EXPERIMENT – 7

PREDICTING MODEL - LINEAR REGRESSION

Aim:

To perform salary prediction model using Linear Regression

Procedure:

- Upload the given dataset
- Import all the necessities
- Read through the dataset and make it as dataframe
- Through sklearn train the model
- Test the model

Program:

```
from google.colab import files
uploaded=files.upload()
import numpy as np
import pandas as pd
file=next(iter(uploaded))
df=pd.read_csv(file)
df
```

	YearsExperience	Salary
0	1.1	39343
1	1.3	46205
2	1.5	37731
3	2.0	43525
4	2.2	39891
5	2.9	56642
6	3.0	60150
7	3.2	54445
8	3.2	64445
9	3.7	57189
10	3.9	63218
11	4.0	55794
12	4.0	56957
13	4.1	57081
14	4.5	61111
15	4.9	67938

16	5.1	66029
17	5.3	83088
18	5.9	81363
19	6.0	93940
20	6.8	91738
21	7.1	98273
22	7.9	101302
23	8.2	113812
24	8.7	109431
25	9.0	105582
26	9.5	116969
27	9.6	112635
28	10.3	122391
29	10.5	121872

[ ] ✓ 0s

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 30 entries, 0 to 29
Data columns (total 2 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   YearsExperience  30 non-null     float64
 1   Salary           30 non-null     int64  
dtypes: float64(1), int64(1)
memory usage: 612.0 bytes
```

[ ] ✓ 0s

```
df.dropna(inplace=True)
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 30 entries, 0 to 29
Data columns (total 2 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   YearsExperience  30 non-null     float64
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dtypes: float64(1), int64(1)
memory usage: 612.0 bytes
```

[ ] ✓ 0s

```
df.describe()
```

	YearsExperience	Salary
count	30.000000	30.000000
mean	5.313333	76003.000000
std	2.837888	27414.429785
min	1.100000	37731.000000
25%	3.200000	56720.750000
50%	4.700000	65237.000000
75%	7.700000	100544.750000
max	10.500000	122391.000000

[ ] ✓ 0s

```
features=df.iloc[:,[0]].values
labels=df.iloc[:,[1]].values
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(features,labels,test_size=0.2,random_state=42)
from sklearn.linear_model import LinearRegression
model=LinearRegression()
model.fit(x_train,y_train)
```

```
▾ LinearRegression
LinearRegression()
```

```
model.score(x_train,y_train)
```

```
0.9645401573418146
```

```
model.score(x_test,y_test)
```

```
0.9024461774180497
```

```
model.coef_
```

```
array([[9423.81532303]])
```

```
model.intercept_
```

```
array([25321.58301178])
```

```
filename = list(uploaded.keys())[0]
import pickle
pickle.dump(model,open(filename,'wb'))
model=pickle.load(open(filename,'rb'))
yr_of_exp=float(input("Enter years of experience: "))
yr_of_exp_NP=np.array([[yr_of_exp]])
Salary=model.predict(yr_of_exp_NP)
```

```
Enter years of experience: 34
```

```
print("Estimated Salary for {} years of experience is {}: " .format(yr_of_exp,Salary))
```

```
Estimated Salary for 34.0 years of experience is [[345731.30399483]]:
```

Result:

Thus the python program for predicting model using Linear Regression is executed and verified