

CAR PRICE PREDICTION ASSIGNMENT

SUBMISSION

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ABSTRACT

An analysis to identify key factors affecting the dynamics of car prices in American market.

The result of the analysis predicts the major contributing factor for car prices and how much they contribute.

Steps Involved in problem solving

Understanding business objectives

Investigating dataset ,on what attributes ahs been provided and meaning of each one of it.

Cleaning and Optimizing Datasets specific to business questions

Performing analysis on optimized dataset

Presenting data visually to make it more understandable

Data Cleaning

For Data Cleaning following point are taken into considerations,

- Removing unnecessary columns
- Treating null values

Null values have been treated locally according to the case we analyse. This results in less loss of data.

- Change text to uniform case
- Removing Duplicates
- Removing leading and trailing spaces in string
- Check column is of uniform formatting
- Manual spell check in possible cases

Analysis Steps followed

Following steps has been followed to arrive at the result for the question asked from business end.

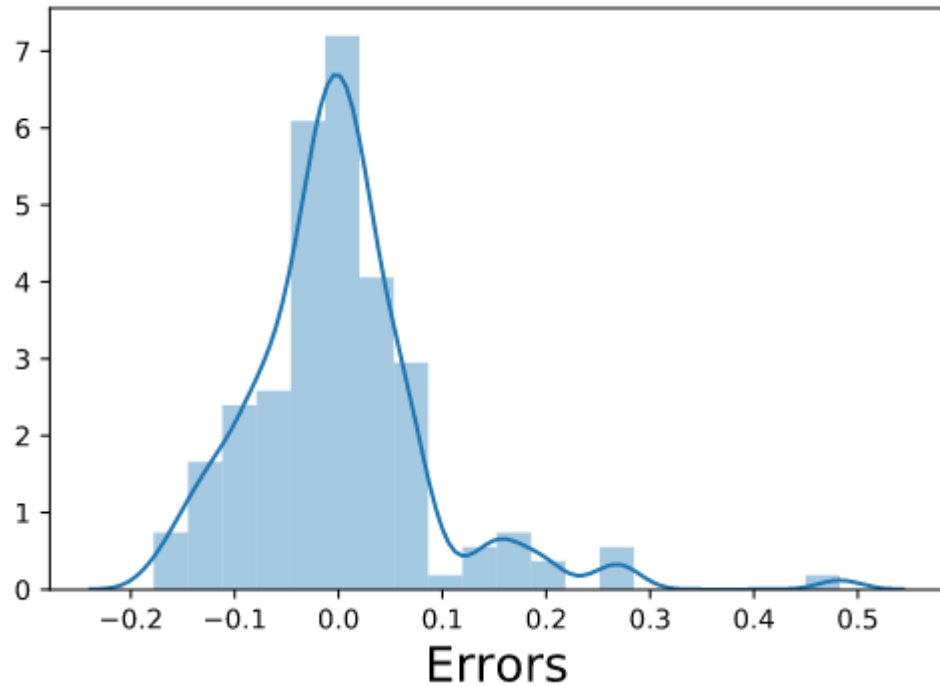
1. Firstly, Single variate analysis is carried out to understand the distribution of data between the ranges.
2. Secondly , Bivariate analysis is carried out to understand how one variable changes in presence of another variable.
3. With the categorical variables expanded, Recursive Feature elimination is carried out to eliminate redundant features.

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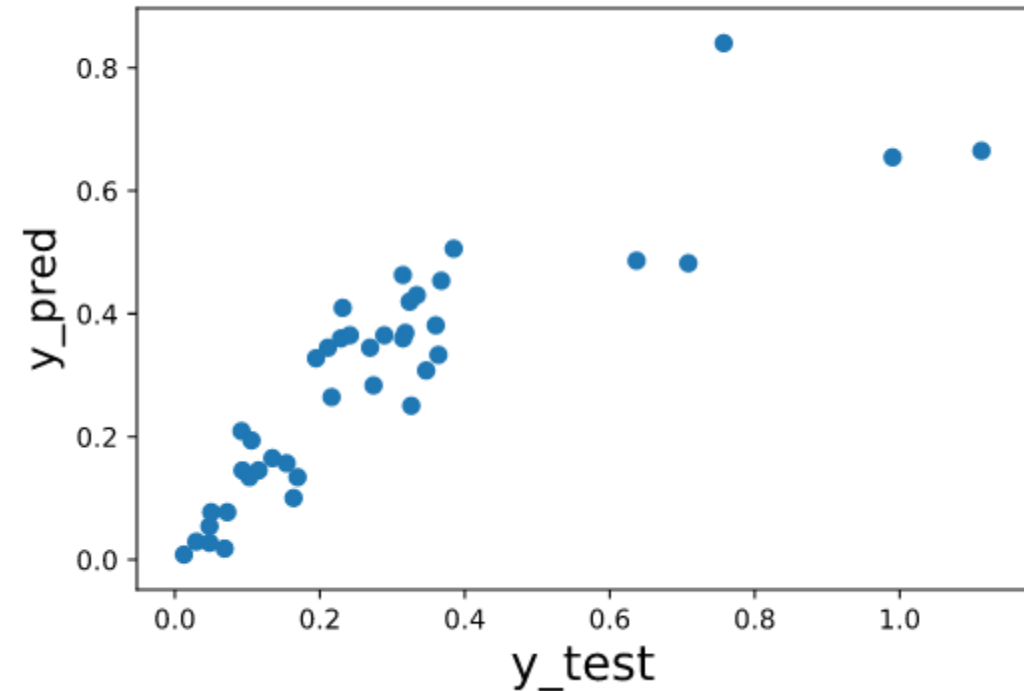
4. now with feature size coiled down to 15, manual feature selection is performed to identify top features , keeping in mind the ease implementation in business.
5. Features are selected using linear regression ,with which we can also quantify the influence of selected feature on the car price.

Result of Analysis

Error Terms



y_test vs y_pred



- At the end of analysis we get a linear regression model with 74% accuracy in test data.
- Residuals coil down to mean of 0 and the curve approximates to a normal curve.

Major factor contributing to Car price

Engine's Horse Power

- Horse Power of the Engine is the major contributor to Car price and contribute positively to it.
- It indicates how powerful the engine is.

Car Width

- Width of the car is the second major contributor it contributes positively to Car's price.
- width indicates the interior spacing of the car. More the width ,more spacious it is.

low priced car group

- This is a derived variable, it indicate whether the car belong to low priced group that is price is below 12000.
- It contributes positively to the car price ,indicating that low budget customers are willing to spend a little high for features.

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Rear Engine location

- It is next most influential factor ,it contributes positively to pricing factor.
- This is because rear engine are only to be seen in high priced car model

Hatchback car

- It contributes negatively to car prices.
- High end model are mostly of sedan and SUV type, hatch back are to be seen only in low and medium budget models

Conclusion

following conclusion has been arrived from the Analysis,

- Major Factor contributing to car prices are listed below in descending order,
 - Horse power of the engine.
 - Width of the car.
 - The fact that it is a low priced car itself contributes.
 - Location of engine, in high end cars engines located at backside.
 - Whether the car is a hatchback or not.