In [1]:

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

In [2]:

```
data=pd.read_csv(r"C:\Users\Prathyusha\Downloads\USA_Housing.csv")
data
```

Out[2]:

	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
4	59982.197226	5.040555	7.839388	4.23	26354.109472	6.309435e+05	USNS Raymond\nFPO AE 09386
...	...	...	...	...	...	...	...
4995	60567.944140	7.830362	6.137356	3.46	22837.361035	1.060194e+06	USNS Williams\nFPO AP 30153-7653
4996	78491.275435	6.999135	6.576763	4.02	25616.115489	1.482618e+06	PSC 9258, Box 8489\nAPO AA 42991-3352
4997	63390.686886	7.250591	4.805081	2.13	33266.145490	1.030730e+06	4215 Tracy Garden Suite 076\nJoshualand, VA 01...
4998	68001.331235	5.534388	7.130144	5.44	42625.620156	1.198657e+06	USS Wallace\nFPO AE 73316
4999	65510.581804	5.992305	6.792336	4.07	46501.283803	1.298950e+06	37778 George Ridges Apt. 509\nEast Holly, NV 2...

5000 rows × 7 columns

In [3]:

```
data.head()
```

Out[3]:

	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
4	59982.197226	5.040555	7.839388	4.23	26354.109472	6.309435e+05	USNS Raymond\nFPO AE 09386

In [4]:

```
data.info()
```

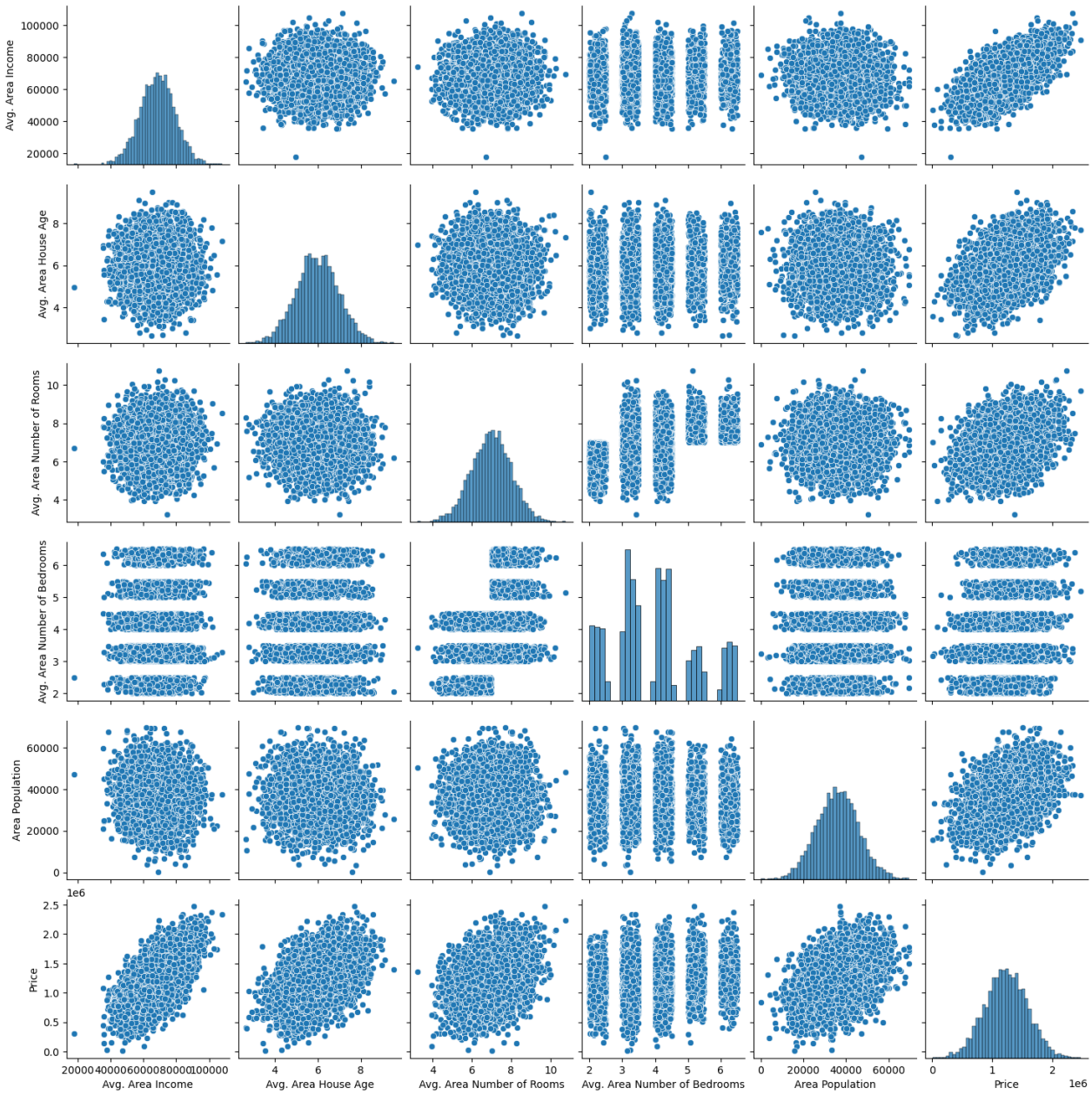
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5000 entries, 0 to 4999
Data columns (total 7 columns):
 #   Column                       Non-Null Count  Dtype  
---  ------                       --------------  -----  
 0   Avg. Area Income             5000 non-null   float64
 1   Avg. Area House Age          5000 non-null   float64
 2   Avg. Area Number of Rooms    5000 non-null   float64
 3   Avg. Area Number of Bedrooms 5000 non-null   float64
 4   Area Population              5000 non-null   float64
 5   Price                        5000 non-null   float64
 6   Address                      5000 non-null   object 
dtypes: float64(6), object(1)
memory usage: 273.6+ KB
```

In [5]:

```
sns.pairplot(data)
```

Out[5]:

```
<seaborn.axisgrid.PairGrid at 0x2216a4611b0>
```

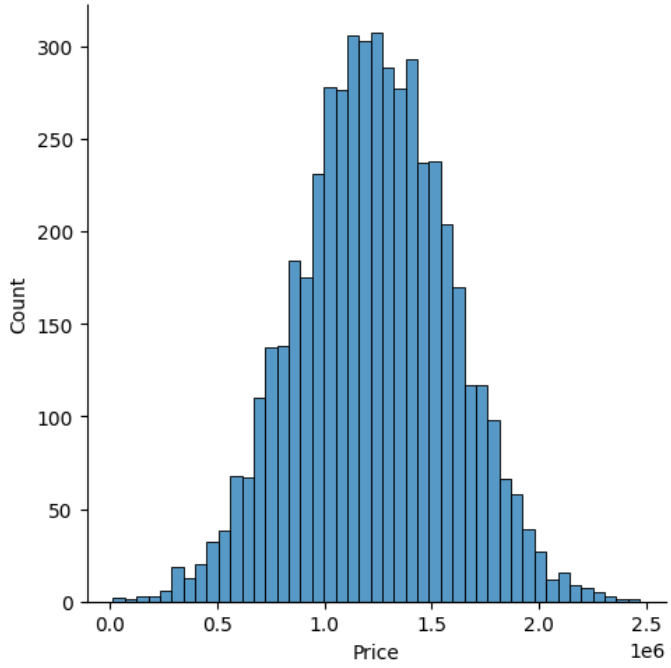


In [6]:

```
sns.displot(data['Price'])
```

Out[6]:

```
<seaborn.axisgrid.FacetGrid at 0x2216f2f0820>
```

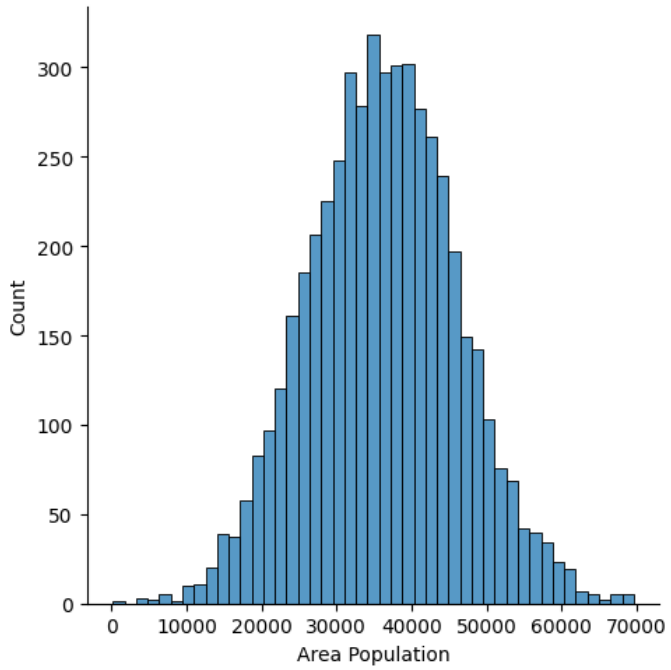


In [7]:

```
sns.displot(data['Area Population'])
```

Out[7]:

```
<seaborn.axisgrid.FacetGrid at 0x2216fc3dcf0>
```



In [8]:

```
data.columns
```

Out[8]:

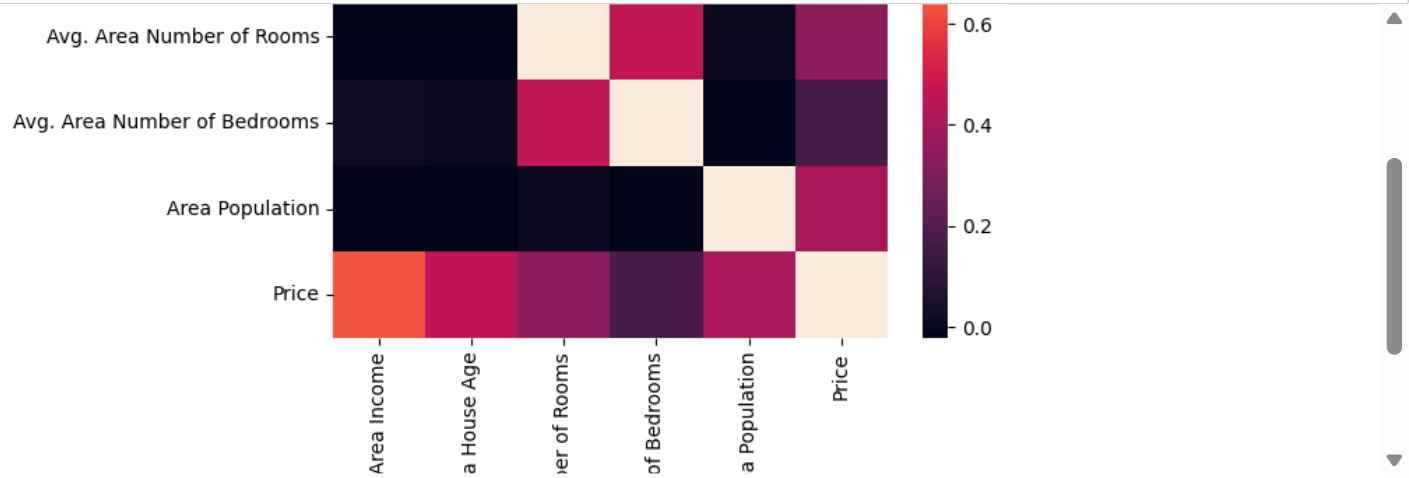
```
Index(['Avg. Area Income', 'Avg. Area House Age', 'Avg. Area Number of Rooms',
       'Avg. Area Number of Bedrooms', 'Area Population', 'Price', 'Address'],
      dtype='object')
```

In [10]:

```
ta[['Avg. Area Income','Avg. Area House Age','Avg. Area Number of Rooms','Avg. Area Number of Bedrooms','Area Population','Price']]
```

In [15]:

```
sns.heatmap(Housedata.corr())
```



In [18]:

```
=Housedata[['Avg. Area Income','Avg. Area House Age','Avg. Area Number of Rooms','Avg. Area Number of Bedrooms','Area Population']]
=data['Price']
```

In [20]:

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2)
```

In [22]:

```
from sklearn.linear_model import LinearRegression
lr=LinearRegression()
lr.fit(x_train,y_train)
```

Out[22]:

```
LinearRegression
LinearRegression()
```

In [23]:

```
print(lr.score(x_test,y_test))
print(lr.intercept_)
```

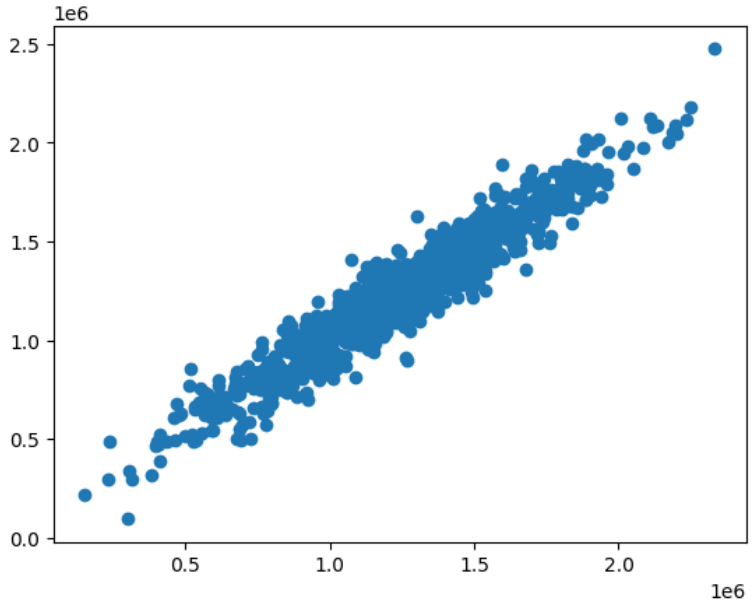
```
0.9147320621425408
-2634225.187429377
```

In [24]:

```
pred=lr.predict(x_test)
plt.scatter(y_test,pred)
```

Out[24]:

```
<matplotlib.collections.PathCollection at 0x221734f4790>
```

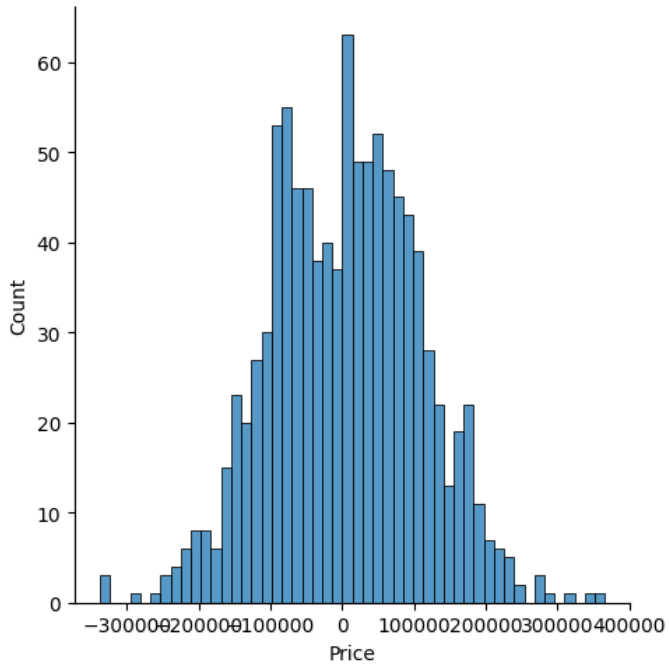


In [25]:

```
sns.displot(y_test-pred,bins=50)
```

Out[25]:

```
<seaborn.axisgrid.FacetGrid at 0x2217383ead0>
```



In [26]:

```
from sklearn import metrics
print('MAE',metrics.mean_absolute_error(y_test,pred))
print('MSE',metrics.mean_squared_error(y_test,pred))
print('RMSE',np.sqrt(metrics.mean_squared_error(y_test,pred)))
```

```
MAE 84354.1943627224
MSE 10802239947.012974
RMSE 103933.8248454899
```

In [ ]: