

T.DHIRAJ  
16BIS0137

## LAB TASK-2

### CODE-

```
import numpy as np
import pandas as pd
from sklearn.linear_model import LinearRegression
from sklearn.model_selection import train_test_split

def mse(y_t,y_pre):
    su=0
    for i in range(len(y_t)):
        su=su+(y_t[i]-y_pre[i])**2
    return(su/len(y_t))

def test_train(x,y,tes):
    x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=tes,random_state=1)
    reglin=LinearRegression()
    reglin.fit(x_train,y_train)
    y_pred=reglin.predict(x_test)
    print('rmse',(mse(list(y_test),list(y_pred)))**(0.5))
    print('mse',(mse(list(y_test),list(y_pred))))

#data_link="https://www.kaggle.com/karthickveerakumar/salary-data-simple-linear-regression"
```

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```
data=pd.read_csv(data_link)
```

```
features=['YearsExperience']
```

```
x=data[features]
```

```
y=data.Salary
```

```
print('\n16BIS0137 \n T.DHIRAJ\n')
```

```
print('train : 50%')
```

```
test_train(x,y,0.5)
```

```
print('\n')
```

```
print('train : 70%')
```

```
test_train(x,y,0.3)
```

```
print('\n')
```

```
print('train : 80%')
```

```
test_train(x,y,0.2)
```

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```
1 import numpy as np
2 import pandas as pd
3 from sklearn.linear_model import LinearRegression
4 from sklearn.model_selection import train_test_split
5
6
7 def mse(y_t,y_pre):
8     su=0
9     for i in range(len(y_t)):
10         su=su+(y_t[i]-y_pre[i])**2
11     return(su/len(y_t))
12
13
14 def test_train(x,y,tes):
15     x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2,random_state=1)
16     reglin=LinearRegression()
17     reglin.fit(x_train,y_train)
18     y_pred=reglin.predict(x_test)
19     print('rmse',(mse(list(y_test),list(y_pred))))*(0.5))
20     print('mse',(mse(list(y_test),list(y_pred))))
21
22 #data_link="https://www.kaggle.com/karthickveerakumar/salary-data-simple-linear-regression"
23 data=pd.read_csv(data_link)
24 features=['YearsExperience']
25 x=data[features]
26 y=data.Salary
27 print('\n16BIS0137 \n T.DHIRAJ\n')
28 print('train : 50%')
29 test_train(x,y,0.5)
30 print('\n')
31
32 print('train : 70%')
33 test_train(x,y,0.3)
34 print('\n')
35 print('train : 80%')
36 test_train(x,y,0.2)
37
38
```

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**OUTPUT**

```
In [38]: runfile('C:/Users/Dell/Desktop/7-sem/AI/lab/linear_regression/task_2/salary.py',  
wdir='C:/Users/Dell/Desktop/7-sem/AI/lab/linear_regression/task_2')
```

```
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```

```
train : 50%  
rmse 7196.720730498622  
mse 51792789.27278862
```

```
train : 70%  
rmse 6256.134269625979  
mse 39139215.99958858
```

```
train : 80%  
rmse 7165.055721503387  
mse 51338023.49224842
```

```
In [39]:
```

train : 50%

rmse 7196.720730498622

mse 51792789.27278862

train : 70%

rmse 6256.134269625979

mse 39139215.99958858

train : 80%

rmse 7165.055721503387

mse 51338023.49224842