

Script

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Good morning, Professors, Myself and today I am going to present the topic “Old Vehicle Price Estimation using Machine Learning”. And before we proceed further, I would like to introduce my team members to you, they are, Debjyoti Basak (18700120158), Rabi Majumdar (18700120141), Tushar Singh (18700120146) and Shirsha Mullick (18700117032).

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As per the recent market value and inflation, it is not possible for everyone to buy a brand-new car. Instead, to justify their pocket, they attract towards buying second hand cars, since they are not as costly as the brand-new cars. And most of the new 2nd hand buyers don't know what should be the price of the used car they are going to buy, and here, our project comes as a blessing for them. With our app, they can easily estimate the value of the 2nd hand car they are willing to buy based on several attributes. We made this app based on the dataset of previously sold 2nd hand cars, the dataset, which contains more than 800 sold 2nd hand cars, which implies our app has the required capability to predict the price quite accurately.

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People face various problems before making a strong decision of investing on a car, whether it is new or used one, but due to the inflationary pressure of the new car market and the governmental Taxations, people are gradually getting attracted towards the used cars. Here in this project, we have created a model that can predict the old car's price fairly precisely using machine-learning.

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The user just needs to fulfill the parameters given to the app, like brand, model, manufacturing year etc. and click the predict price button, and the price predicted will be shown.

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To make this project happen, we have used python as the frame of the project. We collected data from various second-Hand car selling website. And to sort the data properly and opt out the unnecessary spam data of the cars that we have collected from various sites, we have used panda library of python.

To distinguish the project if it is working properly or not, we have used graphs and arrays. To present graphs and arrays to the project, we have implemented numpy, matplotlib and matplotlib.pyplot.

To show the higher level data visualization, seaborn visualization library has been used and to implement machine learning model psychic learning data analysis library is used.

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Several methodologies and architectures are followed to make this project happen, they are collecting data from the sources and creating environment for making the model then we have processed the data and omitted the unnecessary details from the dataset which we have collected.

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Then we have analyzed the data for spotting and opting out all the inconsistencies of the dataset and noted them down. After the data being analyzed we have cleaned the data with respect to the name spam, kilometer values to object, null valued fuel types etc.

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In this slide the graph is representing the price range of the cars of every individual company given in the dataset with the candle representation.

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Here in this slide, we can see the dotted representation which depicts the relationship between kilometers different by the car and the price of the car.

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This graph in this slide represents the manufacturing year of the cars present in the clean data compared to the price. This graph also shows the peak years when second hand cars were on demand.

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This candle stick representation of petrol, diesel and LPG implies the fuel tank of the car vs the price of the car.

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This dotted pattern representation illustrates the summary of the fuel type, manufacturing year and company of the cars present in the cleaned dataset compared to the price of those cars.

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After doing all this now we need to implement machine learning with the dataset. Here we have used a scalar library and fetched various modules like `train_test_split`, `LinearRegression`, `r_square_score`, `OneHotEncoder`, `make_column_transformer` and `make_pipeline`.

Train test split allows user to train the model paste on the collected data.

Linear regression helps to predict the value using known dataset. There are also two more regression methods present which are named as lasso and ridge, but in this case linear regression is the best one.

R-square score is used to determine and evaluate the performance of the regression-based model. It also implies that the closer the value of the R-squared score is to 1, the more perfectly the model is trained.

One hot encoder helps to feed the machine with the categorical data collected. It formats the categorical data in such a way that the machine can understand the input.

Make column transfer helps to indulge one hot encoder to the input data, and make pipeline helps creating a pipeline that is used to feed the machine and obtain output from the machine.

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Lots of benefits are present there in the near future. As per previous discussion we came to know why this project is so much beneficial for predicting secondhand cars. Since the used car market is getting huge day by day, so problems arise from time to time. This type of price detecting software helps user avoiding frauds, help fleet managers about buying or selling the cars,

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provides second hand vehicles to banks union or any other financial institutions and also keep the users up search with the market trends.

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The Accurate prediction of car prices that belong to the category of used vehicles is a quite difficult task. The huge number of challenges for the Used car price predicting analysis system (UCPAS) such as the large number of parameters that are considered during the prediction process, if the system selected the wrong parameter, it will drastically affect the outcome. Following the market trends and historical data, this machine learning model provides users with quite accurate data which expands further, offering new opportunities to the automotive and car related sectors.

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Here we have come to the end of the slide, THANK YOU for giving us the opportunity to make this project happen. THANK YOU!