In [39]:

```
pip install seaborn
```

Requirement already satisfied: seaborn in c:\users\poorn\appdata\local\pro
grams\python\python311\lib\site-packages (0.12.2)
Requirement already satisfied: numpy!=1.24.0,>=1.17 in c:\users\poorn\appd
ata\local\programs\python\python311\lib\site-packages (from seaborn) (1.2
4.3)
Requirement already satisfied: pandas>=0.25 in c:\users\poorn\appdata\loca
l\programs\python\python311\lib\site-packages (from seaborn) (2.0.1)
Requirement already satisfied: matplotlib!=3.6.1,>=3.1 in c:\users\poorn\a
ppdata\local\programs\python\python311\lib\site-packages (from seaborn)
(3.7.1)
Requirement already satisfied: contourpy>=1.0.1 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib!=3.6.
1,>=3.1->seaborn) (1.0.7)
Requirement already satisfied: cycler>=0.10 in c:\users\poorn\appdata\loca
l\programs\python\python311\lib\site-packages (from matplotlib!=3.6.1,>=3.
1->seaborn) (0.11.0)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib!=3.6.
1,>=3.1->seaborn) (4.39.4)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib!=3.6.
1,>=3.1->seaborn) (1.4.4)
Requirement already satisfied: packaging>=20.0 in c:\users\poorn\appdata\l
ocal\programs\python\python311\lib\site-packages (from matplotlib!=3.6.1,>
=3.1->seaborn) (23.1)
Requirement already satisfied: pillow>=6.2.0 in c:\users\poorn\appdata\loc
al\programs\python\python311\lib\site-packages (from matplotlib!=3.6.1,>=
3.1->seaborn) (9.5.0)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib!=3.6.
1,>=3.1->seaborn) (3.0.9)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\poorn\appd
ata\local\programs\python\python311\lib\site-packages (from matplotlib!=3.
6.1,>=3.1->seaborn) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in c:\users\poorn\appdata\loca
l\programs\python\python311\lib\site-packages (from pandas>=0.25->seaborn)
(2023.3)
Requirement already satisfied: tzdata>=2022.1 in c:\users\poorn\appdata\lo
cal\programs\python\python311\lib\site-packages (from pandas>=0.25->seabor
n) (2023.3)
Requirement already satisfied: six>=1.5 in c:\users\poorn\appdata\local\pr
ograms\python\python311\lib\site-packages (from python-dateutil>=2.7->matp
lotlib!=3.6.1,>=3.1->seaborn) (1.16.0)
Note: you may need to restart the kernel to use updated packages.

In [38]:

```
pip install scikit-learn
```

Requirement already satisfied: scikit-learn in c:\users\poorn\appdata\loca
l\programs\python\python311\lib\site-packages (1.2.2)
Requirement already satisfied: numpy>=1.17.3 in c:\users\poorn\appdata\loc
al\programs\python\python311\lib\site-packages (from scikit-learn) (1.24.
3)
Requirement already satisfied: scipy>=1.3.2 in c:\users\poorn\appdata\loca
l\programs\python\python311\lib\site-packages (from scikit-learn) (1.10.1)
Requirement already satisfied: joblib>=1.1.1 in c:\users\poorn\appdata\loc
al\programs\python\python311\lib\site-packages (from scikit-learn) (1.2.0)
Requirement already satisfied: threadpoolctl>=2.0.0 in c:\users\poorn\appd
ata\local\programs\python\python311\lib\site-packages (from scikit-learn)
(3.1.0)
Note: you may need to restart the kernel to use updated packages.

In [3]:

```
pip install matplotlib
```

Requirement already satisfied: matplotlib in c:\users\poorn\appdata\local
\programs\python\python311\lib\site-packages (3.7.1)Note: you may need to
restart the kernel to use updated packages.

Requirement already satisfied: contourpy>=1.0.1 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib) (1.0.
7)
Requirement already satisfied: cycler>=0.10 in c:\users\poorn\appdata\loca
l\programs\python\python311\lib\site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib) (4.3
9.4)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib) (1.4.
4)
Requirement already satisfied: numpy>=1.20 in c:\users\poorn\appdata\local
\programs\python\python311\lib\site-packages (from matplotlib) (1.24.3)
Requirement already satisfied: packaging>=20.0 in c:\users\poorn\appdata\l
ocal\programs\python\python311\lib\site-packages (from matplotlib) (23.1)
Requirement already satisfied: pillow>=6.2.0 in c:\users\poorn\appdata\loc
al\programs\python\python311\lib\site-packages (from matplotlib) (9.5.0)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\poorn\appdata
\local\programs\python\python311\lib\site-packages (from matplotlib) (3.0.
9)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\poorn\appd
ata\local\programs\python\python311\lib\site-packages (from matplotlib)
(2.8.2)
Requirement already satisfied: six>=1.5 in c:\users\poorn\appdata\local\pr
ograms\python\python311\lib\site-packages (from python-dateutil>=2.7->matp
lotlib) (1.16.0)

In [88]:

```python
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn import preprocessing,svm
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
```

In [104]:

```python
df=pd.read_csv(r"C:\Users\poorn\Downloads\USA_Housing.csv")
df
```

Out[104]:

	Avg. Area Income	Avg. Area House Age	Avg. Area Number of Rooms	Avg. Area Number of Bedrooms	Area Population	Price	Address
0	79545.458574	5.682861	7.009188	4.09	23086.800503	1.059034e+06	208 Michael Ferry Apt. 674\nLaurabury, NE 3701...
1	79248.642455	6.002900	6.730821	3.09	40173.072174	1.505891e+06	188 Johnson Views Suite 079\nLake Kathleen, CA...
2	61287.067179	5.865890	8.512727	5.13	36882.159400	1.058988e+06	9127 Elizabeth Stravenue\nDanieltown, WI 06482...
3	63345.240046	7.188236	5.586729	3.26	34310.242831	1.260617e+06	USS Barnett\nFPO AP 44820

In [107]:

```python
df= df[['Area Population','Price']]
df.columns=['Area','pri']
```
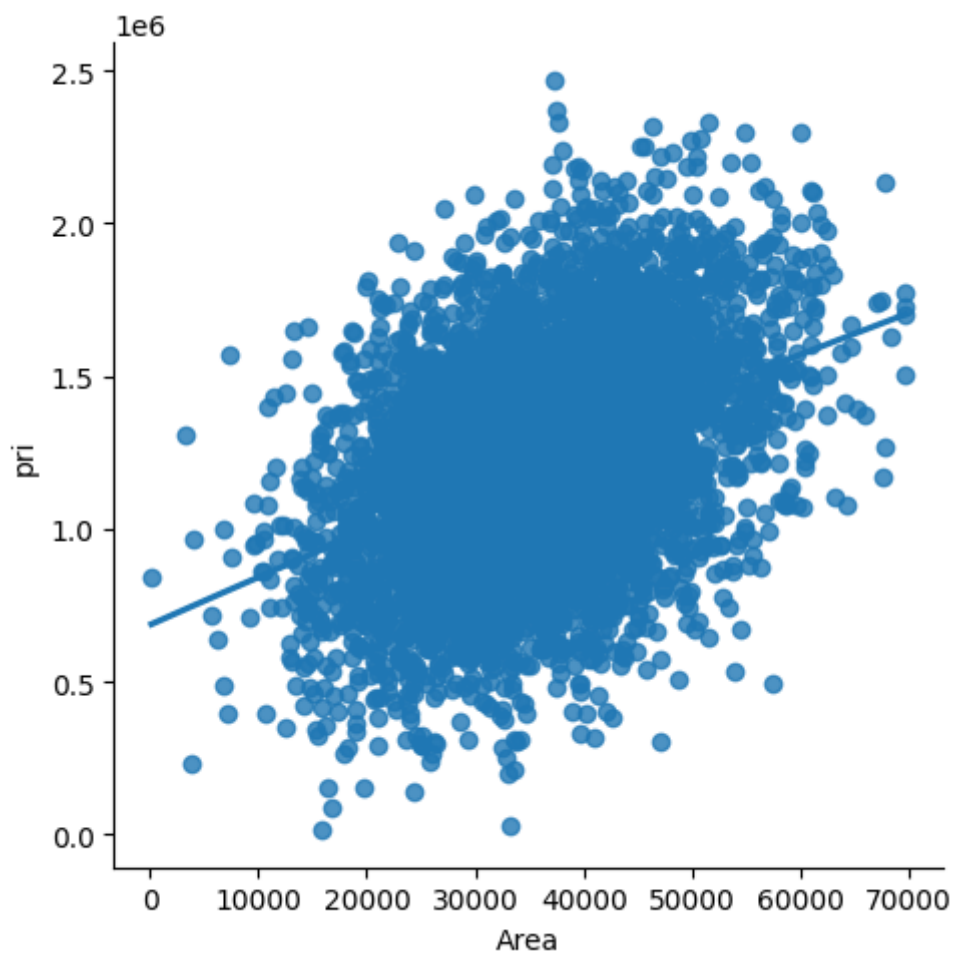
In [109]:

```python
df.head(10)
```

Out[109]:

	Area	pri
0	23086.800503	1.059034e+06
1	40173.072174	1.505891e+06
2	36882.159400	1.058988e+06
3	34310.242831	1.260617e+06
4	26354.109472	6.309435e+05
5	26748.428425	1.068138e+06
6	60828.249085	1.502056e+06
7	36516.358972	1.573937e+06
8	29387.396003	7.988695e+05
9	40149.965749	1.545155e+06

In [110]:

```
sns.lmplot(x='Area',y='pri', data = df, order = 2, ci = None)
```

Out[110]:

```
<seaborn.axisgrid.FacetGrid at 0x285f9de0710>
```


In [111]:

```
df.describe()
```

Out[111]:

	Area	pri
count	5000.000000	5.000000e+03
mean	36163.516039	1.232073e+06
std	9925.650114	3.531176e+05
min	172.610686	1.593866e+04
25%	29403.928702	9.975771e+05
50%	36199.406689	1.232669e+06
75%	42861.290769	1.471210e+06
max	69621.713378	2.469066e+06

In [112]:

```python
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5000 entries, 0 to 4999
Data columns (total 2 columns):
 #   Column  Non-Null Count  Dtype
---  ------  --------------  -----
 0   Area    5000 non-null   float64
 1   pri     5000 non-null   float64
dtypes: float64(2)
memory usage: 78.3 KB
```

In [113]:

```python
df.fillna(method='ffill',inplace=True)
```

In [119]:

```python
x=np.array(df['Area']).reshape(-1,1)
y=np.array(df['pri']).reshape(-1,1)
```

In [120]:

```python
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.25)
#splitting the data into training and testing data
regr=LinearRegression()
regr.fit(x_train,y_train)
print(regr.score(x_test,y_test))
```

```
0.19597796951545587
```

In [ ]:

In [ ]:

In [ ]: