International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 05 | May - 2023 SJIF 2023: 8.176 ISSN: 2582-3930

Estimation of Car Price Prediction Using Various Machine Learning Algorithms

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***Abstract*--** The manufacturer sets the industry standard for new automobile prices, with the government incurring some additional expenses in the form of taxes. In light of this, consumers Those who invest money in cars may be confident that it will be worthwhile. Used car sales, meanwhile, are rising globally as a result of new car price increases and consumers' inability to afford to buy them. Consequently, a system that accurately assesses the value of the vehicle utilizing a range of features is urgently needed. A technique that is part of the current system involves a seller setting a price at random while the buyer is unaware of the car's current market worth. In actuality, neither the seller nor the price at which he ought to sell the car have any notion of the current value of the vehicle. We have created a model that will be quite effective in resolving this issue. Regression algorithms are employed because, as opposed to categorical values, their output is a continuous value. As a result, it will be feasible to forecast the exact cost of an automobile rather than its price range. A user interface that accepts input from any user and displays the price of a car based on their inputs has also been developed.

Key Words: car price prediction, support vector machines, classification, machine learning.

Introduction

Given the variety of elements that influence a used car's market pricing, determining if the quoted price is accurate, is a difficult undertaking. The goal of this research is to create machine learning models that can precisely forecast a used car's price based on its attributes so that buyers can make educated decisions. On a dataset made up of the sale prices of various brands and models, we put various learning techniques into practice and evaluate their effectiveness. The performance of different machine learning algorithms, including Linear Regression, Ridge Regression, Lasso Regression, Elastic Net, and Decision Tree Regressor, will be compared, and the best one will be selected. The cost of the car will be determined based on a number of factors. It is feasible to estimate the real price of a car rather than just the price range of a car since regression algorithms give us a continuous number as an output rather than a categorized value. A user interface that accepts input from any user and displays the price of a car based on their inputs has also been developed.

1.1 Literature Survey

Predicting the Price of Used Car Using Machine Learning Techniques is the first study. The use of supervised machine learning techniques to forecast the cost of secondhand vehicles in Mauritius is examined in this research. The forecasts are based on past information gathered from daily newspapers.

The predictions were made using a variety of techniques, including multiple linear regression analysis, k-nearest neighbors, naive bayes, and decision trees.

Car Price Prediction Using Machine Learning Techniques is the second paper. Many different characteristics are investigated for the trustworthy and accurate

prediction. They have employed three machine learning approaches (Artificial Neural Network, Support Vector Machine, and Random Forest) to create a model for forecasting the cost of secondhand cars in Bosnia and Herzegovina.The third paper presents a second-hand car price evaluation model using BP neural networks. The price evaluation model based on big data analysis is put forth in this research. It makes use of widely disseminated vehicle data as well as a sizable amount of vehicle transaction data to analyze the pricing data for each type of vehicle using the BP neural network algorithm that has been optimized. In order to determine the price that best suits the car, it attempts to build a model for evaluating used car prices.

1.2 Requirements

Hardware requirements
Operating system-
Windows 7,8,10Processor- dual core 2.4 GHz (i5 or i7 series Intel processor or equivalent AMD)
RAM-4GB
Software Requirements Python PyCharm
PIP 2.7 Jupiter
Notebook
Chrome

1. METHODOLGY

The system is divided into two main phases: 1. Training phase: Using the data from the data set, the system is trained to fit a model (line or curve) using the algorithm that was selected in accordance with that information. 2. Testing: The system is given inputs and its functionality is tested. It is examined for accuracy. Therefore, the data that is utilized to either train or test the model must be appropriate. Since the system is intended to identify and forecast used car prices, the correct algorithms must be utilized to complete the two distinct jobs. The accuracy of various algorithms was compared before the best ones were chosen for further use. The most qualified person for the job was selected.

	Car_Name	Year	Selling_Price	Present_Price	Kms_Driven	Fuel_Type	Seller_Type	Transmission	Owner
0	ritz	2014	3.35	5.59	27000	Petrol	Dealer	Manual	0
1	sx4	2013	4.75	9.54	43000	Diesel	Dealer	Manual	0
2	ciaz	2017	7.25	9.85	6900	Petrol	Dealer	Manual	0
3	wagon r	2011	2.85	4.15	5200	Petrol	Dealer	Manual	0
4	swift	2014	4.60	6.87	42450	Diesel	Dealer	Manual	0

1.1 Objective

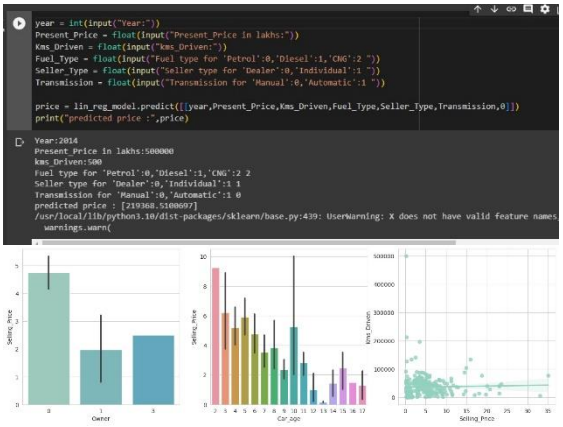
The preferred brand or type of automobile, such as Ford, Hyundai Ford Figo and Hyundai Creta automobile models; Delhi, Chennai, and Mumbai as the location

Year of manufacture, such as 2020 or 2021 Fuel type, such as petrol or diesel.
Price range or budget.
The customer's preferred kind of gearbox, such as automatic or manual.

2. FUTURE SCOPE

Future integration of this machine learning model with different websites that can supply real-time data for price prediction is possible. Additionally, we might include a lot of historical data on automobile prices, which would increase the machine learning model's accuracy. An Android app can be created as the user interface for communicating with users. We intend to carefully craft deep learning network topologies, employ adaptive learning rates, and train on data clusters rather than the entire dataset for better performance.

3. RESULT



4. CONCLUSION

Used car sales are rising globally due to the rising costs of new cars and the customers' inability to afford to buy them. Therefore, a system that accurately assesses the value of the car utilizing a range of features is urgently needed for used car price prediction. The suggested system will make it possible to estimate used automobile prices with greater accuracy. Three alternative machine learning

algorithms—Linear Regression, Lasso Regression, and Ridge Regression—are compared in this research.

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