

Boston House Price Prediction

For a given area of land (in square feet) the corresponding price will be predicted

Loading Libraries & Dataset

```
In [1]: import numpy as np
import pandas as pd
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [2]: dataset = pd.read_csv('dataset.csv')
```

```
In [3]: dataset.shape
```

```
Out[3]: (1460, 2)
```

```
In [4]: dataset.head(5)
```

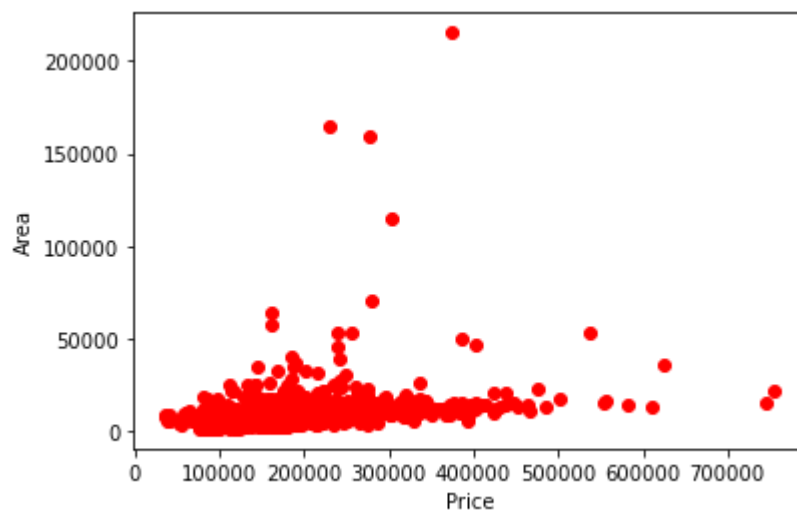
```
Out[4]:
```

	area	price
0	8450	208500
1	9600	181500
2	11250	223500
3	9550	140000
4	14260	250000

Visualizing the data

```
In [5]: plt.xlabel('Price')
plt.ylabel('Area')
plt.scatter(dataset.price, dataset.area, color='red')
```

```
Out[5]: <matplotlib.collections.PathCollection at 0x1f582ff7e88>
```



Segregating dataset into Input/Feature as X and Output/Label as y

```
In [6]: x = dataset.drop('price', axis='columns')
x
```

```
Out[6]:
```

	area
0	8450

```

      area
1    9600
2   11250
3    9550
4   14260
...
1455   7917
1456  13175
1457   9042
1458   9717
1459   9937

```

```
In [7]: y = dataset.price
        y
```

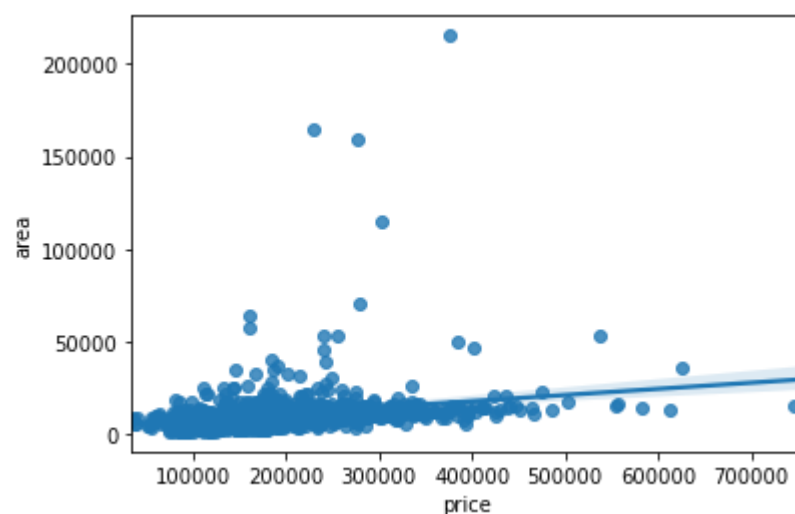
```
Out[7]: 0    208500
        1    181500
        2    223500
        3    140000
        4    250000
        ...
        1455    175000
        1456    210000
        1457    266500
        1458    142125
        1459    147500
        Name: price, Length: 1460, dtype: int64
```

Training Dataset using Linear Regression

```
In [8]: model = LinearRegression()
        model.fit(X,y);
```

```
In [9]: sns.regplot(data=dataset, x='price', y='area')
```

```
Out[9]: <AxesSubplot:xlabel='price', ylabel='area'>
```



Predicted Price for Land sq.Feet of custom values

```
In [10]: x=40000
         LandAreainSqFt=[[x]]
         PredictedmodelResult = model.predict(LandAreainSqFt)
         print(PredictedmodelResult)
```

```
[242835.02996518]
```

Let's check if our model is Right ? using Theory Calculation

$Y = m * X + b$ (m is coefficient and b is intercept)

```
In [11]: # Coefficient m
m = model.coef_
m
```

```
Out[11]: array([2.09997195])
```

```
In [12]: # Intercept b
b = model.intercept_
b
```

```
Out[12]: 158836.1518968766
```

```
In [13]: # Equation
y = m*x + b
print("The Price of {0} Square feet Land is: {1}".format(x, round(y[0], 2)))
```

```
The Price of 40000 Square feet Land is: 242835.03
```