In [45]:

```
import pandas as pd
import warnings
warnings.filterwarnings("ignore")
```

In [46]:

```
data=pd.read_csv("/home/placement/Desktop/venkatesh/fiat500.csv")
```

In [47]:

```
data
```

Out[47]:

```
        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

1538 rows × 9 columns
```

In [48]:

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

Out[48]:

	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 [49]:

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

In [50]:

```
data1=pd.get_dummies(data1)
```

In [51]:

```
y=data1['price']
X=data1.drop('price',axis=1)
```

In [52]:
```
from sklearn.model_selection import train_test_split
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.1,random_state=42)#prev10%testing
```

Elastic net

In [53]:
```
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[53]:
```
▸      GridSearchCV
▸ estimator: ElasticNet
       ▸ ElasticNet
```

In [54]:
```
elastic_regressor.best_params_
```

Out[54]:
```
{'alpha': 0.01}
```

In [55]:
```
elastic=ElasticNet(alpha=0.1)
elastic.fit(X_train,y_train)
y_pred_elastic=elastic.predict(X_test)
```

In [56]:

```
from sklearn.metrics import r2_score
r2_score(y_test,y_pred_elastic)
```

Out[56]:

```
0.8291094375208294
```

In [57]:

```
from sklearn.metrics import mean_squared_error
elastic_Error=mean_squared_error(y_pred_elastic,y_test)
elastic_Error
```

Out[57]:

```
594506.161951724
```

In [59]:

```
Results=pd.DataFrame(columns=['Price','Predicted'])
Results['Price']=y_test
Results['Predicted']=y_pred_elastic
Results=Results.reset_index()
Results['Id']=Results.index
Results
```

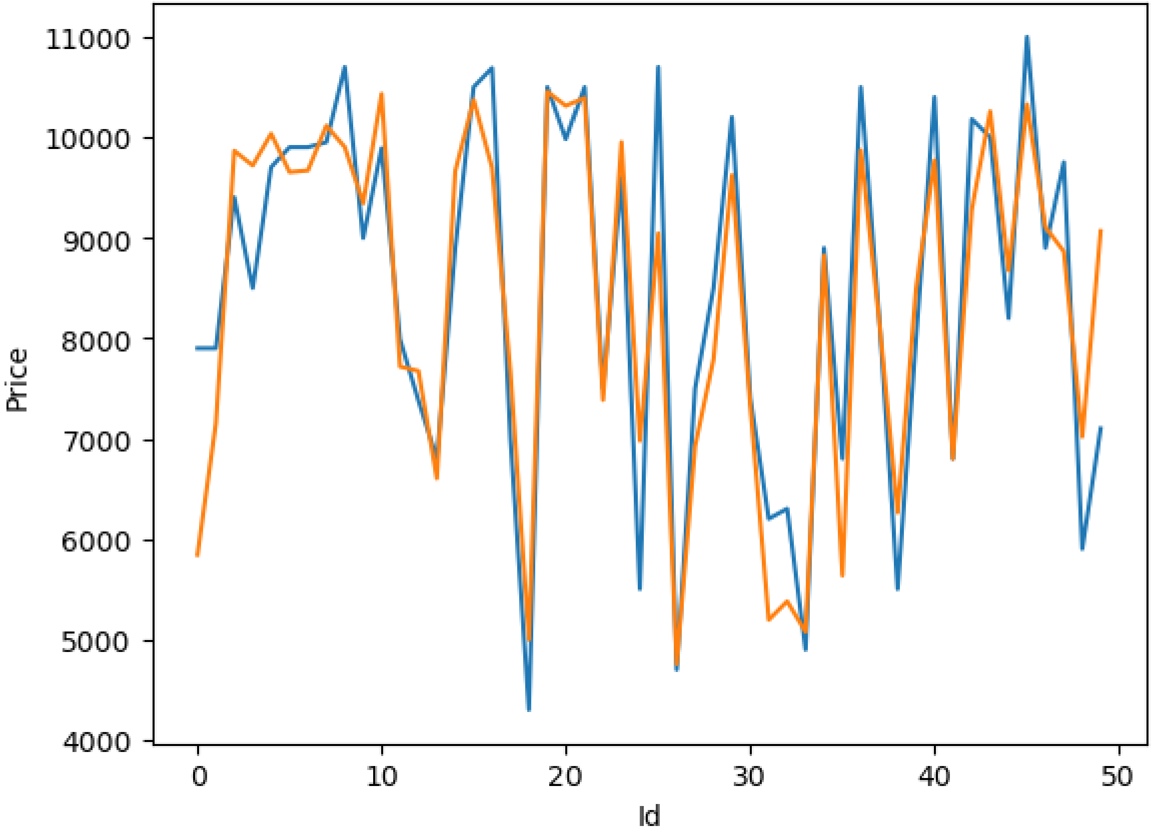
Out[59]:

	index	Price	Predicted	Id
0	481	7900	5840.961095	0
1	76	7900	7150.647979	1
2	1502	9400	9863.866187	2
3	669	8500	9717.668610	3
4	1409	9700	10034.517091	4
...	...	...	...	...
149	1167	6900	7605.287074	149
150	1417	5600	6770.618440	150
151	1353	7500	8103.839842	151
152	1085	10900	10308.600617	152
153	486	9500	8826.631004	153

154 rows × 4 columns

In [60]:
```
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[60]:
```
[]
```



In [ ]: