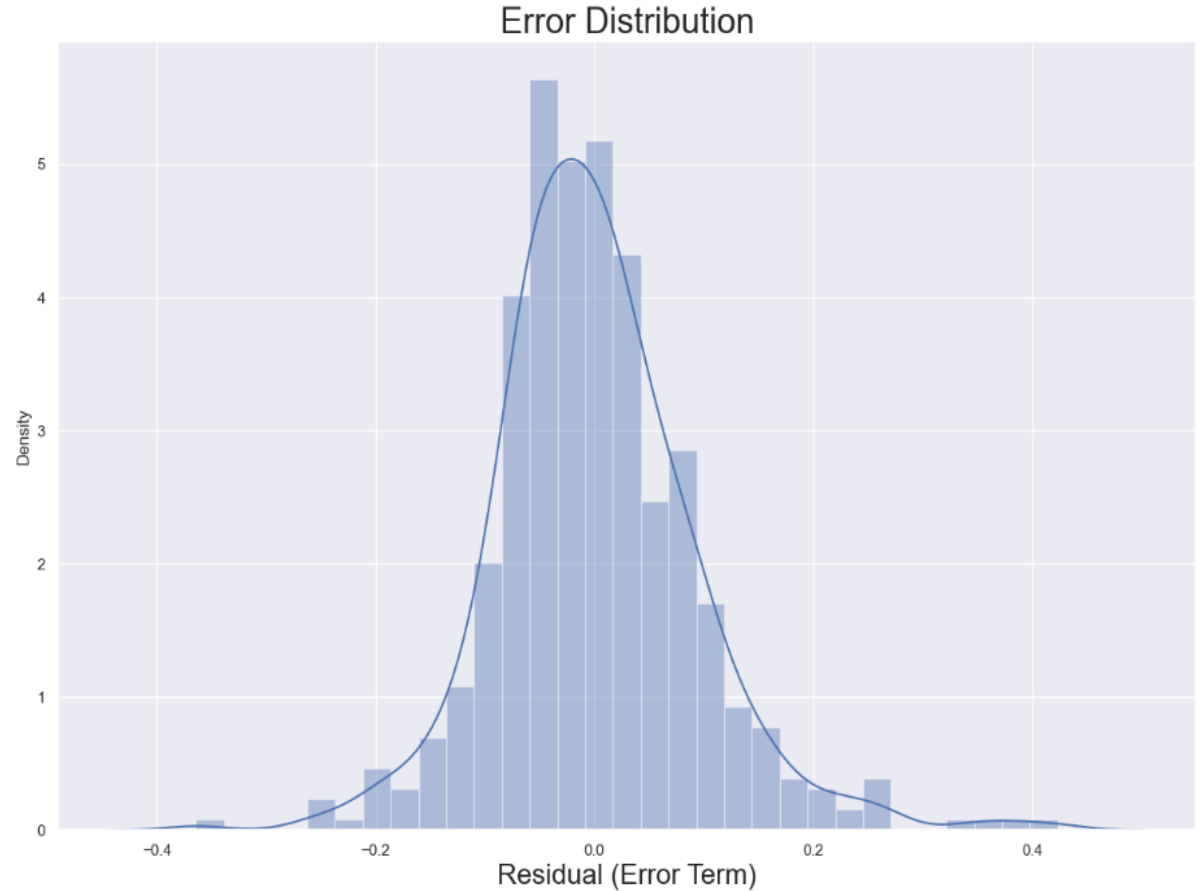
Data Preparation

- Average Ride count Vs Month
- Average Ride Count vs Holiday/Workday



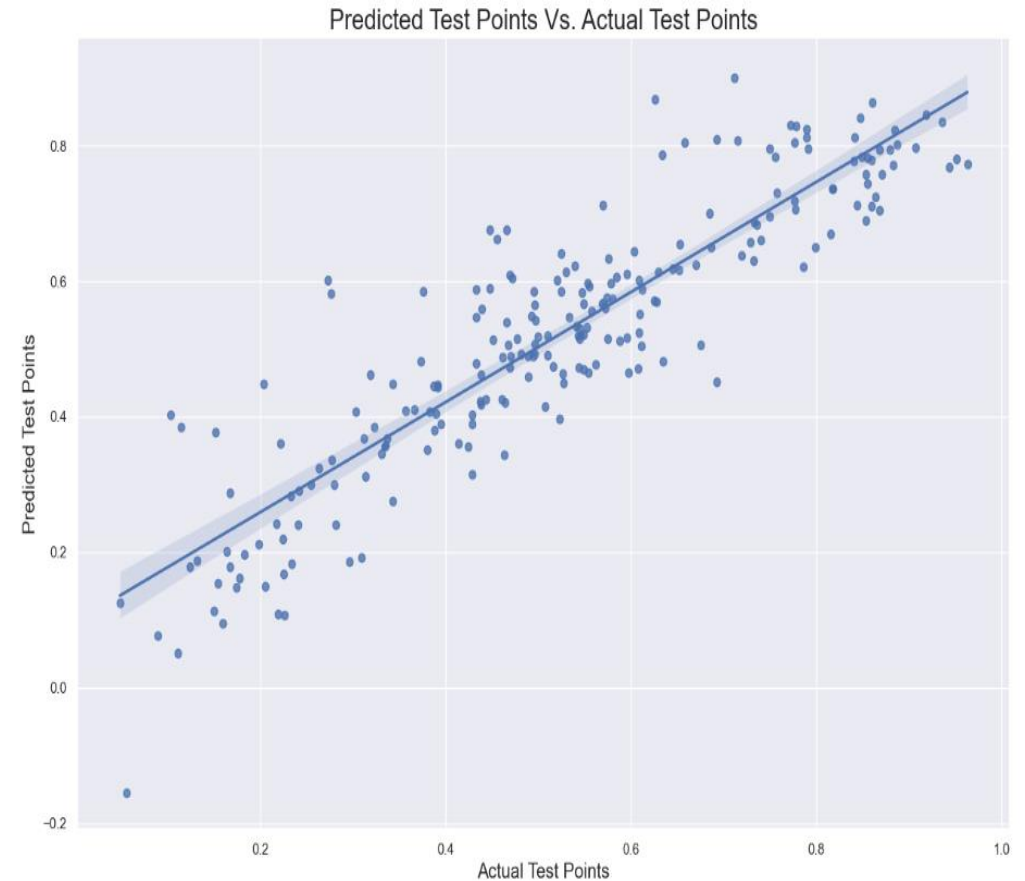
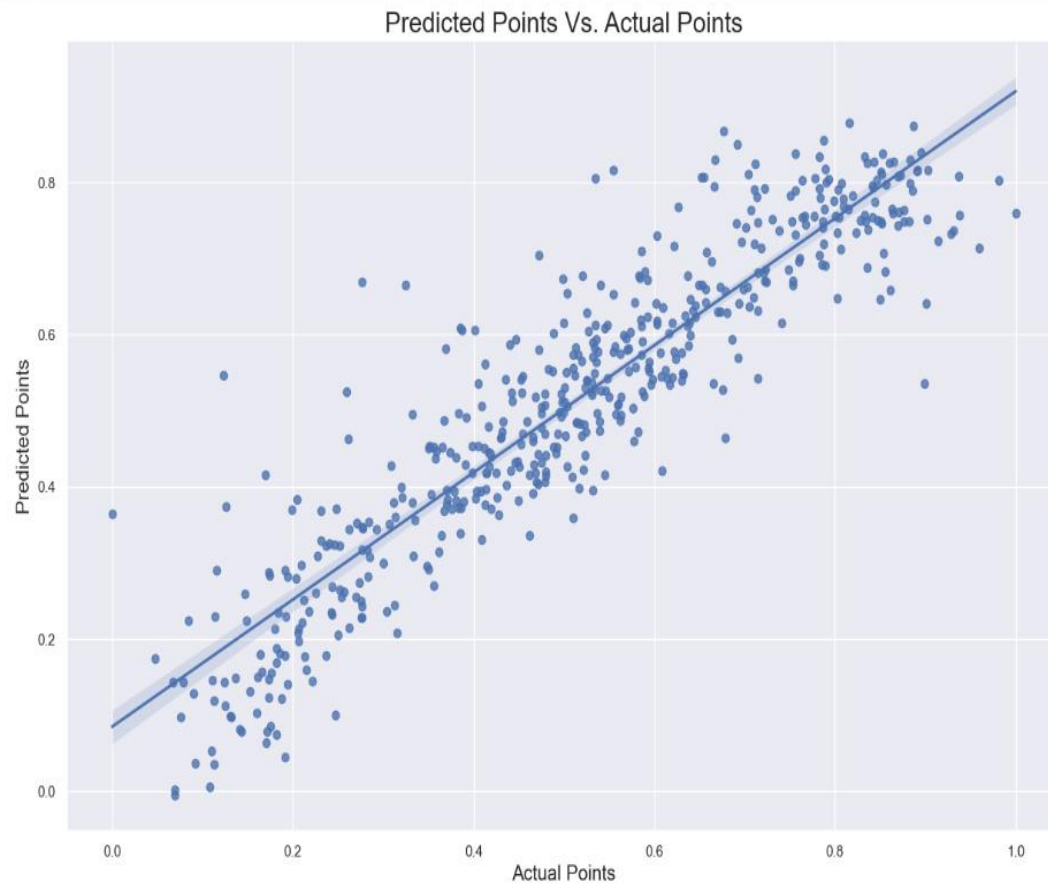
Linear Regression Assumption

- After building model, we cannot finalise until we prove the residual analysis wherein we check whether the distribution of Error is around 0 or not.
- From the above graph it is evident that Error Distribution Is Normally Distributed Across 0, which indicates that our model has handled the assumption of Error Normal Distribution properly.



Homoscedasticity

- From the below graph, we can say that residuals are equal distributed across predicted value.
- This means we see equal variance and we do NOT observe high concentration of data points in certain region & low concentration in certain regions.
- This proves Homoscedasticity of Error Terms



Conclusion

- **On analysing data**, it was observed that, the linear regression model was able to predict bike demand precisely with an R² Score of more than 80%