In [3]:
```
import pandas as pd
import warnings
warnings.filterwarnings("ignore")
```

In [4]:
```
data=pd.read_csv("/home/placement/Downloads/fiat500.csv")
```

In [5]:
```
data.head(10)
```

Out[5]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
1	2	pop	51	1186	32500	1	45.666359	12.241890	8800
2	3	sport	74	4658	142228	1	45.503300	11.417840	4200
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
4	5	pop	73	3074	106880	1	41.903221	12.495650	5700
5	6	pop	74	3623	70225	1	45.000702	7.682270	7900
6	7	lounge	51	731	11600	1	44.907242	8.611560	10750
7	8	lounge	51	1521	49076	1	41.903221	12.495650	9190
8	9	sport	73	4049	76000	1	45.548000	11.549470	5600
9	10	sport	51	3653	89000	1	45.438301	10.991700	6000

In [6]:
```
data1=data.loc[(data.previous_owners==1)]
```

In [7]:
```
data1
```

Out[7]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price
0	1	lounge	51	882	25000	1	44.907242	8.611560	8900
1	2	pop	51	1186	32500	1	45.666359	12.241890	8800
2	3	sport	74	4658	142228	1	45.503300	11.417840	4200
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
4	5	pop	73	3074	106880	1	41.903221	12.495650	5700
...	...	...	...	...	...	...	...	...	...
1533	1534	sport	51	3712	115280	1	45.069679	7.704920	5200
1534	1535	lounge	74	3835	112000	1	45.845692	8.666870	4600
1535	1536	pop	51	2223	60457	1	45.481541	9.413480	7500
1536	1537	lounge	51	2557	80750	1	45.000702	7.682270	5990
1537	1538	pop	51	1766	54276	1	40.323410	17.568270	7900

1389 rows × 9 columns

In [8]:
```
data1=data.drop(['lat','lon','lon'],axis=1)
```

In [9]:
```
data1=pd.get_dummies(data1)
```

In [10]:
```
data1
```

Out[10]:

	ID	engine_power	age_in_days	km	previous_owners	price	model_lounge	model_pop	model_sport
0	1	51	882	25000	1	8900	1	0	0
1	2	51	1186	32500	1	8800	0	1	0
2	3	74	4658	142228	1	4200	0	0	1
3	4	51	2739	160000	1	6000	1	0	0
4	5	73	3074	106880	1	5700	0	1	0
...	...	...	...	...	...	...	...	...	...
1533	1534	51	3712	115280	1	5200	0	0	1
1534	1535	74	3835	112000	1	4600	1	0	0
1535	1536	51	2223	60457	1	7500	0	1	0
1536	1537	51	2557	80750	1	5990	1	0	0
1537	1538	51	1766	54276	1	7900	0	1	0

1538 rows × 9 columns

In [11]:
```
y=data1['price']
x=data1.drop('price',axis=1)
```

In [12]:
```
from sklearn.model_selection import train_test_split
X_train,X_test,Y_train,Y_test=train_test_split(x,y,test_size=0.33,random_state=42)
```

In [14]:
```
from sklearn.model_selection import GridSearchCV
from sklearn.linear_model import ElasticNet

elastic = ElasticNet()

parameters = {'alpha':[1e-15, 1e-10, 1e-8, 1e-4, 1e-3,1e-2, 1, 5, 10, 20]}

elastic_regressor = GridSearchCV(elastic, parameters)

elastic_regressor.fit(X_train, Y_train)
```

Out[14]:

▸ **GridSearchCV**

▸ **estimator: ElasticNet**

▸ ElasticNet

In [15]:
```
elastic_regressor.best_params_
```

Out[15]:
```
{'alpha': 0.01}
```

In [16]:
```
elastic=ElasticNet(alpha=.01)
elastic.fit(X_train,Y_train)
y_pred_elastic=elastic.predict(X_test)
```

In [18]:
```
from sklearn.metrics import r2_score
r2_score(Y_test,y_pred_elastic)
```

Out[18]:
```
0.8405943659102304
```

In [20]:
```
from sklearn.metrics import mean_squared_error
Elastic_Error=mean_squared_error(y_pred_elastic,Y_test)
Elastic_Error
```

Out[20]:
```
585407.1441101515
```

In [22]:
```
Results=pd.DataFrame(columns=['price','predicted'])
Results['price']=Y_test
Results['predicted']=y_pred_elastic
Results=Results.reset_index()
Results['ID']=Results.index
Results
```

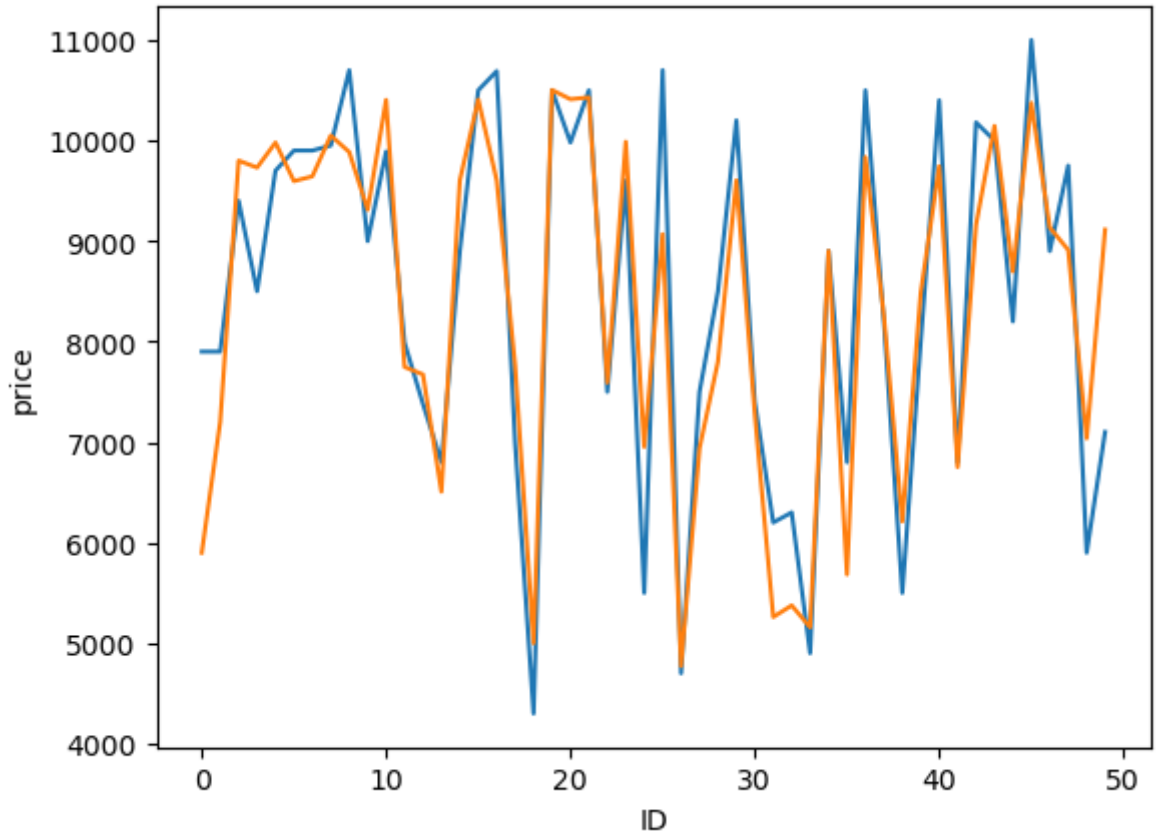
Out[22]:

	index	price	predicted	ID
0	481	7900	5899.674995	0
1	76	7900	7200.373749	1
2	1502	9400	9799.809922	2
3	669	8500	9730.621604	3
4	1409	9700	9979.403185	4
...	...	...	...	...
503	291	10900	10074.454751	503
504	596	5699	6296.747183	504
505	1489	9500	9927.677415	505
506	1436	6990	8318.824298	506
507	575	10900	10388.492370	507

508 rows × 4 columns

In [23]:
```
import seaborn as sns
import matplotlib.pyplot as plt
sns.lineplot(x='ID',y='price',data=Results.head(50))
sns.lineplot(x='ID',y='predicted',data=Results.head(50))
plt.plot()
```

Out[23]: []



In [ ]: