**CAR RESALE VALUE PREDICTION USING IBM WATSON**

**1.INTRODUCTION**

Predicting the resale value of a car is not a simple task. It is trite knowledge that the value of used cars depends on a number of factors. The most important ones are usually the age of the car, its make (and model), the origin of the car (the original country of the manufacturer), its mileage (the number of kilometers it has run) and its horsepower. Due to rising fuel prices, fuel economy is also of prime importance.Unfortunately, in practice, most people do not know exactly how much fuel their car

consumes for each km driven.

* 1. **OVERVIEW**

Cars.com has built a machine learning model to help buyers determine when and how to act on a purchase

The technology is called “Hot Car” and has been built on over 20 years of data using over 50 factors

The initial testing resulted in a double digit increase in sales

* 1. **PURPOSE**

In order to predict the resale value of the car, we proposed an intelligent, flexible, and effective system that is based on using regression algorithms. Considering the main factors which would affect the resale value of a vehicle a regression model is to be built that would give the nearest resale value of the vehicle. We will be using various regression algorithms and algorithm with the best accuracy will be taken as a solution, then it will be integrated to the web-based application where the user is notified with the status of his product.

**2.LITERATURE SURVEY**

**2.1 EXISTING PROBLEM**

The prices of new cars in the industry is fixed by the manufacturer with some additional costs incurred by the Government in the form of taxes. So, customers buying a new car can be assured of the money they invest to be worthy. But due to the increased price of new cars and the incapability of customers to buy new cars due to the lack of funds, used cars sales are on a global increase . There is a need for a used car price prediction system to effectively determine the worthiness of the car using a variety of features.

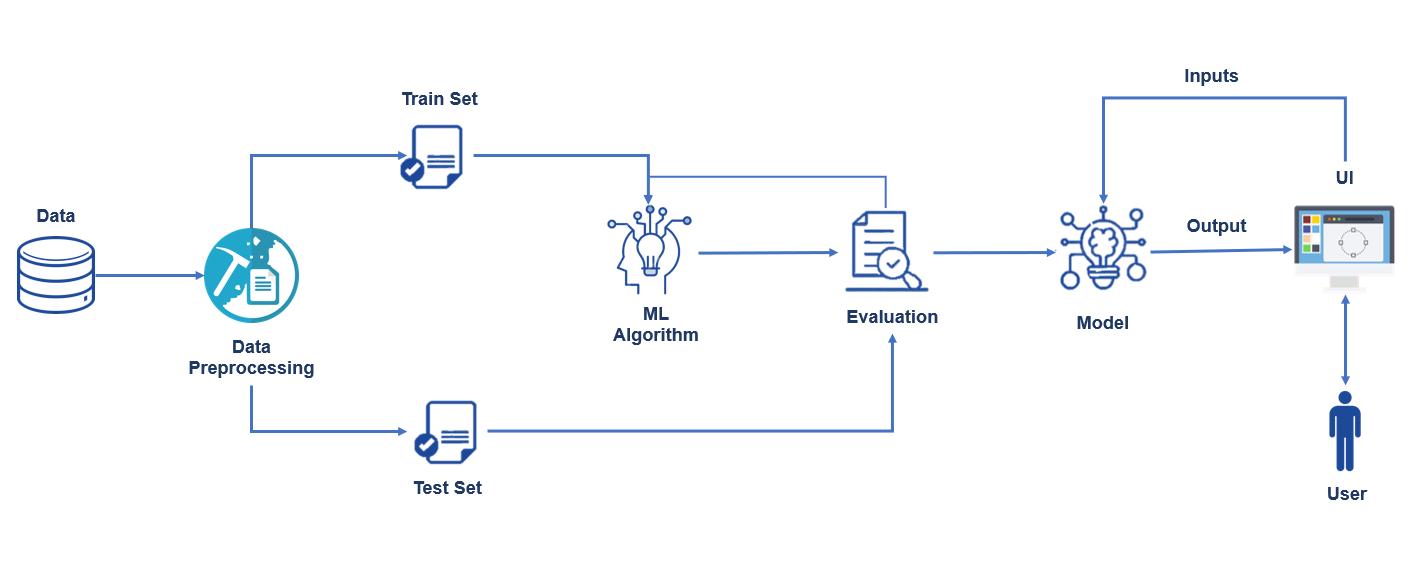
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**2.2 PROPOSED SOLUTION**

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**3.THEORITICAL ANALYSIS**

**3.1 BLOCK DIAGRAM**



**3.2 HARDWARE/SOFTWARE SOLUTION**

**Jupyter** notebook

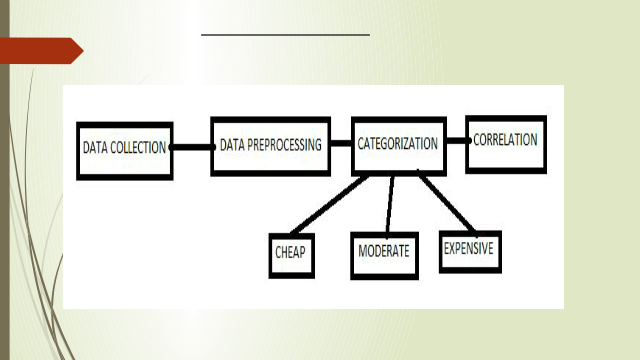
IBM Watson Studio

**4.EXPERIMENTAL INVESTIGATION**

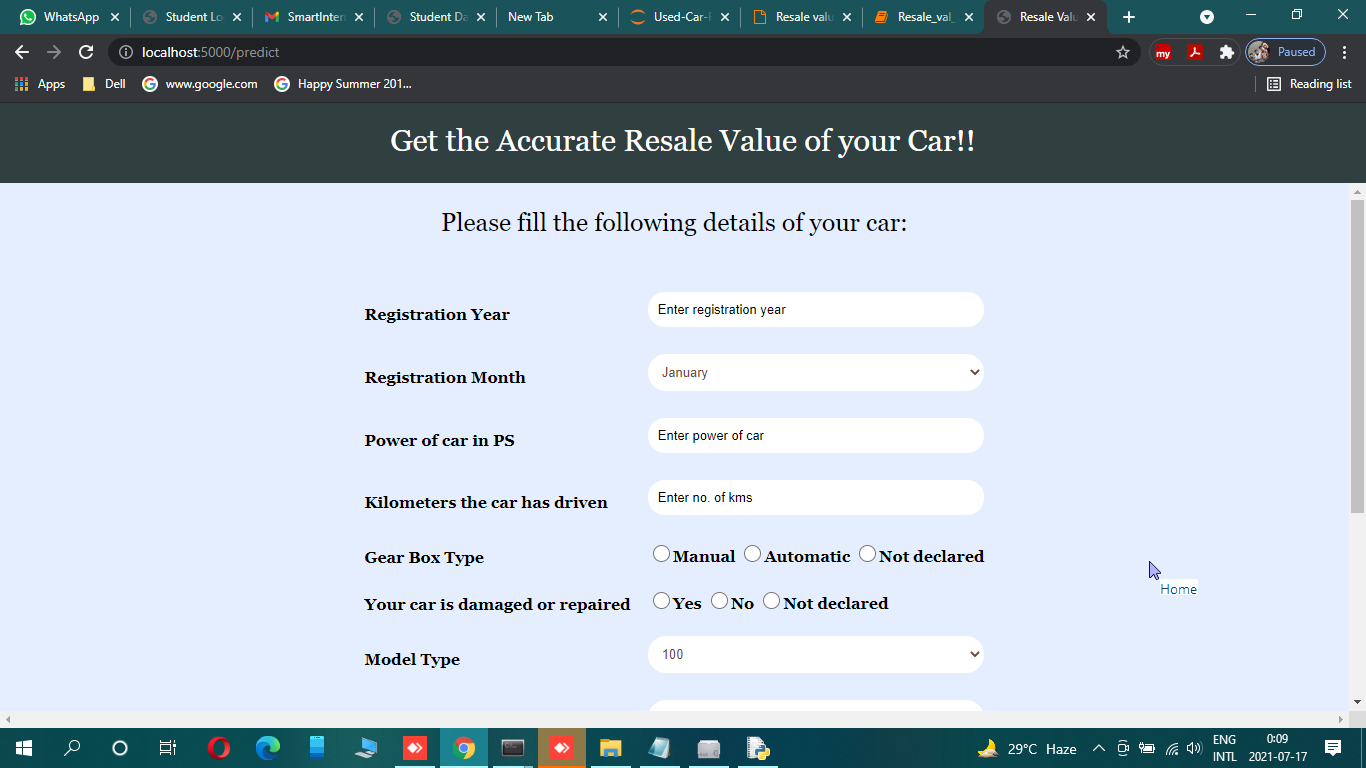
The data used to explore the three research questions has been provided by a leading German car manufacturer, who prefers to remain anonymous. The data contains roughly 450,000 observations that refer to actual sales of six different car models in the second-hand market. All

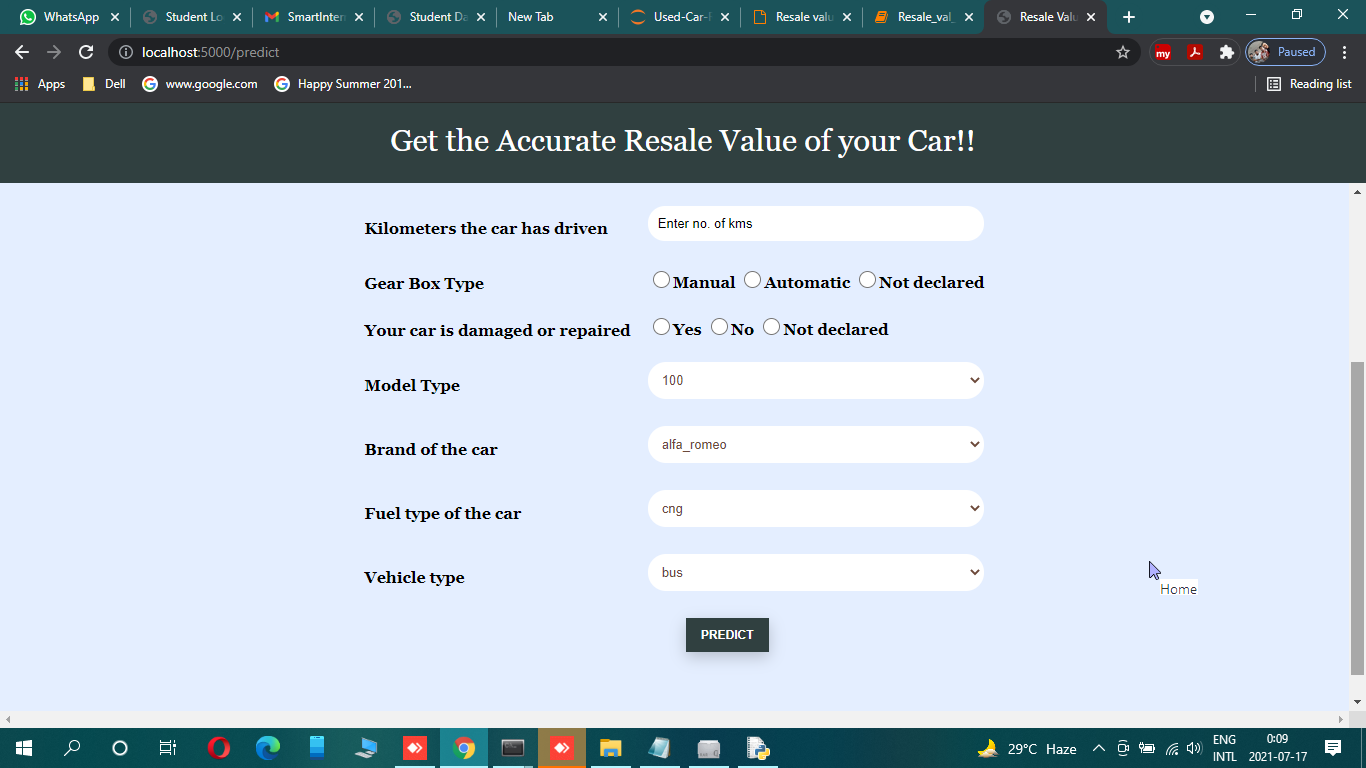
car models are from the same brand. Five models belong to the premium and one to the medium-class segment. The response variable is the ratio of a car’s resale price over its original list price. Stating resale prices as percentages is common practice in the literature (e.g., Prado, 2009

**5.FLOWCHART**



**6.RESULT**





**7.ADVANTAGES AND DISADVANTAGES**

**ADVANTAGES**

Facilitates affordability and savings

Avoiding the registration fees

Reduced rates for car insurance premiums

**DISADVANTAGES**

Can not work without power

Need internet access

**8.APPLICATIONS**

It is used at homes and offices by any kind of people

**9.CONCLUSION**

However, once more data is collected and various different cars are included in the system, deep learning-based ANN or LSTM would perform better. But currently, GBR based car valuation system can predict resale value of a car with Root Mean Squared Error (RMSE) of 50,000 INR.

**10.FUTURE SCOPE**

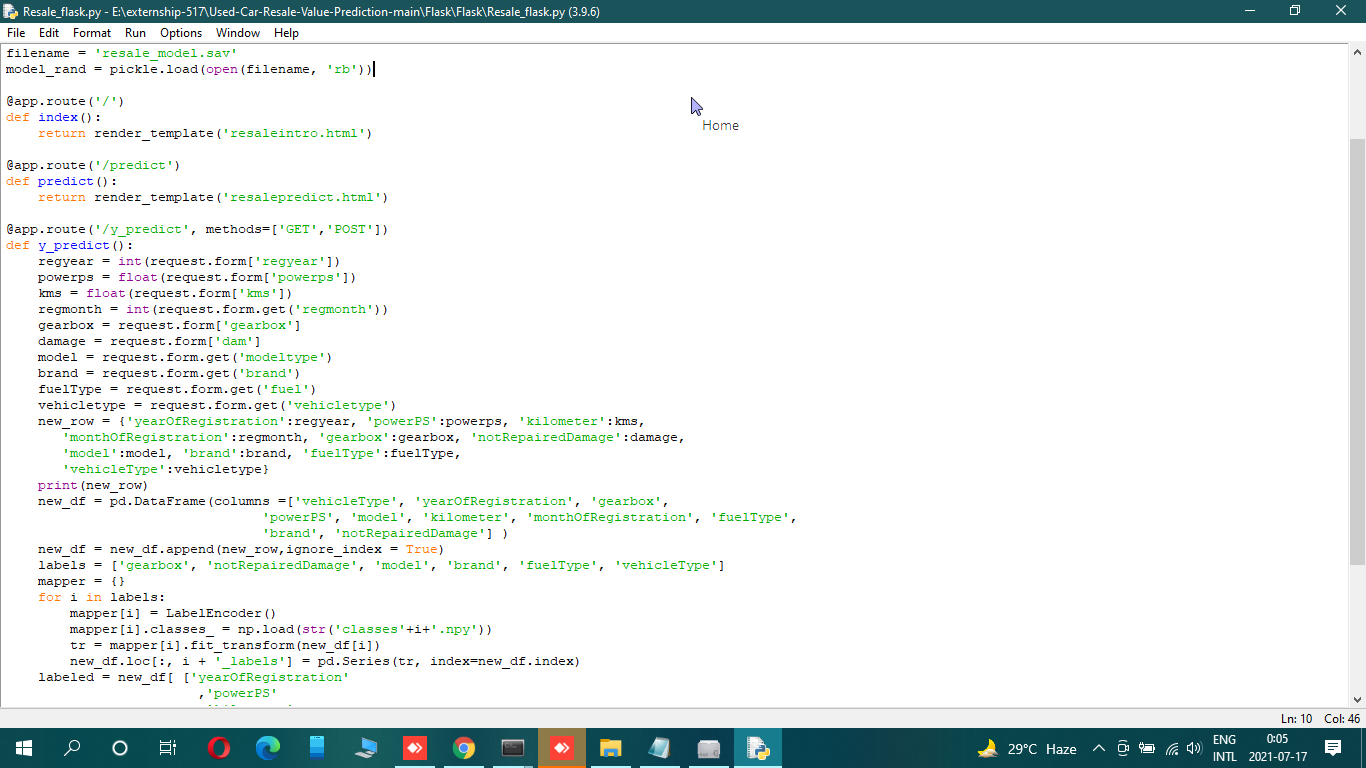
The system works on the trained dataset of the machine learning program that evaluates the precise value of the car. User can enter details only of fields like purchase price of car, kilometers driven, fuel of car, year of purchase. This prediction is displayed on the web page using a render template. Thus, with minimal information and without human intervention or manual examination, a user can predict the resale value of his car

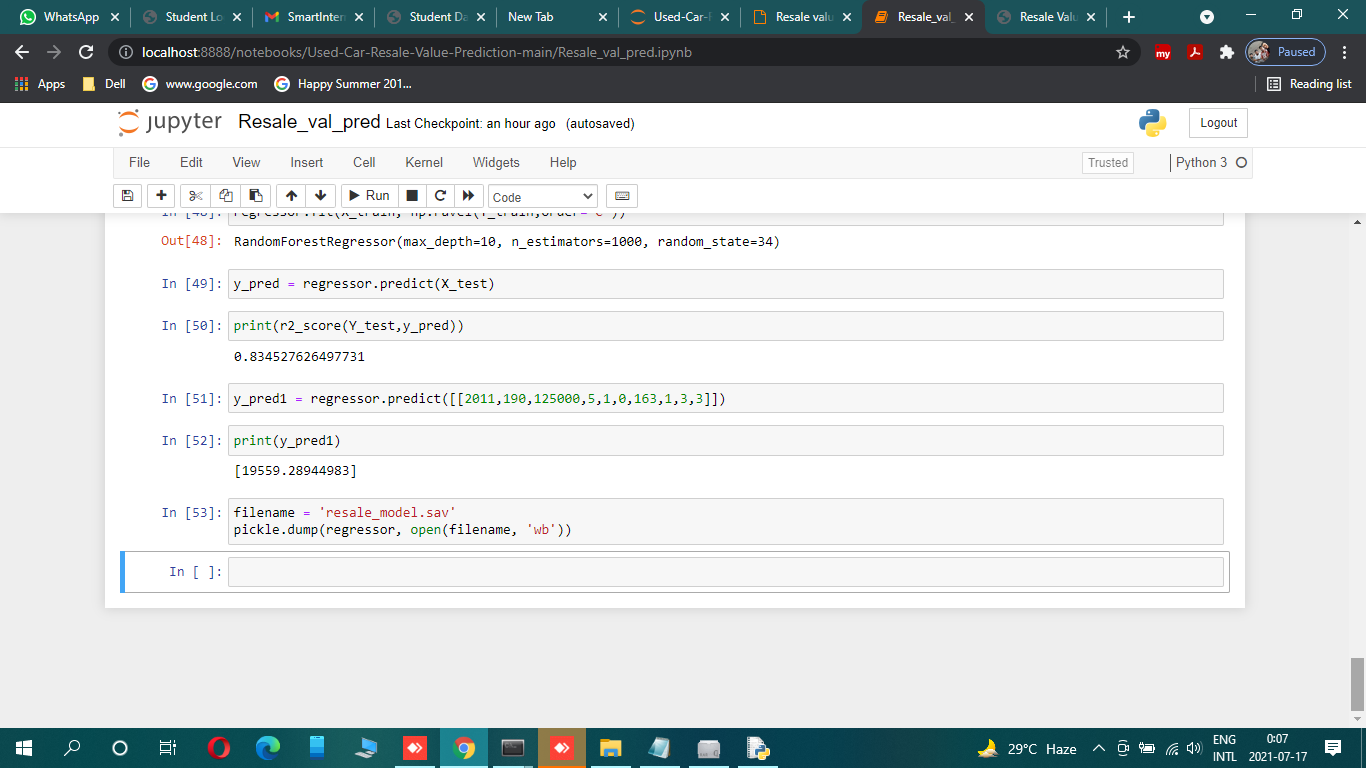
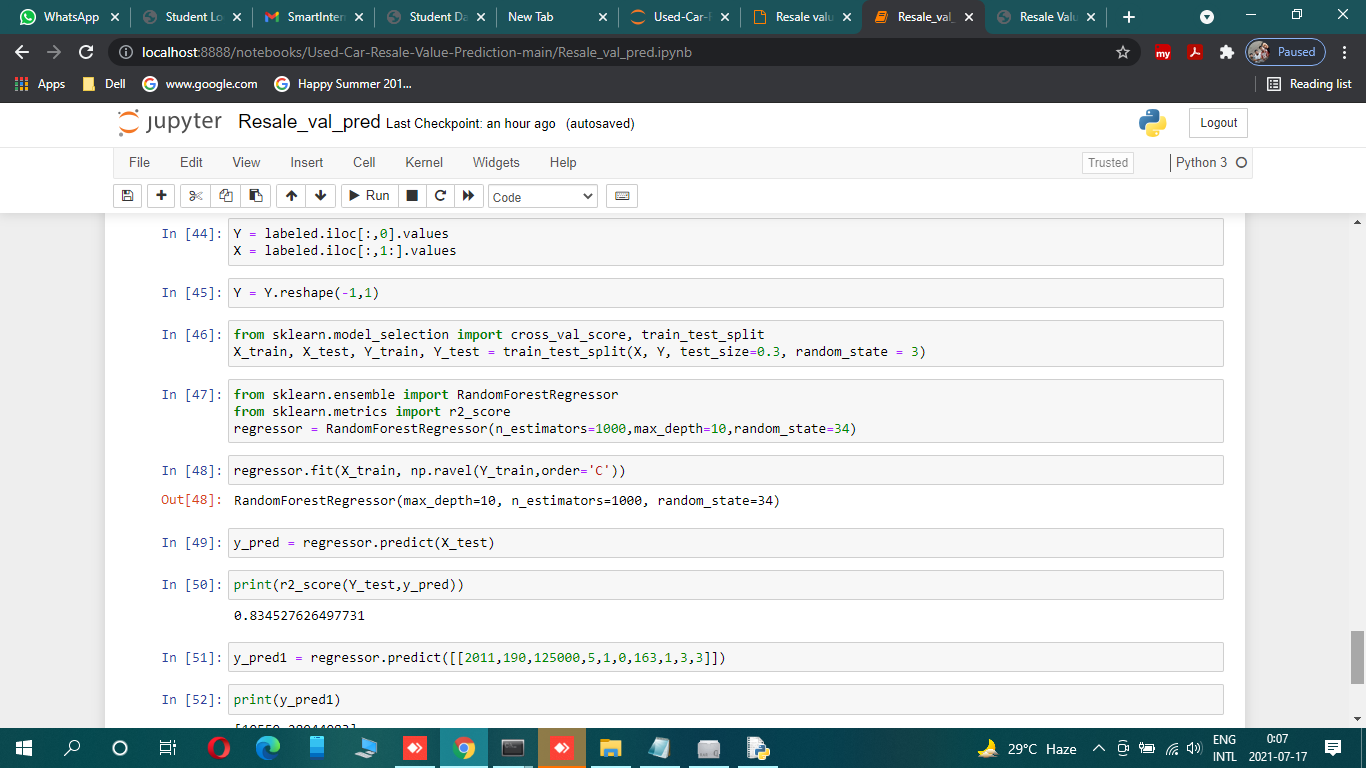
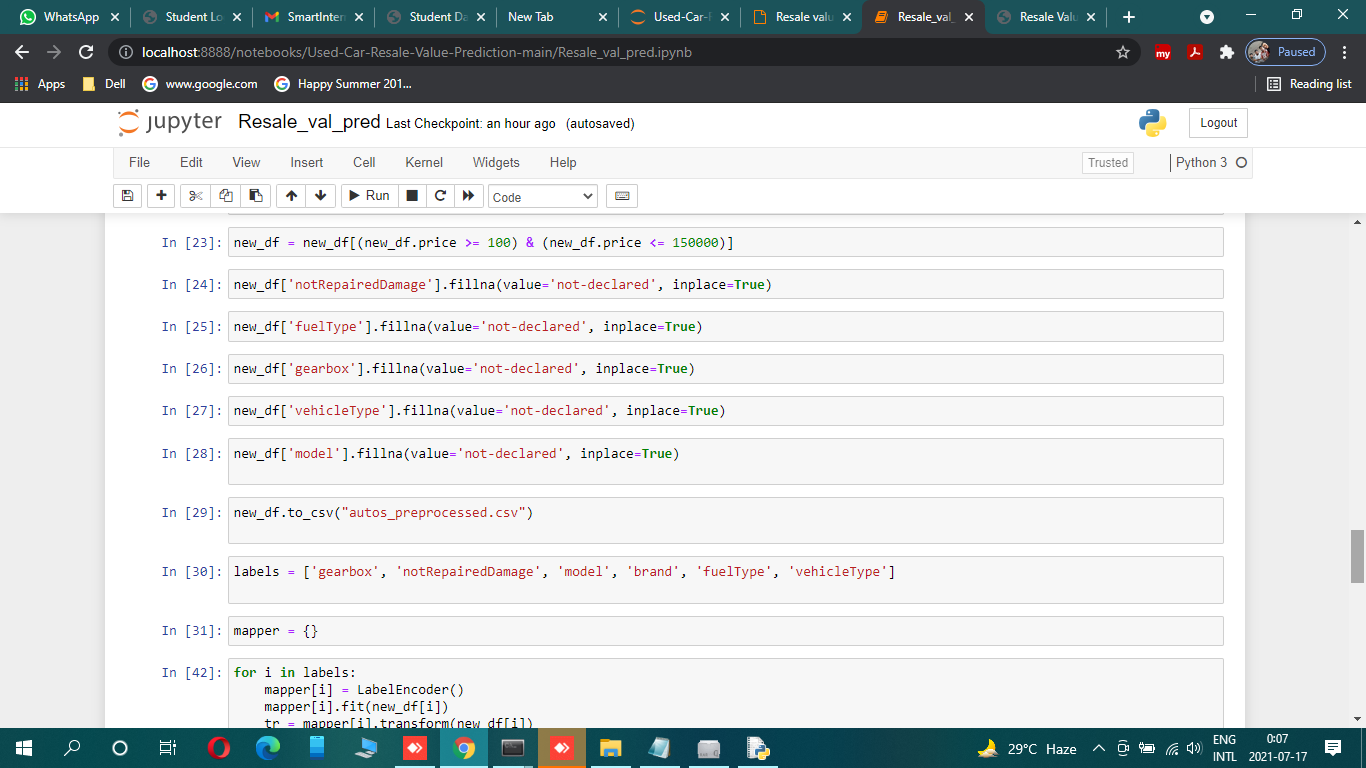
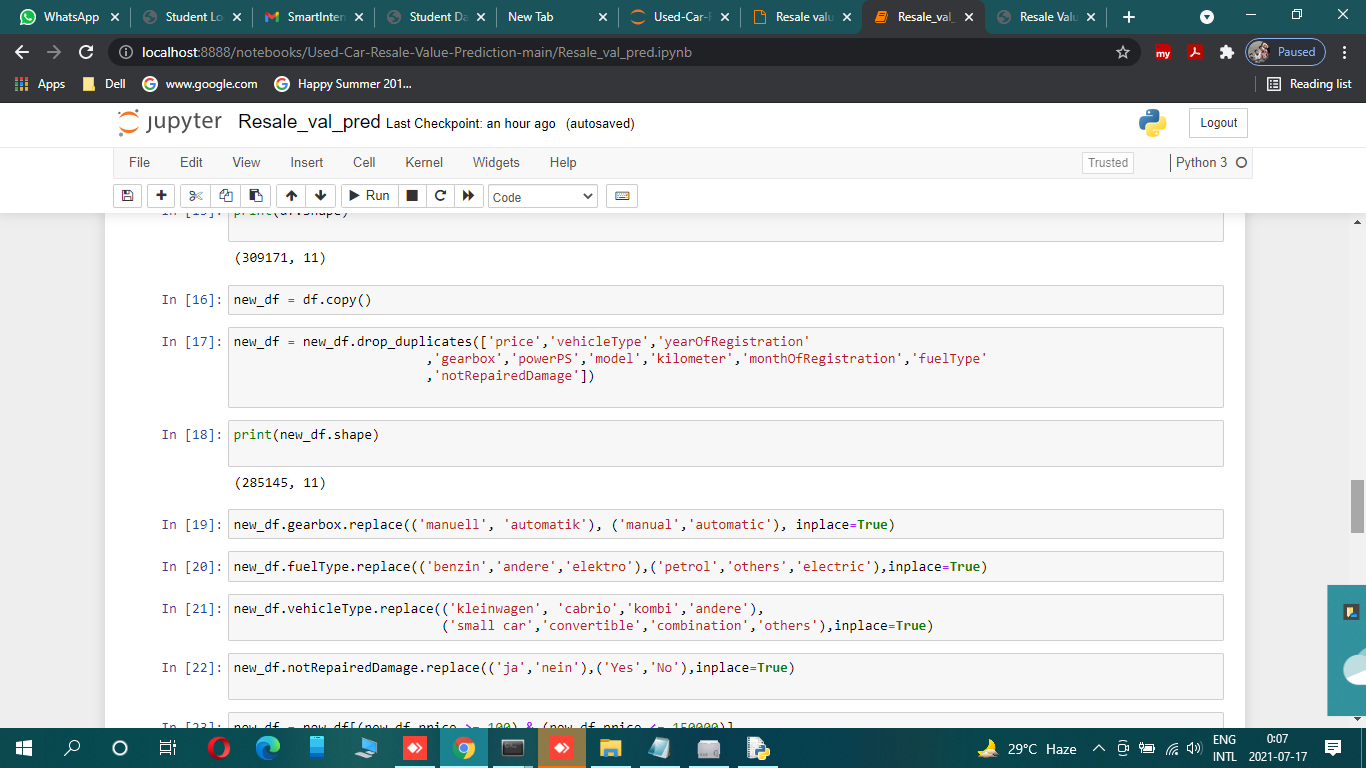
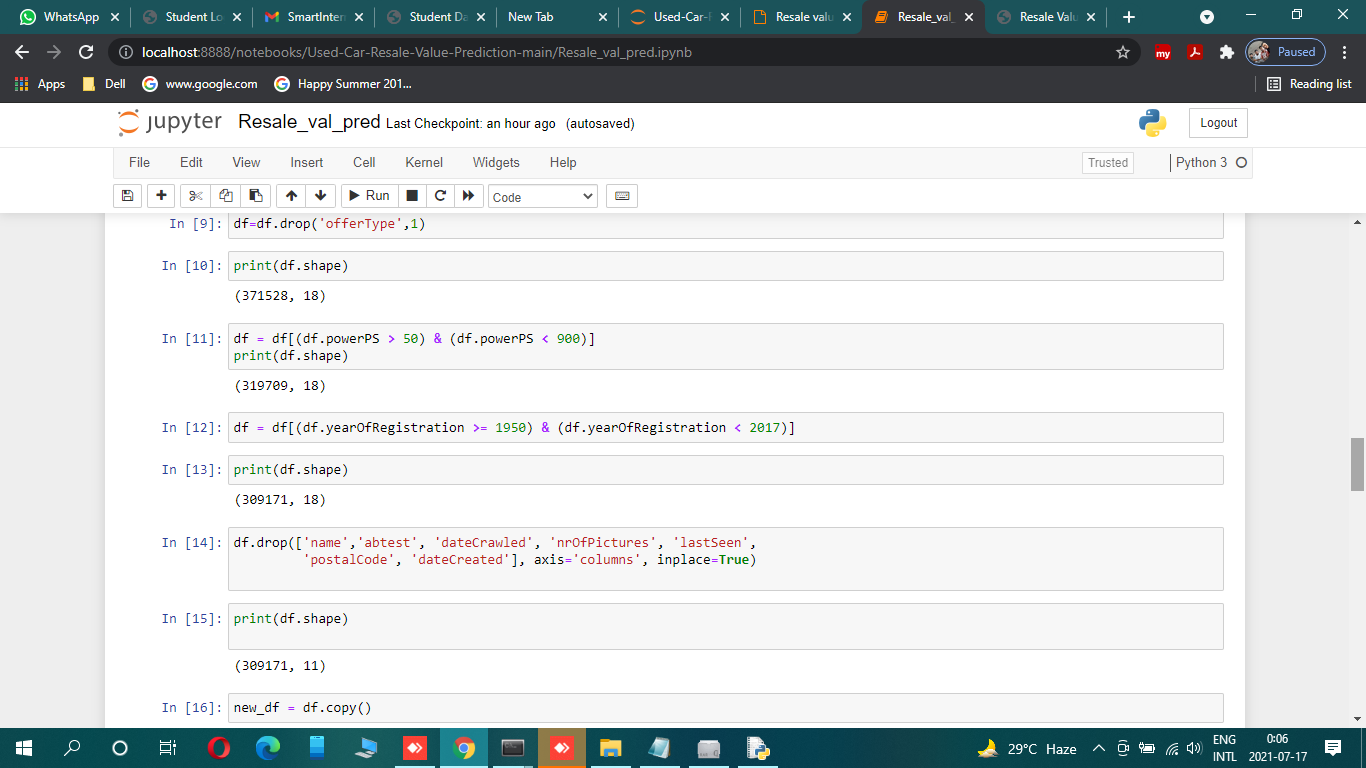
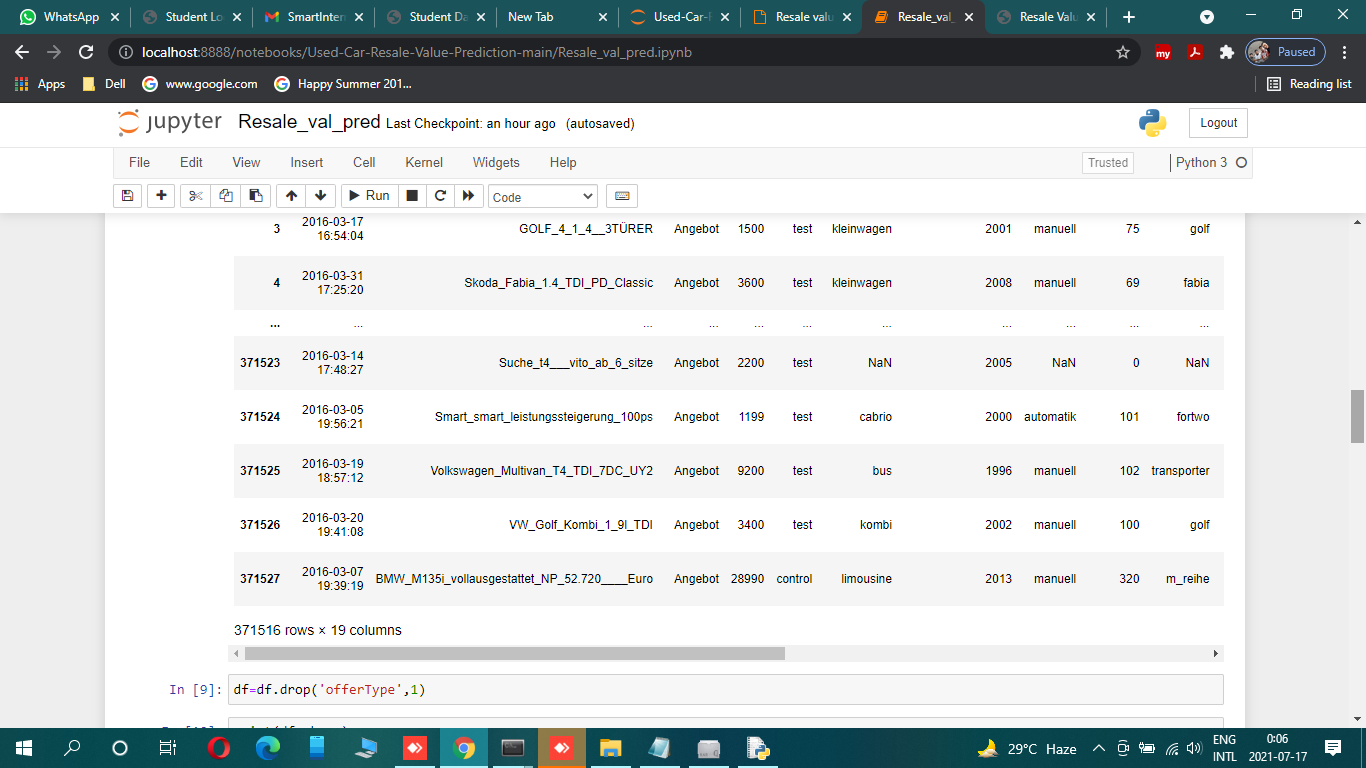
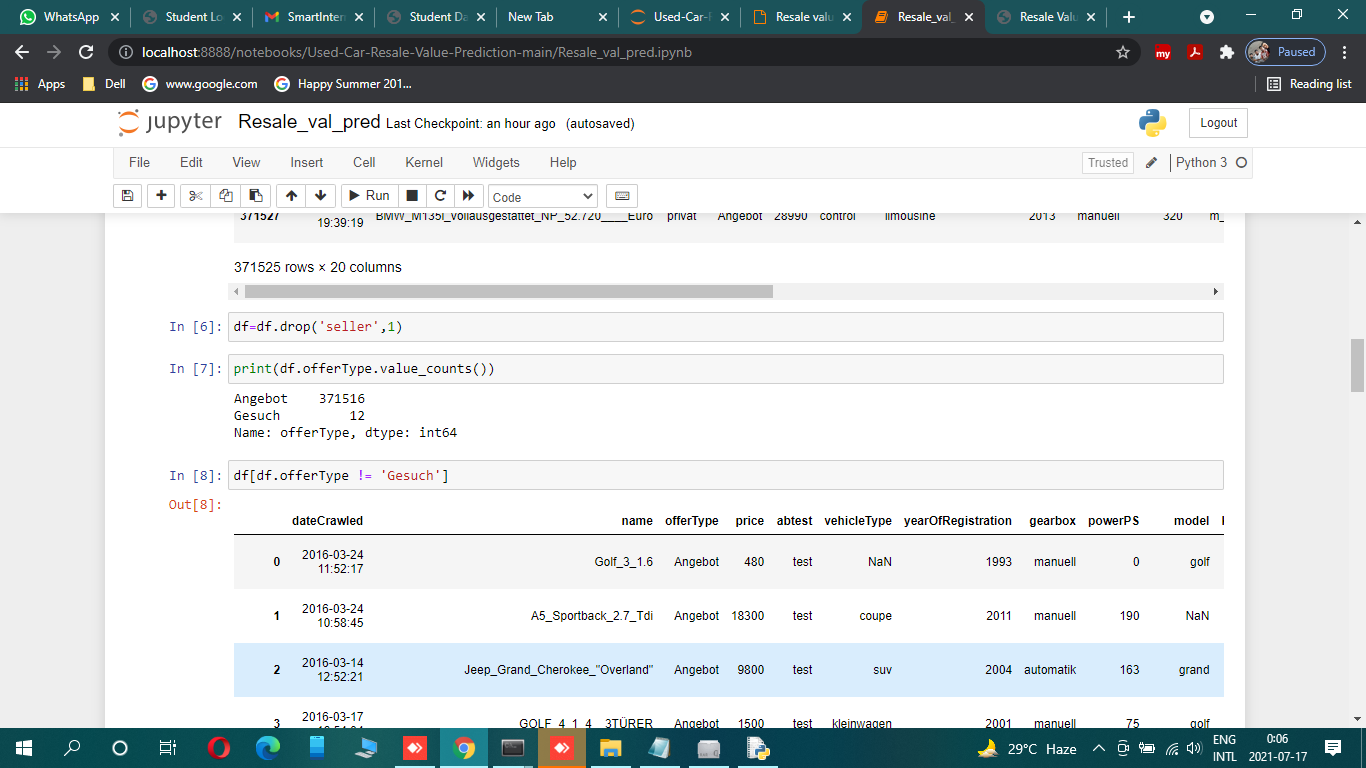
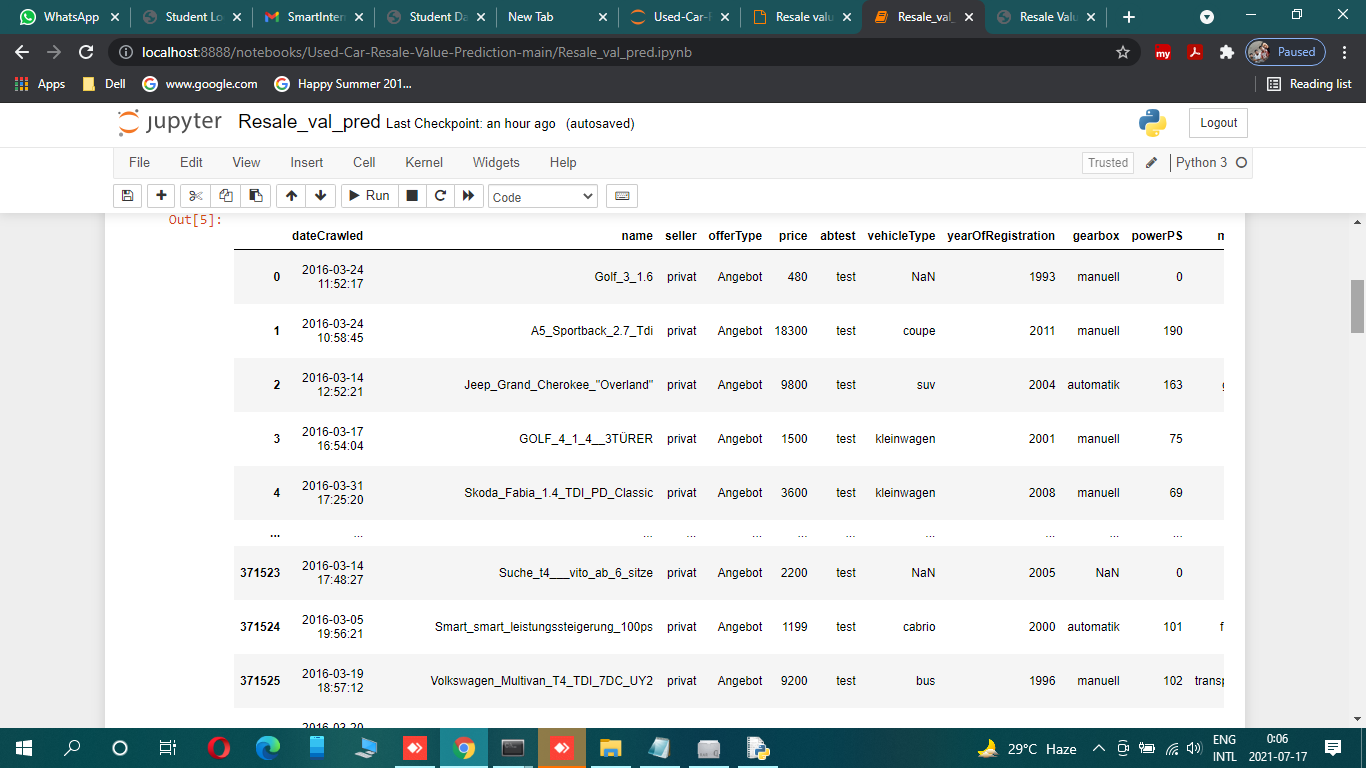
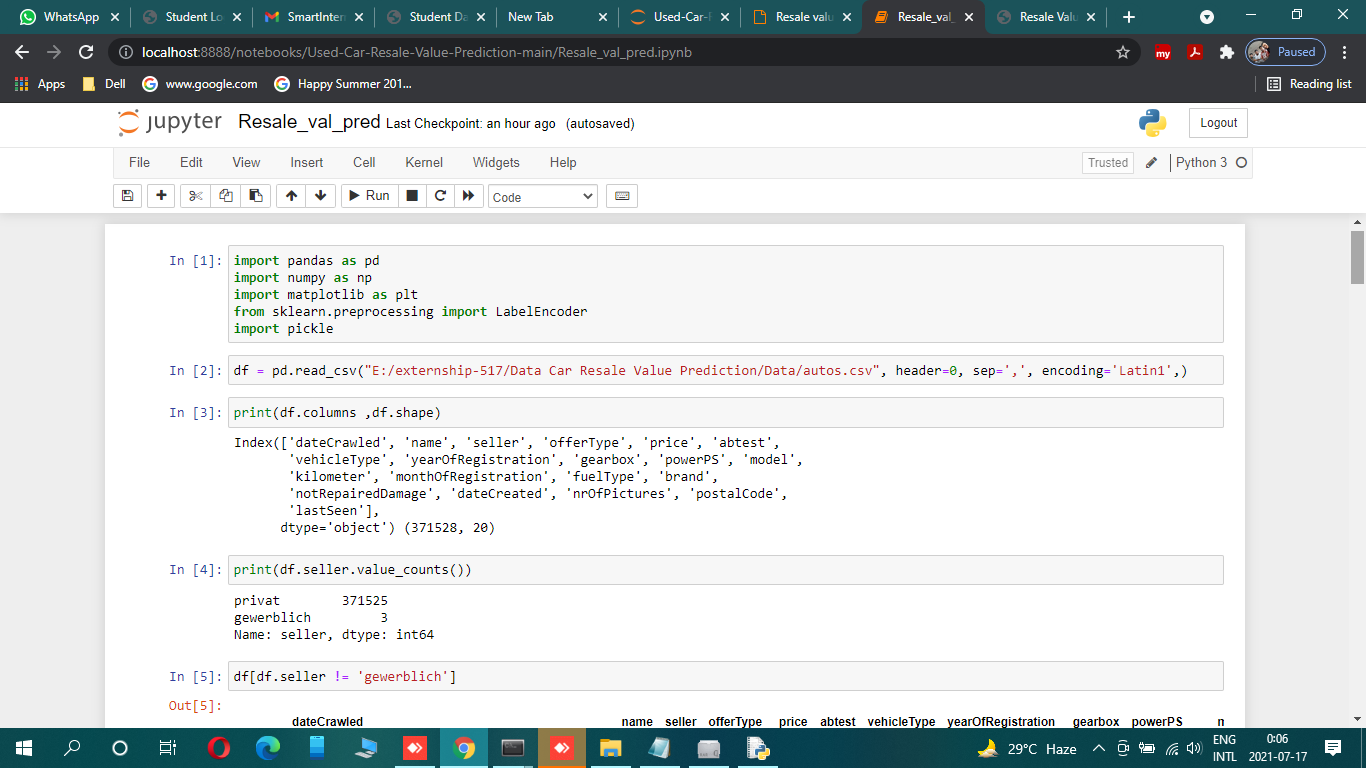
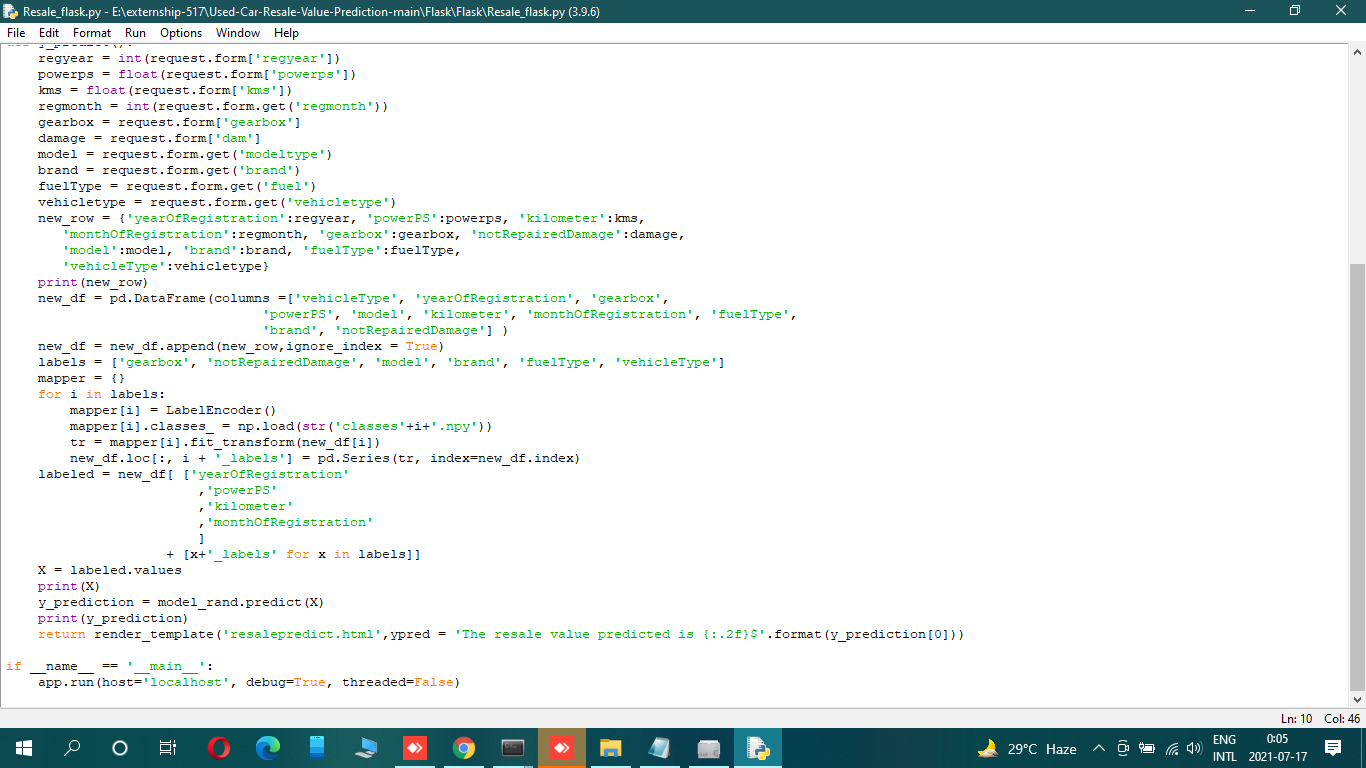
**11.BIBILOGRAPHY**

**https://r.search.yahoo.com/cbclk2/dWU9MTU5QjY3MEY0RTI1NEEzQiZ1dD0xNjI2NDY0NTUxMDQxJnVvPTgyMzk0OTE1NDIyNTMxJmx0PTImcz0xJmVzPUFlMjFOQUlHUFNfNVNwLjNQYXE0UWJ2bWZwRjU4eW5oMF9uSTdzR01TcldWaVhRRQ--/RV=2/RE=1626493351/RO=10/RU=https%3a%2f%2fwww.bing.com%2faclick%3fld%3de8CfXZLNqBUnuPeSVQGyyNRzVUCUzk1nSpPV6TQu\_wy7ZFPIbuRSna2-3E2DFizQ6d7vwFaSxQJsHgotyp9CUh18fnfu\_l3iJArxb5cGojL6yPe-9Q0nMPIvR3sp5qQ2tp89J1hagxAiFXM8jTMbx9DQms2GKOHLqcg9lIqzOTHW6AOWZQ%26u%3daHR0cHMlM2ElMmYlMmZ3d3cuaXppdG8uY28uaW4lMmZ3cyUzZnElM2RyZXNhbGUlMjUyMHZhbHVlJTI1MjBjYXIlMjZhc2lkJTNkaXpfaW5fYmFfMV9jZzFfMDElMjZkZSUzZGMlMjZhYyUzZDIwNTIlMjZjaWQlM2QzMjY4NjExODclMjZhaWQlM2QxMzE4MzE1MTg2OTMzMTU3JTI2a2lkJTNka3dkLTgyMzk0ODcwOTcxODI3JTNhYXVkLTgwNTY3MzE5MyUzYWxvYy05MCUyNmxvY2FsZSUzZGVuX0lOJTI2bXNjbGtpZCUzZDkyZjY5ODM1MmQ2YzFmMTcyMTZjZjhjNGNjNGI3NzI1%26rlid%3d92f698352d6c1f17216cf8c4cc4b7725/RK=2/RS=5rxKO5NOMe6cTVeybMhQDSzz3KE-;\_ylt=AwrPhSom4fFgdz0AGgC7HAx.;\_ylu=Y29sbwNzZzMEcG9zAzEEdnRpZAMEc2VjA292LXRvcA--;\_ylc=X3IDMgRydAMw?IG=0acf852a40d74ed180000000001d309c**

**12.APPENDIX**

**Source code**





**UI Output**

