Import Library

```
import pandas as pd
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt
```

Load Dataset from Local Directory

```
from google.colab import files
uploaded = files.upload()
```

```
Choose Files  Housing.csv
  • Housing.csv(text/csv) - 7668 bytes, last modified: 4/4/2023 - 100% done
Saving Hous .csv to Housing.csv
```

Load Dataset

```
dataset = pd.read_csv('Housing.csv')
```

Load Summarize

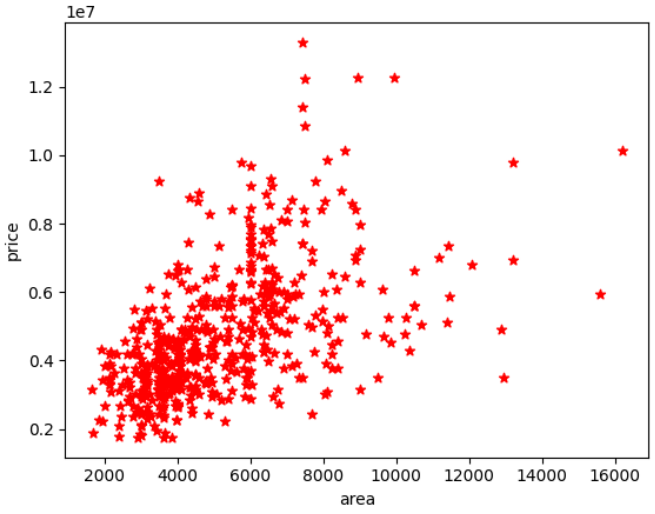
```
print(dataset.shape)
print(dataset.head(5))
```

```
(545, 2)
   area     price
0  7420  13300000
1  8960  12250000
2  9960  12250000
3  7500  12215000
4  7420  11410000
```

Visualize Dataset

```
plt.xlabel('area')
plt.ylabel('price')
plt.scatter(dataset.area, dataset.price, color='red', marker='*')
```

```
<matplotlib.collections.PathCollection at 0x7f5355a22a90>
```



Segregate Dataset into X & Y

```
X = dataset.drop('price', axis='columns')
X
```

	area
0	7420
1	8960
2	9960
3	7500
4	7420
...	...
540	3000

```
Y = dataset.price
Y
```

```
0      13300000
1      12250000
2      12250000
3      12215000
4      11410000
         ...
540     1820000
541     1767150
542     1750000
543     1750000
544     1750000
Name: price, Length: 545, dtype: int64
```

Splitting Dataset for testing our model

```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, Y, test_size = 0.20, random_state = 0)
```

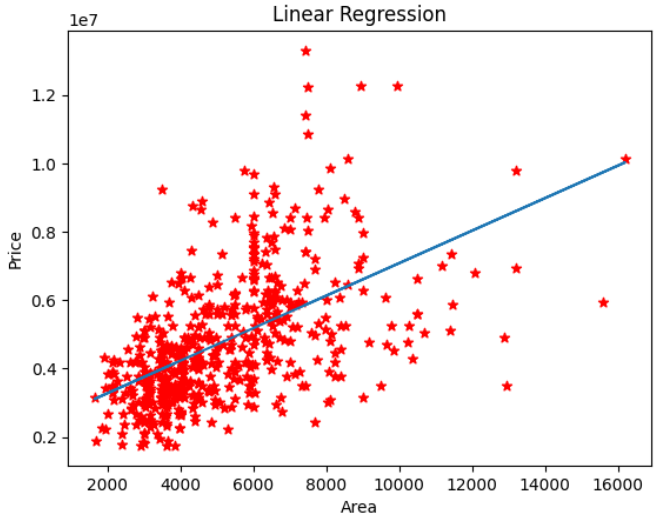
Training Dataset using Linear Regression

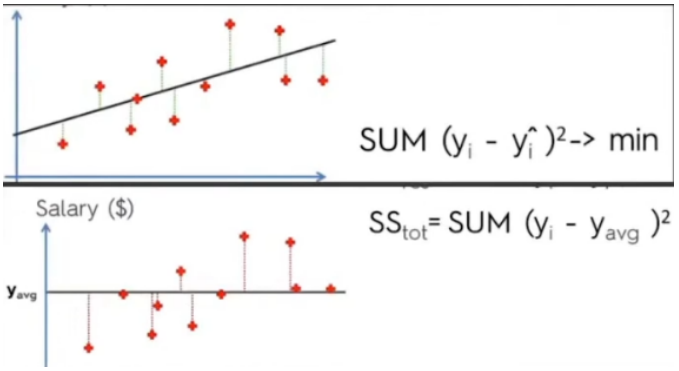
```
model = LinearRegression()
model.fit(X_train, y_train)
```

```
▾ LinearRegression
LinearRegression()
```

Visualizing Linear Regression results

```
plt.scatter(X, Y, color='red', marker='*')
plt.plot(X, model.predict(X))
plt.title("Linear Regression")
plt.xlabel('Area')
plt.ylabel('Price')
plt.show()
```





R Squared = 1-(SSR/SST)
where, SSR = Sum of Squared Residuals
SST = Sum of Squared Total
Adjusted R Squared = 1-[(1 - R Squared) * ((n-1) / (n-p-1))]

R-Squared Score

```
rsquared = model.score(X_test, y_test)
print(rsquared)
```

```
0.3067292122216637
```

Adjusted R Squared of the Model

```
n = len(dataset)
p = len(dataset.columns)
adjr = 1-(1-rsquared)*(n-1)/(n-p-1)
print(adjr)
```

```
0.3041710174328137
```

Prediction

```
x = 6500
LandAreainSqFt = [[x]]
PredictedmodelResult = model.predict(LandAreainSqFt)
print(PredictedmodelResult)
```

```
[5418485.9106176]
/usr/local/lib/python3.9/dist-packages/sklearn/base.py:439: UserWarning: X does not have valid feature names, but LinearRegression was fitted with feature
  warnings.warn(
```

✓ 0s completed at 5:51 AM