Car Price Prediction System Web App

Submitted in partial fulfillment of the requirements

for the subject of

Third Year - Semester - VI

Mini Project (CSP-605)

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Certificate

This is to certify that the project entitled Car Price Prediction System Web App is a bonafide work of Swaraj Patil , Rutik Patil , Nishad Patil submitted to the University of Mumbai in partial fulfillment of the requirement for the subject - Mini Project (CSP-605) of Third Year Semester - VI of **Undergraduate** in **DEPARTMENT OF COMPUTER ENGINEERING**.

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Project Report Approval for T.E.

This thesis / dissertation/project report entitled Car Price Prediction System Web App by Swaraj Patil , Rutik Patil , Nishad Patil is approved for the subject - Mini Project (CSP-605) Third Year Semester - VI of **DEPARTMENT OF COMPUTER ENGINEERING** .

Examiners

1.....

2.....

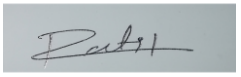
Date.

Place.

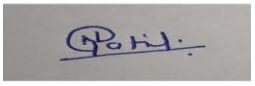
Declaration

I declare that this written submission represents my ideas in my own words and where oth- ers' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and in- tegrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

(Swaraj Patil)



(Rutik Patil)



(Nishad Patil)

Date.

Abstract

This Mini Project is an is based on the predicting the price of a cars.This report is small introduction on Car Price Prediction System Web App.It predicts the price of a car which user is searching for.It is very useful for those users who wants to buy an car.

The major goal of this project is that to to predict the selling price of old cars on the basis of car data.Various Machie Learning algorithms or methods are used to develop this web app.The motive of this project is to give actual market value of car to user.

Acknowledgement

The satisfaction that accompanies that the successful completion of any task would be incomplete without the mention of people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success. very grateful to our project supervisor Prof. S.M.Patil for the guidance, inspiration and constructive suggestions that helpful me in the preparation of this project.. we also thank our parentsand family at large for their moral and financial support in funding the project to ensure successful completion of the project.

Contents

1.INTRODUCTION

In Car Price Prediction System Web App we have collected car data from websites like Cardekho and we applied machine Learning Algorithms to train data which will predict actual price of our car.

If user wants to find actual price of his car he will input the data of his car specifications and then our app will predict actual price of car according to input data.

Our future target to explore this project is to predict the Mileage of cars using Machine Learning algorithms

2.OBJECTIVES

This Car Price Prediction app has aim to meet the following objectives:

- To predict the selling price of an old car on the basis of car data from websites.
- To save lot of time required for checking and verifying worth of car
- To provide clean, beautiful, easy and interactive web app for better user experience

3.PROBLEM DEFINATION

Finalizing actual price of old car requires various factors like car specifications data and how many kms car is derived.So for individuals and dealers,to decide price of car becomes complex and time consuming.And this process is very ambiguous.
To reduce ambiguity, amount of time required and increase accuracy and less time consumption,we decided to use ML on car data

4.REQUIREMENT AND ANALYSIS

Operating Environment

Operating System – Windows XP and above, Linux

Hardware Requirements – Pentium IV or more, RAM – 512 or more (Though core i3 or above is recommended if results are required fast)

Storage Requirements – A hard drive containing the dataset and the software code itself.

Non Functional Requirements

- **Technology used Backend:**
  - Python Library Streamlit
  - Numpy
  - Pandas
  - matplotlib
  - Jupyter
- **Technology Used Frontend:**
  - Streamlit

Other Requirements

- **Performance Requirements**

  To generate the result with optimized efficiency and process it faster, a fast processor will be required so as to train the machine learning model quickly.

- **Safety Requirements**

  The software is an attempt to predict the result with maximum accuracy possible. Since the result is based on the search of the user although if the searched video is not present 100% accuracy is impossible to achieve.

- **Security Requirements**

  The System Administrator will be responsible for keeping the database secured for access by only certain individuals. Any malicious link, or advertisements will not be shown and if it does, users are requested to click them at their own risk as they are a part of user's client app.

- **Software Quality Attributes**
  a) Availability: The software will be available as a package.
  b) Maintainability: The software is easy to maintain and operate.
  c) Testability: The software is easy to use and test as previous records can be interpreted and they can be backtracked and tested.
  d) Correctness: The probabilities which are the output are accurate to certain level.

5.IMPLEMENTATION

```
imp
ort
str
eam
lit
as
st
      import pickle
      import numpy as np
      import sklearn
      from sklearn.preprocessing import StandardScaler
      from PIL import Image
      import pandas as pd
      import time
      import matplotlib.pyplot as plt
      pickle_in = open("random_forest_regression_model.pkl","rb")
      random_forest_regression_model=pickle.load(pickle_in)
      def Home():
          return render_template('This is WEB APP')
      standard_to = StandardScaler()
      def
      predicting(Present_Price,Kms_Driven,Owner,Year,Fuel_Type_Diesel,Fuel_T
      ype_Petrol,Seller_Type_Individual,Transmission_Mannual):

      prediction=random_forest_regression_model.predict([[Present_Price,Kms_
      Driven,Owner,Year,Fuel_Type_Diesel,Fuel_Type_Petrol,Seller_Type_Indivi
      dual,Transmission_Mannual]])
          output=round(prediction[0],2)
          return output
      def main():
          # st.title("Car Price Prediction")
          html_temp = """
          <div style="background-color:tomato;padding:10px">
          <h1 style="color:white;text-align:center;">Know price of your car
      </h1>
          </div>
          """
          image = Image.open('Streamlit Web App.jpg')
          st.image(image, use_column_width=True)
          st.markdown(html_temp,unsafe_allow_html=True)
          st.subheader("How old is Your Car")
          Year = st.slider("",min_value = 0,max_value=20,value = 5,step = 1)
          st.subheader("What is showroom price(in Lakhs)?")
          Present_Price = st.text_input("","Type Here")
```

```
    st.subheader("How many kilometers drived?")
    Kms_Driven = st.text_input("","Enter Here")

    st.subheader("How many owners previously had the car(1/2/3)?")
    Owner = st.selectbox("",range(1,4),0)
    # st.write(Owner)
    st.subheader("Fual Type")
    fual = ("Petrol","Diesel", "CNG")
    fual_type = st.radio("", fual)
    if fual_type == "Petrol":
        Fuel_Type_Petrol = 1
        Fuel_Type_Diesel = 0
    elif fual_type == "Diesel":
        Fuel_Type_Petrol = 0
        Fuel_Type_Diesel = 1
    else:
        Fuel_Type_Petrol = 0
        Fuel_Type_Diesel = 0
    # st.write(Fuel_Type_Petrol)
    # st.write(Fuel_Type_Diesel)
    # Fuel_Type_Diesel = st.selectbox("Fual type is
Diesel(Yes=1/No=0)",range(3),0)
    # Fuel_Type_Petrol = st.selectbox("Fual type is
Petrol(Yes=1/No=0)",range(3))
    # Seller_Type_Individual = st.text_input("Are you a Dealer(0) or
Individual(1)","Type Here")
    seller = ("Dealer", "Indivisual")
    # options = list(range(len(display)))
    st.subheader("Are you a Dealer or Individual")
    Seller_Type_Individual = st.radio("",seller)
    if Seller_Type_Individual == "Indivisual":
         Seller_Type_Individual = 1
    else:
        Seller_Type_Individual = 0
    # st.write(Seller_Type_Individual)
    # Transmission_Mannual = st.text_input("Transmission
Type(Manual=1/Automatic=0)","Type Here")
    # if Transmission_Mannual == Manual:
    #     Transmission_Mannual = 1
    # else:
    #     Transmission_Mannual = 0

    display = ("Automatic", "Manual")
    # options = list(range(len(display)))
    st.subheader("Transmission Type")
    Transmission_Mannual = st.radio("",display)
    if Transmission_Mannual == "Manual":
         Transmission_Mannual = 1
```

```
    else:
        Transmission_Mannual = 0
    # st.write(Transmission_Mannual)
    result=""
    if st.button("Predict"):

        if Present_Price == "Type Here":
            st.error("this is an error")
            st.text("Enter Showroom Price")
        if Kms_Driven == "Enter Here":
            st.text("Enter how many Kms drived")
        my_bar = st.progress(0)
        for percent_complete in range(100):
            time.sleep(0.01)
            my_bar.progress(percent_complete +1)

result=predicting(Present_Price,Kms_Driven,Owner,Year,Fuel_Type_Diesel
,Fuel_Type_Petrol,Seller_Type_Individual,Transmission_Mannual)

    st.success('Selling Price of your Car : {} L'.format(result))
    if st.button("About"):
        st.text("Car Price Prediction")
        st.text("WebApp")
nav = st.sidebar.radio("Navigate",["Home", "Data", "About Me"])
if nav == "Home":
    if __name__=="__main__":
        main()
if nav == "Data":
    st.title("Vehicle Dataset")
    st.subheader("Used Cars Data from Websites")
    data = pd.read_csv("car data.csv")
    if st.checkbox("Show Table"):
        st.table(data)

    plt.show()
if nav == "About Me":
    st.balloons()
    st.title("Hello, I am Swaraj Patil")
    st.subheader("This is Car Price Prediction Web App")
```

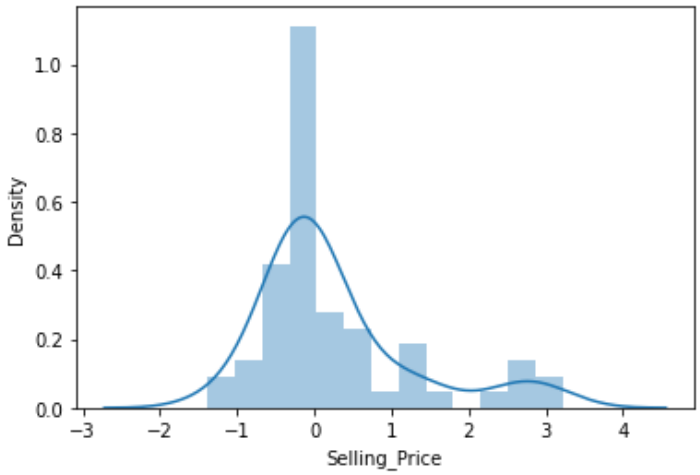
6.Model Training

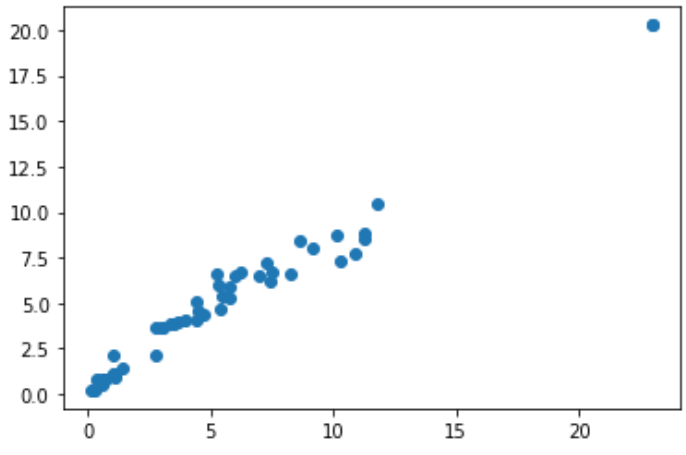
```
sns.distplot(y_test-predictions)
```

/home/swarajsp/.local/lib/python3.9/site-packages/seaborn/distributions.py:2557: FutureWa rning: `distplot` is a deprecated function and will be removed in a future version. Pleas e adapt your code to use either `displot` (a figure-level function with similarflexibili ty) or `histplot` (an axes-level function for histograms).
  warnings.warn(msg, FutureWarning)

Out[76]:

```
<AxesSubplot:xlabel='Selling_Price', ylabel='Density'>
```





In [78]:

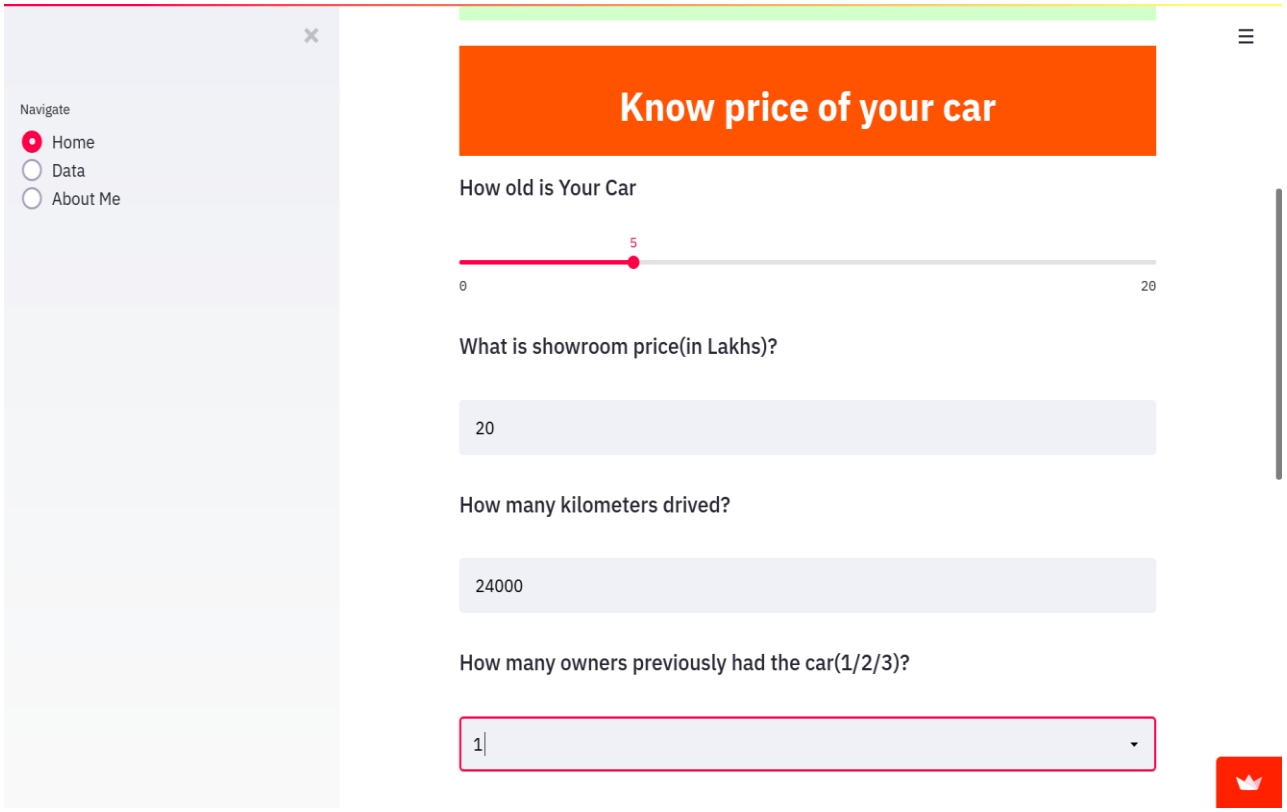
```
import pickle
```

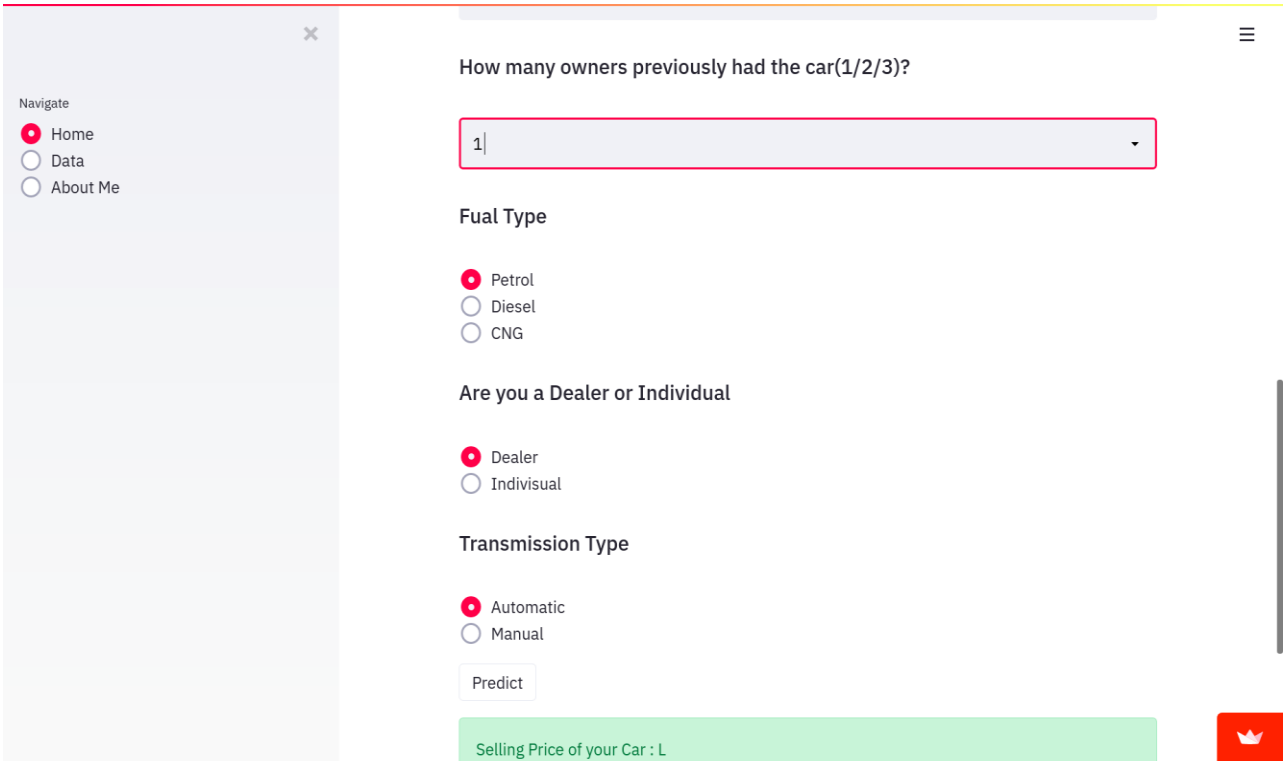
In [79]:

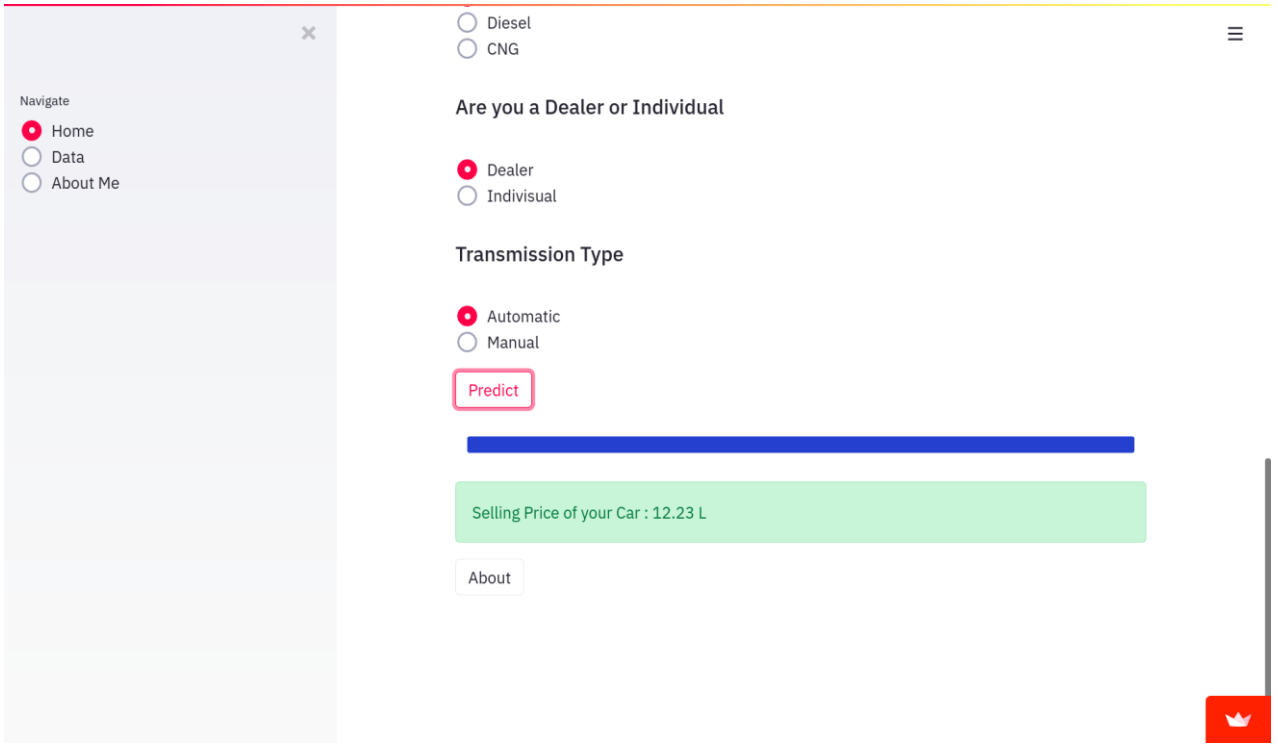
```
# open a file, where you are going to store the data
file = open('random_forest_regression_model.pkl', 'wb')

# dump information to that file
pickle.dump(rf_random, file)
```

In [ ]:

7.RESULT


Navigate
Home
Data
About Me
Know price of your car
How old is Your Car
5
0
20
What is showroom price(in Lakhs)?
20
How many kilometers drived?
24000
How many owners previously had the car(1/2/3)?
1


Navigate
Home
Data
About Me
How many owners previously had the car(1/2/3)?
1
Fual Type
Petrol
Diesel
CNG
Are you a Dealer or Individual
Dealer
Indivisual
Transmission Type
Automatic
Manual
Predict
Selling Price of your Car : L


Diesel
CNG
Navigate
Home
Data
About Me
Are you a Dealer or Individual
Dealer
Indivisual
Transmission Type
Automatic
Manual
Predict
Selling Price of your Car : 12.23 L
About


SELLABLE
KNOW WORTH OF YOUR CAR

8.CONCLUSION

If user wants to find actual price of his car he will input the data of his car specifications and then our app will predict actual price of car according to input data.Reduced ambiguity, amount of time required and increase accuracy and less time consumption,we decided to use ML on car data.

Our future target to explore this project is to predict the Mileage of cars using Machine Learning algorithms

9.Bibliography

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4. https://www.cardekho.com
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6. https://www.carwale.com/upcoming-cars