A

Project Report On

PRICE ESTIMATION OF USED CARS

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ABSTRACT

The purpose of this report is to give a brief idea what has been done in the project. This report comprises of various activities in this project. My project is based on prediction of the price of old used cars. While buying old car it is difficult to predict the correct price. This project helps to give a good estimation and make this work easy. It has user friendly environment to ease the use of the system. Overall project is combination of PANDAS, LINEAR REGRESSION and TKINTER. The prediction is based upon historical data which is collected from internet.

ACKNOWLEDGEMENT

No work is considered complete unless due acknowledgement is given to those who made the work possible. It is my privilege to acknowledge with the deepest sense of gratitude, the keen personal interest and invaluable guidance goes to our teachers Dr. Moin Hasan for his support, encouragement and help at every stage of project, while we did face any problem regarding our project of "**PRICE ESTIMATION OF USED CARS**". This work simply would not have reached up to such extent without his rational guidance and guidelines.

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1. Introduction:

Our project is about predicting the resale value of used cars. It is trite knowledge that the value of used cars depends on a number of factors. The most important one are Age of Car, Mileage, number of Kilometers driven, power, Location of car, Fuel type, Owner type, No. of Seats in car, Engine capacity, Transmission type and many more.

The prediction is done though Linear Regression using sklearn library in python by providing historical data. We created a graphical user interface in which we are accepting these main values of car and by analysing these values an estimated price is calculated.

2. Material & Methodology:

We have used Pandas to collect and clean data, from sklearn we used linear regression model to make prediction and Tkinter to make GUI.

2.1 Data Collection:

First of all we collected train data from internet by which we can train our model. So that we can analyse estimated price from this data.

	Unnamed: 0	Name	Location	Year	Kilometers_Driven	Fuel_Type	Transmission	Owner_Type	Mileage	Engine	Power	Seats	New_Price	Price
0	0	Maruti Wagon R LXI CNG	Mumbai	2010	72000	CNG	Manual	First	26.6 km/kg	998 CC	58.16 bhp	5.0	NaN	1.75
1	1	Hyundai Creta 1.6 CRDi SX Option	Pune	2015	41000	Diesel	Manual	First	19.67 kmpl	1582 CC	126.2 bhp	5.0	NaN	12.50
2	2	Honda Jazz V	Chennai	2011	46000	Petrol	Manual	First	18.2 kmpl	1199 CC	88.7 bhp	5.0	8.61 Lakh	4.50
3	3	Maruti Ertiga VDI	Chennai	2012	87000	Diesel	Manual	First	20.77 kmpl	1248 CC	88.76 bhp	7.0	NaN	6.00
4	4	Audi A4 New 2.0 TDI Multitronic	Coimbatore	2013	40670	Diesel	Automatic	Second	15.2 kmpl	1968 CC	140.8 bhp	5.0	NaN	17.74

Fig.1: Sample Data

2.2 Data Cleaning :

Data cleaning is the process of preparing data for analysis by removing or modifying data that is incorrect, incomplete, irrelevant, duplicated, or improperly formatted. This data is usually not necessary or helpful when it comes to analyzing data because it may hinder the process or provide inaccurate results. Like we have removed the units of values in some columns. And dropped the columns which were not needed.

2.3 Applying Linear Regressing:

Simple Linear regression: $y = mX + C$

Multiple Linear regression: $y = m_1X_1 + m_2X_2 + \ldots + m_nX_n + C$

In this expression y is Dependent variable which depends upon the value of X . There can be multiple independent variable. ‘m’ is coefficient. And ‘c’ is intercept.

In our project the dependent variable is Price. We used Multiple linear regression because the car price depends upon multiple factors. These independent variables are Year in which car bought, Fuel type, number of seats in car, location of car, mileage, kilometer driven, engine capacity, owner type and transmission type.

After the cleaning of data. We passed these values into linear regression model. The model analysed these values. It gave us coefficients($m_1, m_2, \ldots, m_n$) and intercept(C). These values are used for prediction of Car Price.

2.4 GUI:

For user interface we use Tkinter which is a graphical library in python. In that we used Labels, Buttons, Entry box to input the values, Combobox to select the values.

Our GUI:

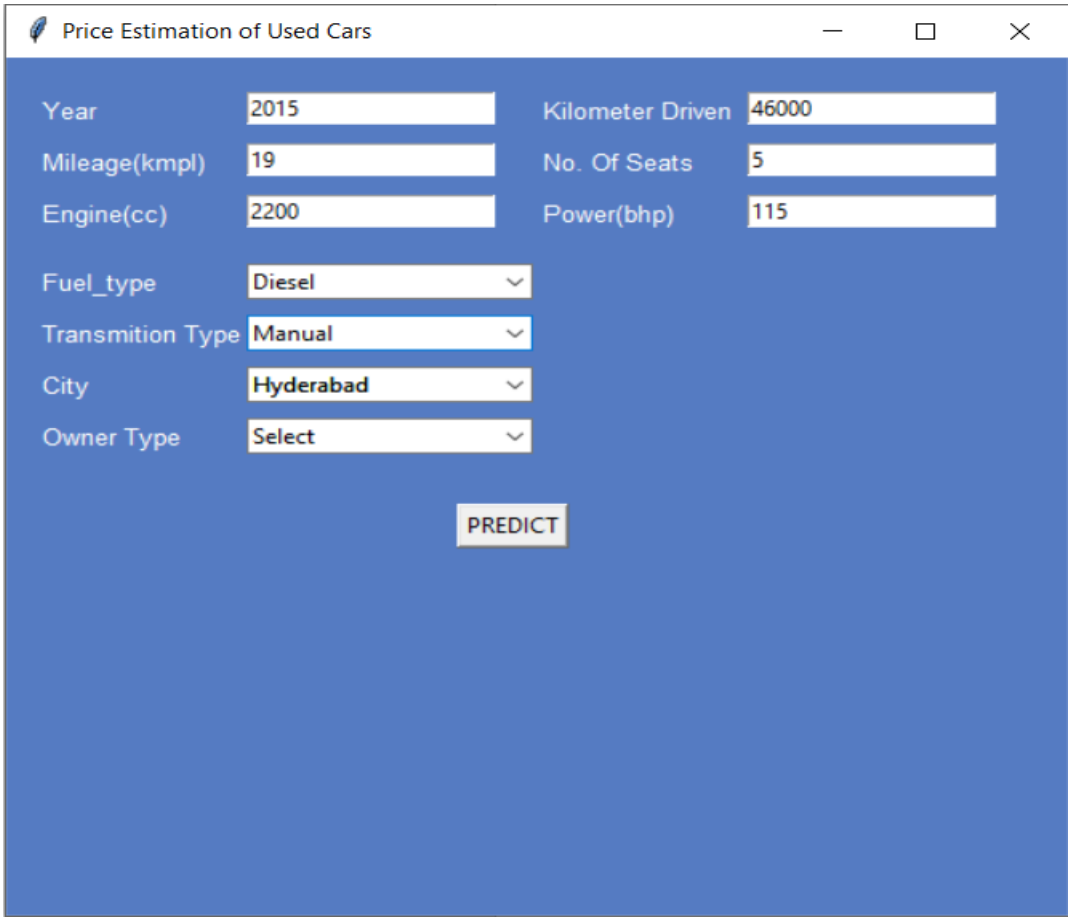

Fig. 2: User Interface

3. Result:

When we pass these values and click on PREDICT button. First of all it check that if Year, no. of Seats, Fuel type, Transmission type, City and Owner type is empty or not.

If any of these value is empty then it will give error as:

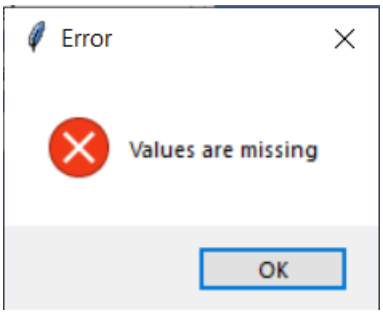

Fig. 3: Error

If all the values are given then it will predict the price.

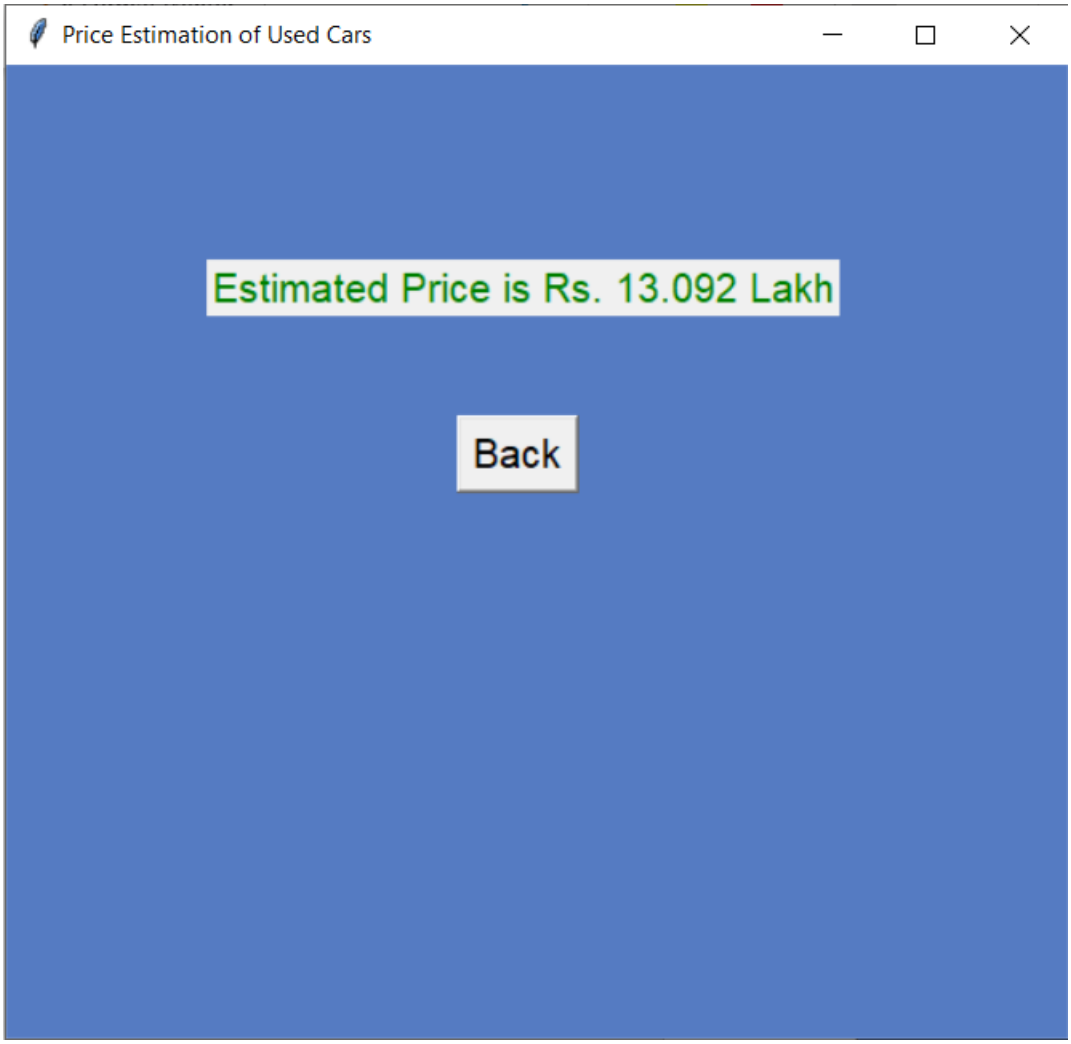

Fig. 4: Output 1

If the Age of the car (Current Year- Buying Year) is more than 15 years or if Buying year is more than current year. Than it will not in 15 year policy of car. So it can’t be sold.

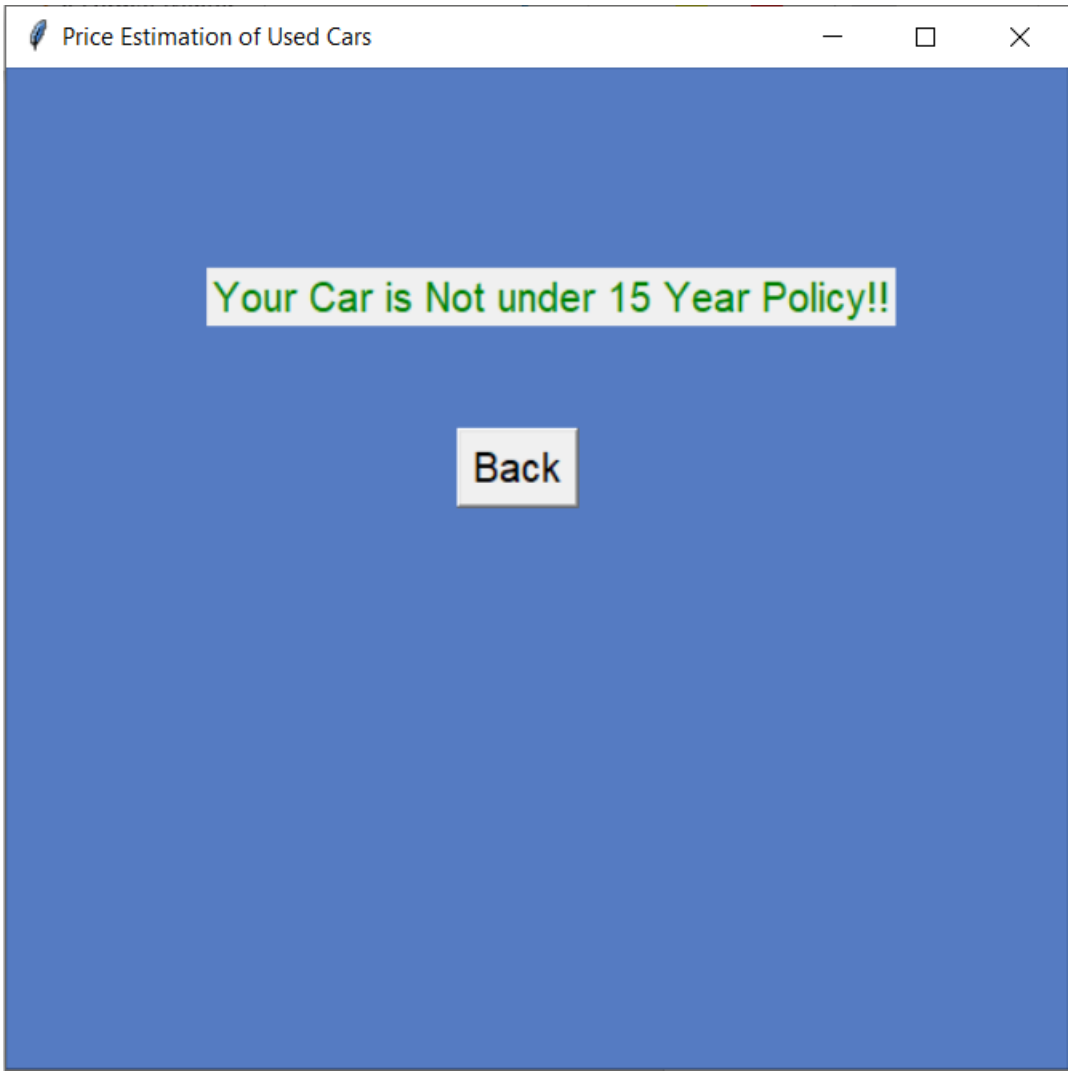

Fig. 5: Output 2

4.Discussion:

In this application, three different python library (Pandas,Linear_model,Tkinter) have been used to forecast the price of used cars .We had used some common attribute on which car's price depend and our program are handling all of thing efficiently and predicting the price. In this project we learnt how to use various libraries of python, how to work in team.

5.Bibliography:

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