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Expt. Name Data Visualization using Matplotlib & Seaborn Date :

AIM:-

To build various data plot diagrams for house price data visualization using Matplotlib and Seaborn libraries in python.

PROGRAM:-

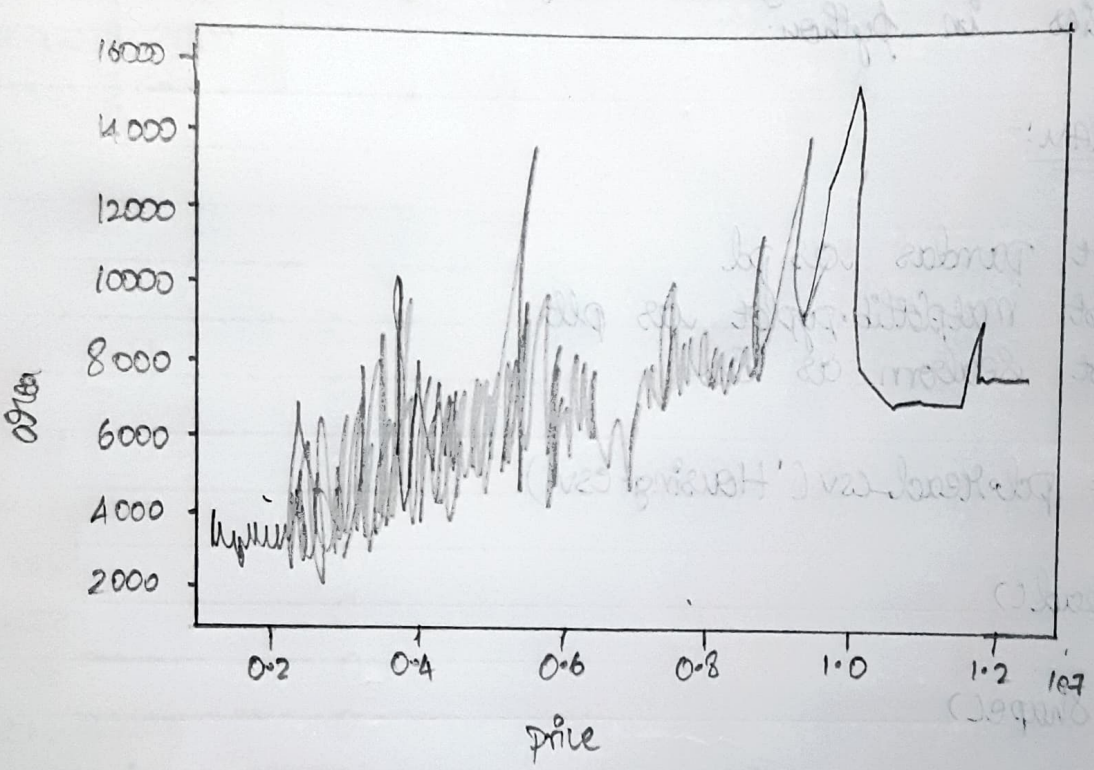
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('Housing.csv')

df.head()

df.shape()

df.isnull()

df.info()

Cat_Attr = []
Num_Attr = []

for col in
```

OUTPUT:-

	Price	area	bedrooms	stories	mainroad	guestroom
0	13300000	7420	4	3	yes	no
1	12250000	8960	4	4	yes	no
2	12250000	9960	3	2	yes	no
3	12215000	7500	4	2	yes	no
4	11410000	7420	4	2	yes	yes

price	0
area	0
bedrooms	0
stories	0
mainroad	0
guestroom	0
basement	0
hotwaterheating	0
airconditioning	0
parking	0
prefarea	0
furnishingstatus	0
dtype: 64	0

```
for att in df.columns:
    if df[att].dtype == 'object':
        Cat_Att.append(att)

    else:
        Num_Att.append(att)

print(Cat_Att)

from sklearn.preprocessing import LabelEncoder

LE = LabelEncoder()
for c in Cat_Att:
    df[c] = LE.fit_transform(df[c])

df.head()

# Draw a Pyplot using matplotlib

x = df['price']
y = df['area']
plt.plot(x,y)
plt.ylabel('area')
plt.xlabel('price')
plt.show()
```


16000
14000
12000
10000
8000
6000
4000
2000
0·2
0·4
0·6
0·8
1·0
1·2
1e7
price

Draw a histogram using matplotlib

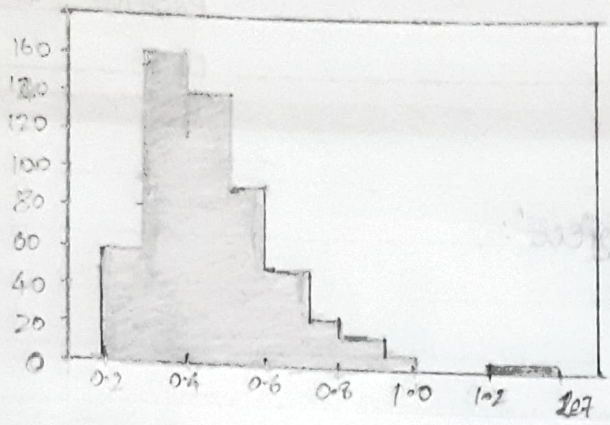
```
a= df ['price']
plt.hist(a)
```

Draw a scatter plot using matplotlib

```
plt.scatter(x,y)
```

Draw a pairplot using Seaborn lib

```
sns.pairplot( data = df, hue = 'price')
```


160
120
100
80
60
40
20
0
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0·4
0·6
0·8
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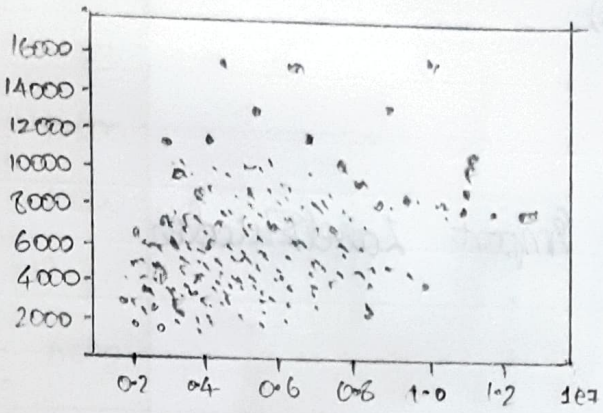
16000
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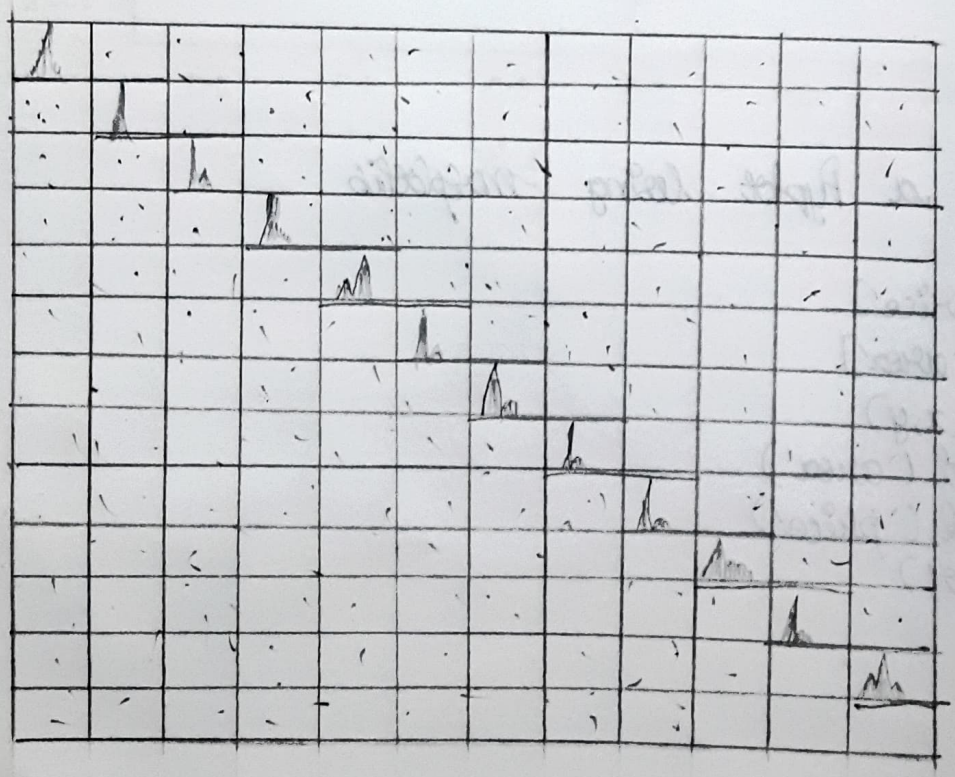

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Draw a boxplot using Seaborn lib

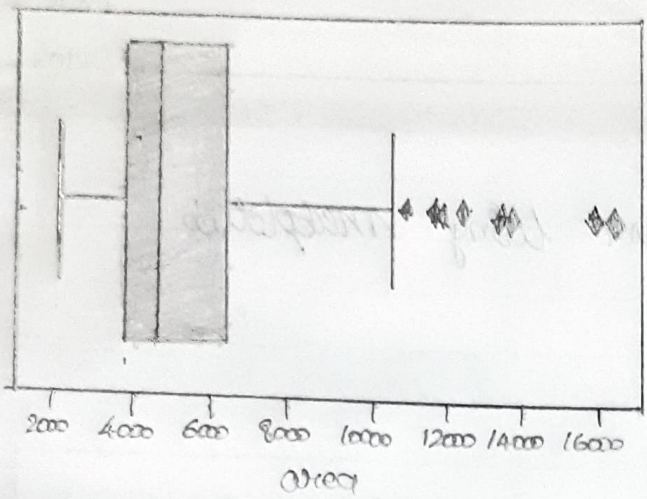
```
sns.boxplot(df['area'])
```

Draw a heatmap using Seaborn lib

```
plt.figure(figsize=(12,12))
sns.heatmap(df.corr(), annot=True, linecolor='black', linewidth=1,
            cmap='jet')
```

RESULT:

Thus we have successfully visualized house price data using matplotlib and seaborn libraries in python.



	price	area	bedrooms	bathrooms	stories	mainroad	guestroom	basement	hotwaterheating	airconditioning	parking	prefarea	furnishingstatus
price	1	0.54	0.37	0.52	0.42	0.3	0.26	0.19	0.0093	0.45	0.38	0.33	-0.3
area	0.54	1	0.15	0.19	0.084	0.29	0.14	0.047	-0.0092	0.22	0.35	0.23	-0.17
bedrooms	0.37	0.15	1	0.37	0.41	-0.012	0.081	0.097	0.046	0.16	0.14	0.079	-0.12
bathrooms	0.52	0.19	0.37	1	0.33	0.042	0.13	0.1	0.064	0.19	0.18	0.063	-0.14
stories	0.42	0.084	0.41	0.33	1	0.12	0.044	-0.17	0.019	0.29	0.046	0.044	-0.1
mainroad	0.3	0.29	0.72	0.61	0.44	1	0.17	0.81	0.001	0.161	0.17	-0.25	0.09
guestroom	0.73	0.15	0.19	0.21	0.08	0.1	1	0.7	0.52	0.34	0.16	0.13	-0.15
basement	0.09	0.86	0.12	-0.01	0.65	0.9	0.02	1	0.71	0.08	0.12	0.01	-0.11
hotwaterheating	0.65	0.15	0.45	0.6	0.5	0.51	-0.01	0.63	1	0.17	-0.01	0.07	-0.092
airconditioning	0.73	0.29	0.36	0.72	0.7	0.9	0.81	0.97	0.63	1	0.91	0.2	0.45
parking	0.81	0.71	0.71	0.77	-0.01	0.7	0.65	0.86	0.01	0.6	1	0.3	-0.18
prefarea	0.92	0.23	0.76	0.68	0.65	0.04	0.71	0.23	-0.02	0.5	0.2	1	-0.11
furnishingstatus	0.414	0.29	0.92	-0.14	0.1	-0.16	0.12	0.11	-0.032	-0.15	-0.18	-0.11	1