

```
In [1]: 1 import pandas as pd
        2 df = pd.read_csv("company.csv")
        3 df.head(5)
```

```
Out[1]:
```

	TV	Radio	Newspaper	Sales
0	230.1	37.8	69.2	22.1
1	44.5	39.3	45.1	10.4
2	17.2	45.9	69.3	12.0
3	151.5	41.3	58.5	16.5
4	180.8	10.8	58.4	17.9

```
In [2]: 1 x=df.iloc[:, :-1]
        2 x.shape
```

```
Out[2]: (200, 3)
```

```
In [3]: 1 y=df.iloc[:, -1]
        2 y.shape
        3
```

```
Out[3]: (200,)
```

```
In [4]: 1 from sklearn.linear_model import Ridge
        2 model=Ridge()
```

```
In [5]: 1 from sklearn.model_selection import train_test_split
        2 xtrain,xtest,ytrain,ytest = train_test_split(x,y,test_size=0.25, random
        3 model.fit(xtrain,ytrain)
```

```
Out[5]: Ridge()
```

In a Jupyter environment, please rerun this cell to show the HTML representation or trust the notebook.

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```
In [6]: 1 from sklearn.model_selection import RepeatedKFold
        2
```

```
In [7]: 1 cv=RepeatedKFold(n_splits=10,n_repeats=3, random_state=2)
        2
```

```
In [8]: 1 from sklearn.metrics import r2_score
        2 ypred=model.predict(xtest)
        3 r2_score(ytest,ypred)
```

```
Out[8]: 0.8346214090389896
```

```
In [9]: 1 from sklearn.preprocessing import MinMaxScaler
        2 from sklearn.linear_model import Ridge
        3 from sklearn.model_selection import GridSearchCV, train_test_split
```

```
In [10]: 1 sc= MinMaxScaler()
        2 x_sc = sc.fit_transform(x)
        3 xtrain,xtest,ytrain,ytest = train_test_split(x_sc,y, test_size=0.25 , r
        4 model1=Ridge()
        5 params={'alpha':[0.00001,0.0001,0.001,0.01,0.1,1,2,3,4]}
        6
        7 from sklearn.model_selection import RepeatedKFold
        8 cv=RepeatedKFold(n_splits=10,n_repeats=3, random_state=3)
        9
       10 search = GridSearchCV(model1,params,cv=cv)
       11 result=search.fit(x_sc,y)
       12 result.best_params_
```

Out[10]: {'alpha': 0.1}

```
In [11]: 1 model2 = Ridge(alpha=0.1)
        2 model2.fit(xtrain,ytrain)
```

Out[11]: Ridge(alpha=0.1)

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```
In [12]: 1 ypred2=model2.predict(xtest)
        2 r2_score(ytest,ypred2)
```

Out[12]: 0.834538780728908

```
In [ ]: 1
```