

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder
from sklearn.ensemble import RandomForestRegressor
from sklearn.metrics import accuracy_score
```

```
data=pd.read_csv('Ford.csv')
```

```
data
```

	model	year	price	transmission	mileage	fuelType	tax	mpg
0	Fiesta	2017	12000	Automatic	15944	Petrol	150	57.7
1	Focus	2018	14000	Manual	9083	Petrol	150	57.7
2	Focus	2017	13000	Manual	12456	Petrol	150	57.7
3	Fiesta	2019	17500	Manual	10460	Petrol	145	40.3
4	Fiesta	2019	16500	Automatic	1482	Petrol	145	48.7
...
17961	B-MAX	2017	8999	Manual	16700	Petrol	150	47.1
17962	B-MAX	2014	7499	Manual	40700	Petrol	30	57.7
17963	Focus	2015	9999	Manual	7010	Diesel	20	67.3
17964	KA	2018	8299	Manual	5007	Petrol	145	57.7
17965	Focus	2015	8299	Manual	5007	Petrol	22	57.7

	engineSize
0	1.0
1	1.0
2	1.0
3	1.5
4	1.0
...	...
17961	1.4
17962	1.0
17963	1.6
17964	1.2
17965	1.0

```
[17966 rows x 9 columns]
```

```

from sklearn.preprocessing import LabelEncoder
label_encoders={}
for column in data.select_dtypes(include=['object']).columns:
    le=LabelEncoder()
    data[column]=le.fit_transform(data[column])
    label_encoders[column]=le

```

data

	model	year	price	transmission	mileage	fuelType	tax	mpg
\								
0	5	2017	12000	0	15944	4	150	57.7
1	6	2018	14000	1	9083	4	150	57.7
2	6	2017	13000	1	12456	4	150	57.7
3	5	2019	17500	1	10460	4	145	40.3
4	5	2019	16500	0	1482	4	145	48.7
...
17961	0	2017	8999	1	16700	4	150	47.1
17962	0	2014	7499	1	40700	4	30	57.7
17963	6	2015	9999	1	7010	0	20	67.3
17964	11	2018	8299	1	5007	4	145	57.7
17965	23	2015	8299	1	5007	4	22	57.7

	engineSize
0	1.0
1	1.0
2	1.0
3	1.5
4	1.0
...	...
17961	1.4
17962	1.0
17963	1.6
17964	1.2
17965	1.0

[17966 rows x 9 columns]

```
print(data.dtypes)
```

```
model          int32
year           int64
price          int64
transmission   int32
mileage        int64
fuelType       int32
tax            int64
mpg            float64
engineSize     float64
dtype: object
```

```
independent=data[["model","year","transmission","mileage","fuelType","tax","mpg","engineSize"]]
dependent=data[["price"]]
```

```
from sklearn.model_selection import train_test_split
X_train,X_test,Y_train,Y_test=train_test_split(independent,dependent,t
est_size=0.3,random_state=0)
```

```
moduel=RandomForestRegressor(n_estimators=100,random_state=0)
moduel.fit(X_train,Y_train)
```

```
C:\ProgramData\anaconda3\Lib\site-packages\sklearn\base.py:1151:
DataConversionWarning: A column-vector y was passed when a 1d array
was expected. Please change the shape of y to (n_samples,), for
example using ravel().
```

```
    return fit_method(estimator, *args, **kwargs)
```

```
RandomForestRegressor(random_state=0)
```

```
y_pred = moduel.predict(X_test)
```

```
from sklearn.metrics import r2_score
r_score=r2_score(Y_test,y_pred)
print("r_score",r_score)
```

```
r_score 0.9301894087947629
```

```
X_train
```

	model	year	transmission	mileage	fuelType	tax	mpg
engineSize							
12564	2	2019	2	4801	4	145	45.6
1.0							
17365	5	2017	1	17000	0	145	85.6
1.5							
3159	6	2019	1	4286	4	145	60.1
1.0							
16056	18	2017	1	47612	0	125	51.4
2.0							
14439	5	2013	1	52135	0	0	85.6

1.6								
...
...								
9225	6	2016	1	53530	0	0	74.3	
1.5								
13123	0	2017	2	26806	4	160	44.1	
1.6								
9845	5	2015	1	18136	0	0	88.3	
1.5								
10799	13	2018	1	10435	0	145	54.3	
1.5								
2732	13	2014	1	42342	0	145	53.3	
2.0								

[12576 rows x 8 columns]

```

model=int(input("enter the prediction input value:"))
year=int(input("enter the prediction input value:"))
transmission=int(input("enter the prediction input value:"))
mileage=int(input("enter the prediction input value:"))
fuelType=int(input("enter the prediction value:"))
tax=int(input("enter the prediction input value:"))
mpg=float(input("enter the prediction input value:"))
engineSize=float(input("enter the prediction input value:"))
future_prediction=model.predict([[model,year,transmission,mileage,fuelType,tax,mpg,engineSize]])
print("future_prediction={}".format(future_prediction))

```

```

enter the prediction input value:20
enter the prediction input value:2018
enter the prediction input value:2
enter the prediction input value:52350
enter the prediction value:4
enter the prediction input value:145
enter the prediction input value:88.3
enter the prediction input value:2.0
future_prediction=[12961.77]

```

```

C:\ProgramData\anaconda3\Lib\site-packages\sklearn\base.py:464:
UserWarning: X does not have valid feature names, but
RandomForestRegressor was fitted with feature names
  warnings.warn(

```