

# Experiment 4: Implement Multiple Linear Regression Model by using Home Price Dataset

```
In [72]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn import linear_model
```

```
In [73]: df = pd.read_csv('Book1.csv')
df
```

```
Out[73]:
```

	area	bedrooms	age	price
0	2600	3.0	20	550000
1	3000	4.0	15	565000
2	3200	NaN	18	610000
3	3600	3.0	30	595000
4	4000	5.0	8	76000

```
In [74]: import math
median_bedrooms = math.floor(df.bedrooms.median())
median_bedrooms
```

```
Out[74]: 3
```

```
In [75]: df.bedrooms = df.bedrooms.fillna(median_bedrooms)
df
```

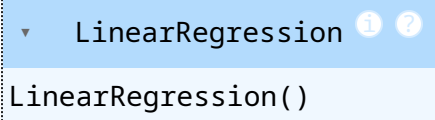
```
Out[75]:
```

	area	bedrooms	age	price
0	2600	3.0	20	550000
1	3000	4.0	15	565000
2	3200	3.0	18	610000
3	3600	3.0	30	595000
4	4000	5.0	8	76000

```
In [76]: from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(df[['area', 'bedrooms',
```

```
In [77]: reg = linear_model.LinearRegression()
```

```
In [78]: reg.fit(x_train,y_train)
```

```
Out[78]: 
LinearRegression()
```

```
In [79]: reg.coef_
```

```
Out[79]: array([ 86.25, -40125. , -4125.  ])
```

```
In [80]: reg.intercept_
```

```
Out[80]: 528625.00000000002
```

```
In [81]: reg.score(x_test,y_test)
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\metrics\_regression.py:11
87: UndefinedMetricWarning: R^2 score is not well-defined with less than two
samples.
      warnings.warn(msg, UndefinedMetricWarning)
```

```
Out[81]: nan
```

```
In [82]: reg.predict([[3000,3,40]])
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\base.py:493: UserWarning:
X does not have valid feature names, but LinearRegression was fitted with fe
ature names
      warnings.warn(
```

```
Out[82]: array([502000.])
```

```
In [83]: reg.predict([[3000,4,15]])
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\base.py:493: UserWarning:
X does not have valid feature names, but LinearRegression was fitted with fe
ature names
      warnings.warn(
```

```
Out[83]: array([565000.])
```

```
In [84]: reg.predict([[3000,3,10]])
```

```
C:\Users\Rishi\anaconda3\Lib\site-packages\sklearn\base.py:493: UserWarning:
X does not have valid feature names, but LinearRegression was fitted with fe
ature names
      warnings.warn(
```

```
Out[84]: array([625750.])
```