Literature survey

(Monburinon, et al., 2018) Gathered data from a German e-commerce site that totalled to 304,133 rows and 11 attributes to predict the prices of used cars using different techniques and measured their results using Mean Absolute Error (MEA) to compare their results. Same training dataset and testing dataset was given to each model. Highest results achieved was by using gradient boosted regression tree with a MAE of 0.28,

and MEA of 0.35 and 0.55 for mean absolute error and multiple linear regression respectively. Authors suggested adjusting the parameters in future works to yield better results, as well as using one hot encoding instead of label encoding for more realistic data interpretations on categorical data.

(Gegic, Isakovic, Keco, Masetic, & Kevric, 2019) from the International Burch University in Sarajevo, used three different machine learning techniques to predict used car prices. Using data scraped from a local Bosnian website for used cars totalled at 797 car samples after pre-processing, and proposed using these methods: Support Vector Machine, Random Forest and Artificial Neural network. Results have shownSeveral studies and related works have been done previously to predict used car prices around the world using only one machine learning algorithm achieved results less than 50%,whereas after combining the using different methodologies and approaches, with varying results of accuracy from 50% to 90%.

In (Pudaruth, 2014) the researcher proposed to predict used car prices in Mauritius, where he applied different machine learning techniques to achieve his results like decision tree, K-nearest neighbours, Multiple Regression and Naïve Bayes algorithms to predict the used cars prices, based on historical data gathered algorithms with pre calcification of prices using Random Forest, results with accuracies up to 87.38% was from the newspaper. recorded,

Achieved results ranged from accuracy of 60-70 percent, the author suggested using more sophisticated

In (Noor & Jan, 2017) were able to achieve high level of accuracy using Multiple linear regression models to models and algorithms to make the evaluation, with the main weakness off the decision tree and naïve predict the price of cars collected from used cars website in Pakistan called PakWheels that totalled to 1699 Bayes that it is required to discretize the price and classify it which accrue to more inaccuracies. Moreover, records after pre-processing, and where able to achieve accuracy of 98%, this was done after reducing the he suggested a larger set of data to train the models hence the data gathered was not sufficient.

Total number of attributes using variable selection technique to include significant attributes only and to (Monburinon, et al., 2018) Gathered data from a German e-commerce site that totalled to 304,133 rows and reduced the complexity of the model.

11 attributes to predict the prices of used cars using different techniques and measured their results using 6 Mean Absolute Error (MEA) to compare their results. Same training dataset and testing dataset was given (K.Samruddhi & Kumar, 2020) Proposed using Supervised machine learning model using K-Nearest to each model. Highest results achieved was by using gradient boosted regression tree with a MAE of 0.28, Neighbour to predict used car prices from a data set obtained from Kaggle containing 14 different attributes, and MEA of 0.35 and 0.55 for mean absolute error and multiple linear regression respectively. Authors

using this method accuracy reached up to 85% after different values of K as well as Changing the percent suggested adjusting the parameters in future works to yield better results, as well as using one hot encoding of training data to testing data, expectedly when increasing the percent of data that is tested better accuracy instead of label encoding for more realistic data interpretations on categorical data. results are achieved. The model was also cross validated with 5 and 10 folds by using the K fold method. (Gegic, Isakovic, Keco, Masetic, & Kevric, 2019) from the International Burch University in Sarajevo, used

(Gongqi, Yansong, & Qiang, 2011) proposed using Artificial Neural Network (ANN) through a combined three different machine learning techniques to predict used car prices. Using data scraped from a local method of BP neural network and nonlinear curve fit and have achieved accurate value prediction with a Bosnian website for used cars totalled at 797 car samples after pre-processing, and proposed using these feasible models. methods: Support Vector Machine, Random Forest and Artificial Neural network. Results have shown

(Listiani, 2009) used Support Vector Machines to evaluate leased cars prices, results have shown that SVM using only one machine learning algorithm achieved results less than 50%, whereas after combining the is far more accurate in large dataset with high dimensional data than Multiple linear regression.

Whereas algorithms with pre-calcification of prices using Random Forest, results with accuracies up to 87.38% was the computation Multiple linear regression can take several minutes and the SVM would take up to a day recorded.

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