LITERATURE SURVEY

CAR RESALE VALUE PREDICTION

Date	01-11-2022
Team ID	PNT2022TMID42617
Project Name	Car Resale value Prediction
Maximum Marks	2 Marks

The various methodologies that are all used are discussed as follows:

1. Used Car Price Prediction using Machine Learning: A Case Study

Mustapha Hankar; Marouane Birjali; Abderrahim Beni-Hssane
Published in 2022 11th International Symposium on Signal, Image, Video and Communications (ISIVC)

Several regression techniques were used based on supervised machine learning to predict the resale price of used cars given many factors such as mileage, fuel type, fiscal power , mark , model, and the production year of the car. In all tested models, gradient boosting regressor showed a high R-squared score and low root mean square error. The results showed that gradient boosting regressor outperformed all tested models with a highest R2 score and a minimized root mean squared error. As a future work, it is intended to increase the performance of the model by scaling the training data and adding more other variables to the feature set.

2. Prediction of Resale Value of the Car Using Linear Regression Algorithm

Kiran S,Computer Science Engineering,SJB Institute of Technology, Bangalore, India

In this research the price of the car is considered as dependent variable for target prediction .The data used for prediction was taken from web. The suitability of linear regression algorithm is identified and implemented in this research work for accurately predicting the resale value of the vehicle based on most significant attributes that are been selected on the basis of highest correlation.The Linear Regression model for prediction of resale value of the car is providing an accuracy of 90% and an error of 10%. Linear Regression model is better suited for prediction of target attribute that is msrp (car price). Further this work can be implemented using different machine learning algorithms and approaches in order to get higher accuracy rate and lower error percentage.

3. Price Prediction in the Used Car Market

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The objective of this paper is to provide empirical answers to these questions. i) to which degree are resale prices predictable, ii) what is the relative accuracy of different prediction methods and are some methods particularly effective, iii) given that market research agencies have specialized in residual value estimation, is it sensible for car makers to invest into an in-house resale price forecasting system? The results suggest that the methods most widely used in resale price modeling are least effective. In particular, linear regression methods predict significantly less accurately than advanced methods such as RF and ES. Advanced methods are able to extract useful predictive information from PI and are robust toward high dimensionality.

4. Decision Support In Car Leasing: A Forecasting Model For Residual Value Estimation

Lessmann, Stefan; Listiani, Mariana; and Voß, Stefan, "DECISION SUPPORT IN CAR LEASING: A FORECASTING MODEL FOR RESIDUAL VALUEESTIMATION"(2010).ICIS2010Proceedings.17.https://aisel.aisnet.org/icis2010_submissions/17

The paper proposes a methodology to support pricing decisions in the car leasing industry. In particular, the price is given by the monthly fee to be paid by the lessee as compensation for using a car over some contract horizon. After contract expiration, lessors are obliged to take back the vehicle, which will then be sold in the used car market. Therefore, lessors require an accurate estimate of cars' residual values to manage the risk inherent to their business and determine profitable prices. This paper explores the organizational and technical requirements associated with this forecasting task and develop a prediction model that complies with identified application constraints. The model is rigorously tested within an empirical study and compared to established benchmarks. The results obtained in several experiments provide strong evidence for the proposed model being effective in generating accurate predictions of cars' residual values and efficient in requiring little user intervention.

5. Predicting the Price of Second-hand Cars using Artificial Neural Networks

Saamiyah Peerun, Nushrah Henna Chummun and Sameerchand Pudaruth University of MauritiusReduit, Mauritius

The aim of this study is to assess whether it is possible to predict the price of second-hand cars using artificial neural networks. Thus, data for 200 cars from different sources was gathered and fed to four different machine learning algorithms. And it was found that support vector machine regression produced slightly better results than using a neural network or linear regression. However, some of the predicted values are quite far away from the actual prices, especially for higher priced cars. Thus, more investigations with a larger data set are required

and more experimentation with different network type and structures is still required in order to obtain better predictions.

6. An Automated Car Price Prediction System Using Effective Machine Learning Techniques

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This research focuses on Building a mathematical model that could predict the price of a second-hand car based on its current features. Determining the price of a used automobile is a difficult task because several factors like Current Mileage, Current Condition, Make, Year, etc.,can influence the prediction prices of an automobile. And, from the perspective of a person who sells, it becomes a dilemma to predict the price of a second-hand car accurately. Thus, the point of interest of this challenge is in growing gadgets, studying models that can correctly expect the price of a used car primarily based on its capabilities. Due to this, in turn, a consumer can make a much more informed purchase. Therefore, implementing and examining various Machine Learning Techniques with Data Analysis will be useful to Provide an Accurate and Easy to use solution.

7. Used Cars Price Prediction and Valuation using Data Mining Techniques

AlShared, Abdulla, "Used Cars Price Prediction and Valuation using Data Mining Techniques" (2021). Thesis. Rochester Institute of Technology. Accessed from https://scholarworks.rit.edu/theses/11086

A primary objective of this project is to estimate used car prices by using attributes that are highly correlated with a label (Price). To accomplish this, data mining technology has been employed. Null, redundant, and missing values were removed from the dataset during pre-processing. In this supervised learning study, three regressors (Random Forest Regressor, Linear Regression, and Bagging Regressor) have been trained, tested, and compared against a benchmark dataset. The researchers of this project anticipate that in the near future, the most sophisticated algorithm is used for making predictions, and then the model will be integrated into a mobile app or web page for the general public to use.

8. Used Cars Price Prediction using Supervised Learning Techniques

P Venkatasubbu, M Ganesh - Int. J. Eng. Adv. Technol.(IJEAT), 2019 - researchgate.net

The recent advent of online portals has facilitated the need for both the customer and the seller to be better informed about the trends and patterns that determine the value of a used car in the market. Using Machine Learning Algorithms such as Lasso Regression, Multiple Regression and Regression trees, they try to develop a statistical model which will be able to predict the price of a used car, based on previous consumer data and a given set of features and also comparing the prediction accuracy of these models to determine the optimal one. To get even more accurate models, we can also choose more advanced machine learning algorithms such as random forests, an ensemble learning algorithm which creates multiple decision/regression trees, which brings down overfitting massively or Boosting, which tries to bias the overall model by weighing in the favor of good performers. More data from newer websites and different countries can also be scraped and this data can be used to retrain these models to check for reproducibility.

9. Predicting the Price of Pre-Owned Cars Using Machine Learning and Data Science

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This model reduces time and cost and is also more user friendly as a result of which there is improvement in business by selling more cars. Here we are also conducting a comparative study on performance of regression based on supervised machine learning models. Each model is trained using data of used car market collected from e-commerce website. As a result, Linear regression gives the best performance with Root mean square error (RMSE) =8902.410 . Followed by ridge, random forest regression algorithms respectively. We can also extend this project by considering more attributes like Resale history, Lic , Accidents history, image etc to the data set for getting clear and accurate analysis.

10. Value Based Pricing meets Data Science: A Concept for Automated Spare Part Valuation

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An early-stage concept for automated spare part valuation which classifies pricing data before applying appropriate valuation methods is presented and hereby combines methods from multiple disciplines. Information from heterogeneous sources is aggregated, transformed and then supports machine learning methods to automatically determine a Fair Market Value for surplus spare parts. The concept for automated spare part valuation is a promising alternative for value determination and pricing in secondary markets and thus may serve as a foundation for building a generic surplus part trading platform to overcome market transparency issues if the obstacles of validation are overcome. Handling incomplete historical data sets as well as validating the calculated Fair Market Value are some of the challenges which become visible.