In [2]:
```
import pandas as pd
import warnings
warnings.filterwarnings("ignore")
```

In [3]:
```
data=pd.read_csv("/home/placement/Desktop/venkatesh/fiat500.csv")
```

In [4]:
```
#we are doing ridge for lounge
data1=data.loc[(data.model=='lounge')]
data1
```

Out[4]:

	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
3	4	lounge	51	2739	160000	1	40.633171	17.634609	6000
6	7	lounge	51	731	11600	1	44.907242	8.611560	10750
7	8	lounge	51	1521	49076	1	41.903221	12.495650	9190
11	12	lounge	51	366	17500	1	45.069679	7.704920	10990
...	...	...	...	...	...	...	...	...	...
1528	1529	lounge	51	2861	126000	1	43.841980	10.515310	5500
1529	1530	lounge	51	731	22551	1	38.122070	13.361120	9900
1530	1531	lounge	51	670	29000	1	45.764648	8.994500	10800
1534	1535	lounge	74	3835	112000	1	45.845692	8.666870	4600
1536	1537	lounge	51	2557	80750	1	45.000702	7.682270	5990

1094 rows × 9 columns

In [5]:
```
data1=data1.drop(['ID','lat','lon'],axis=1)
```

In [6]:
```
data1=pd.get_dummies(data1)
data1
```

Out[6]:

	engine_power	age_in_days	km	previous_owners	price	model_lounge
0	51	882	25000	1	8900	1
3	51	2739	160000	1	6000	1
6	51	731	11600	1	10750	1
7	51	1521	49076	1	9190	1
11	51	366	17500	1	10990	1
...	...	...	...	...	...	...
1528	51	2861	126000	1	5500	1
1529	51	731	22551	1	9900	1
1530	51	670	29000	1	10800	1
1534	74	3835	112000	1	4600	1
1536	51	2557	80750	1	5990	1

1094 rows × 6 columns

In [7]:
```
y=data1['price']
X=data1.drop('price',axis=1)
```

In [8]:
```
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 [9]:
```
from sklearn.model_selection import GridSearchCV
from sklearn.linear_model import Ridge

alpha = [1e-15, 1e-10, 1e-8, 1e-4, 1e-3,1e-2, 1, 5, 10, 20,30]

ridge = Ridge()

parameters = {'alpha': alpha}

ridge_regressor = GridSearchCV(ridge, parameters)

ridge_regressor.fit(X_train, y_train)
```

Out[9]:

▸ **GridSearchCV**

▸ **estimator: Ridge**

▸ Ridge

In [10]:
```
ridge_regressor.best_params_
```

Out[10]:
```
{'alpha': 30}
```

In [11]:
```
ridge=Ridge(alpha=30)
ridge.fit(X_train,y_train)
y_pred_ridge=ridge.predict(X_test)
```

In [12]:
```
from sklearn.metrics import mean_squared_error
Ridge_Error=mean_squared_error(y_pred_ridge,y_test)
Ridge_Error
```

Out[12]:
```
519771.8129989745
```

In [13]:
```
from sklearn.metrics import r2_score
r2_score(y_test,y_pred_ridge)
```

Out[13]:
```
0.8373030813683994
```

In [14]:
```
Results=pd.DataFrame(columns=['Price','Predicted'])
Results['Price']=y_test
Results['Predicted']=y_pred_ridge
Results=Results.reset_index()
Results['Id']=Results.index
Results
```

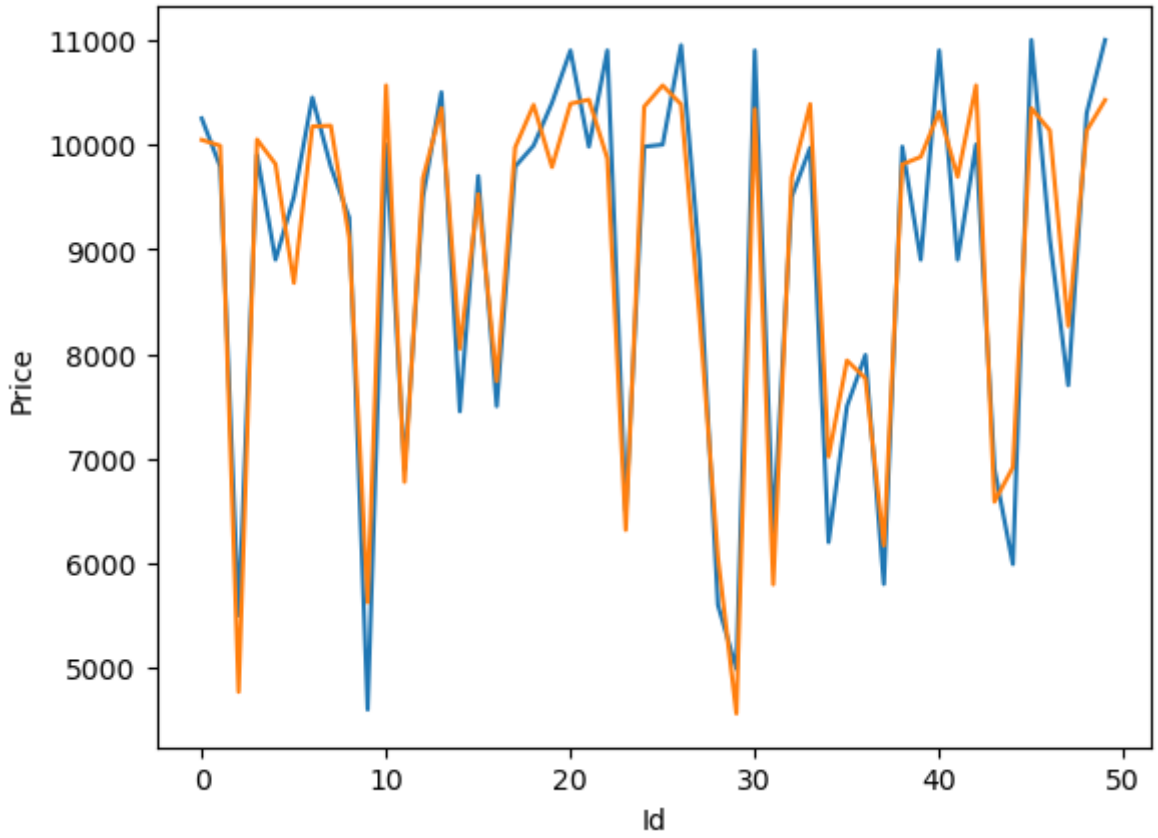
Out[14]:

	index	Price	Predicted	Id
0	676	10250	10045.347779	0
1	215	9790	9989.171535	1
2	146	5500	4769.099603	2
3	1319	9900	10048.683238	3
4	1041	8900	9813.944798	4
...	...	...	...	...
357	757	6000	5640.378648	357
358	167	10950	10431.681162	358
359	156	8000	8765.506865	359
360	1145	10700	10384.884273	360
361	1393	9400	9929.721685	361

362 rows × 4 columns

In [16]:
```
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))# keep # and see
plt.plot()
```

Out[16]: []



In [ ]: