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ITE2011-Machine Learning

Digital Assignment-1

Question: Choose any dataset and perform data visualization using Python / R Programming

Answer:

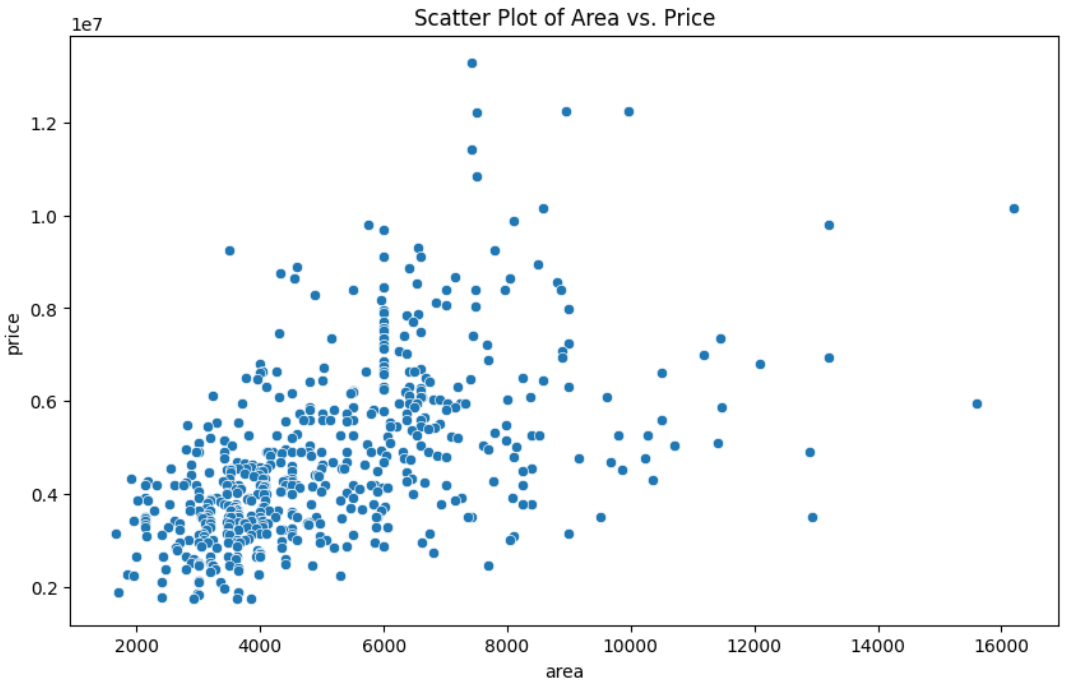
Github Link (Dataset is present in the repository):

https://github.com/Shreychit/MLDA1_20BIT0202

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

```
data = pd.read_csv('Housing.csv')
```

```
# i) Scatter plot (B)
plt.figure(figsize=(10, 6))
sns.scatterplot(x='area', y='price', data=data)
plt.title('Scatter Plot of Area vs. Price')
plt.show()
```



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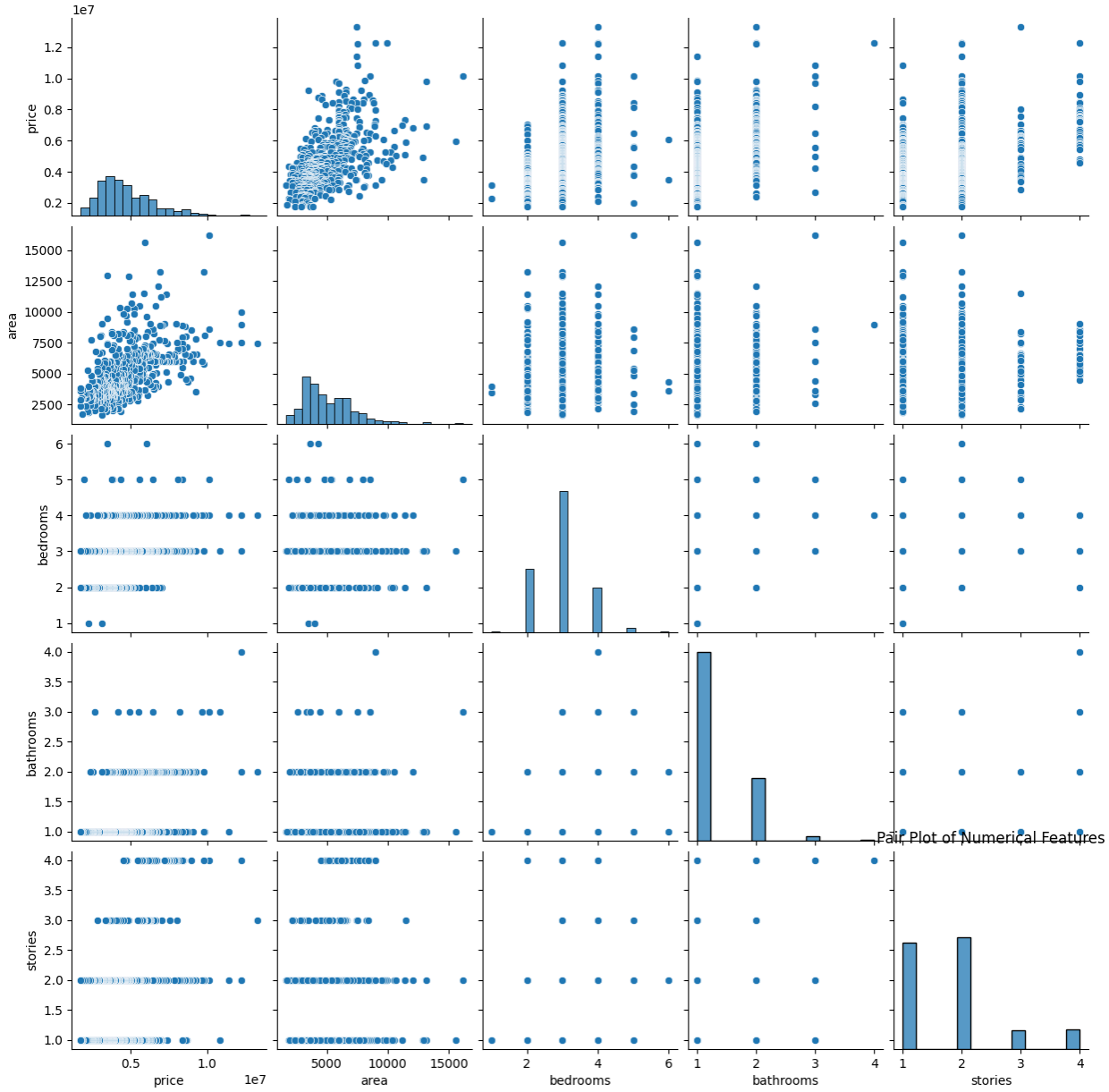
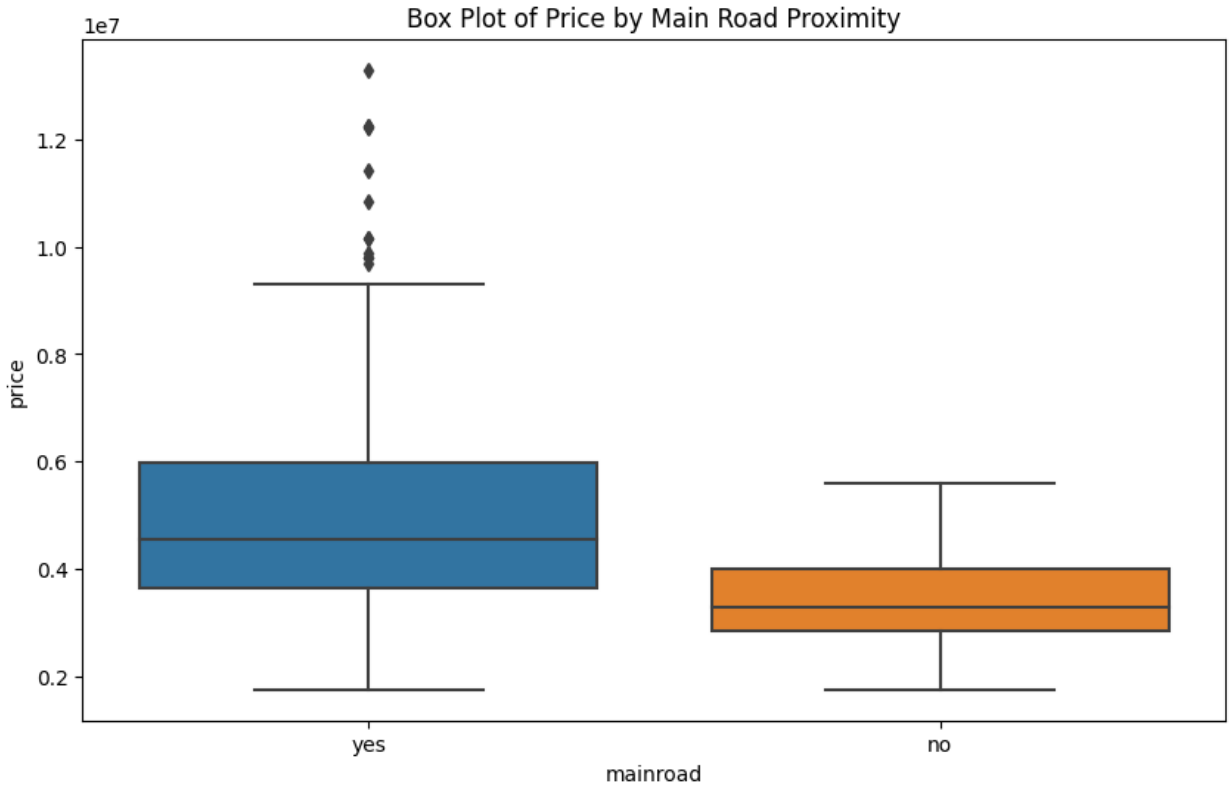
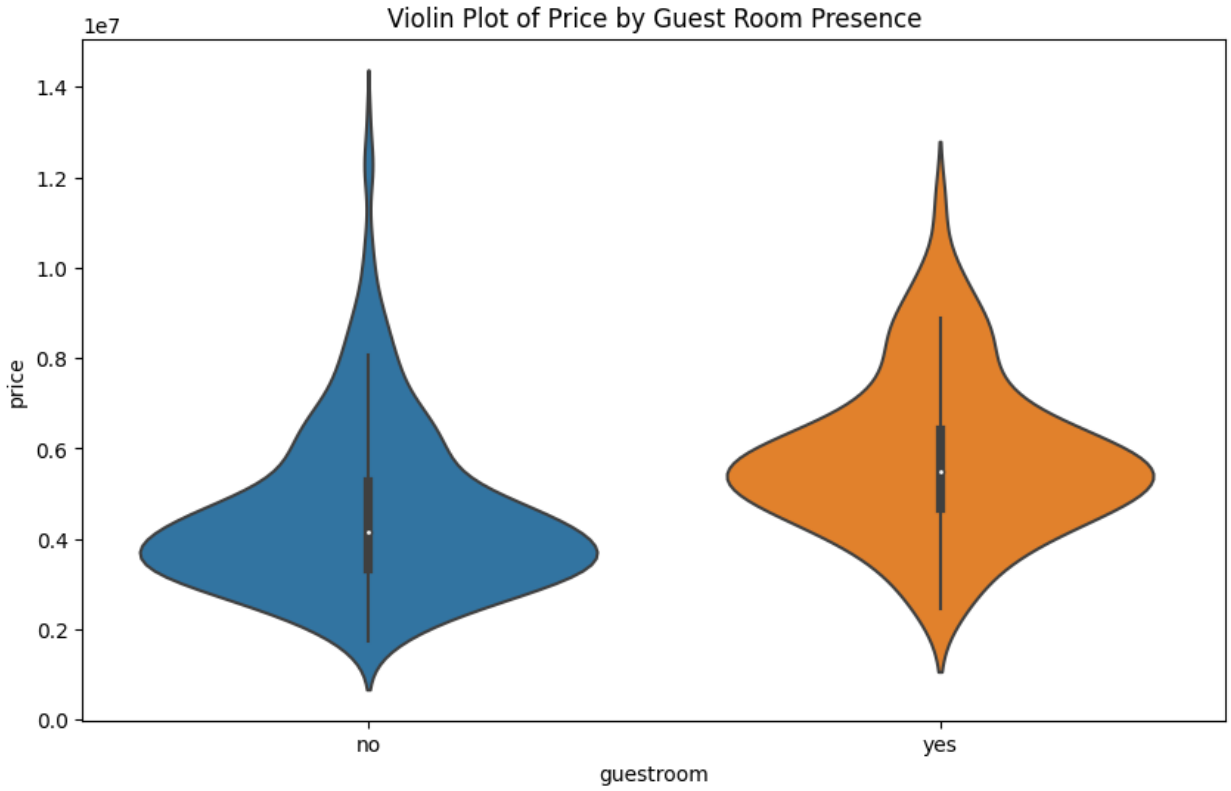
```
# ii) Pair plot (M)
sns.pairplot(data, vars=['price', 'area', 'bedrooms', 'bathrooms', 'stories'])
plt.title('Pair Plot of Numerical Features')
plt.show()
```



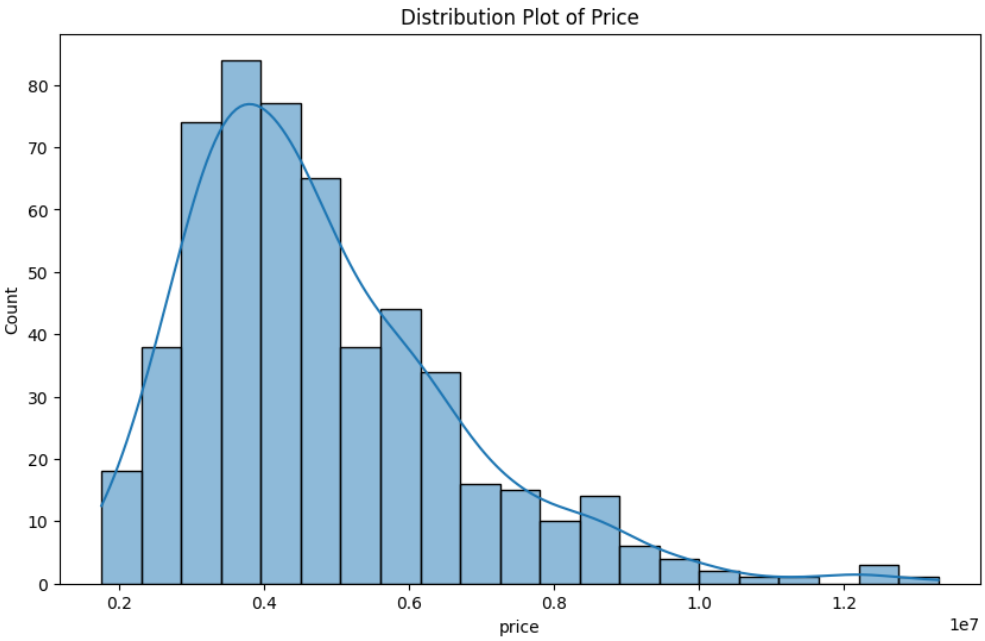
```
# iii) Box plot (U)
plt.figure(figsize=(10, 6))
sns.boxplot(x='mainroad', y='price', data=data)
plt.title('Box Plot of Price by Main Road Proximity')
plt.show()
```



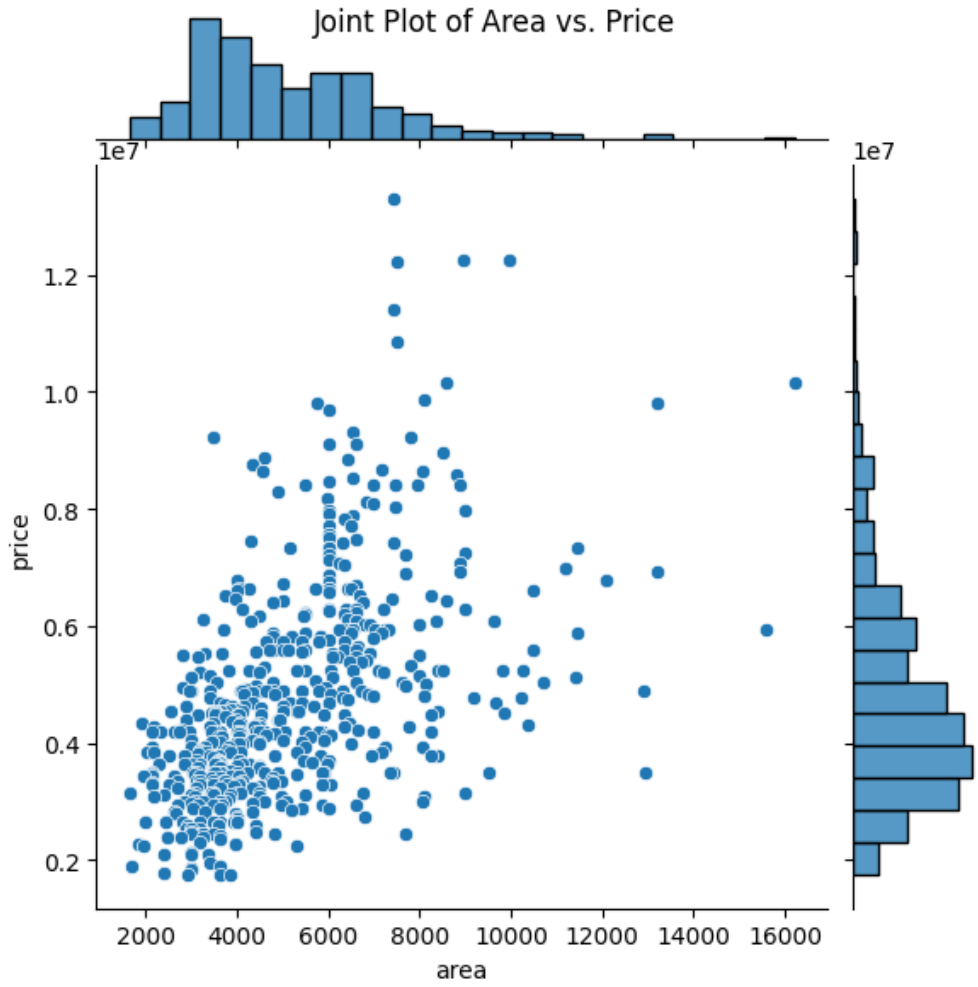

```
# iv) Violin plot (U)
plt.figure(figsize=(10, 6))
sns.violinplot(x='guestroom', y='price', data=data)
plt.title('Violin Plot of Price by Guest Room Presence')
plt.show()
```



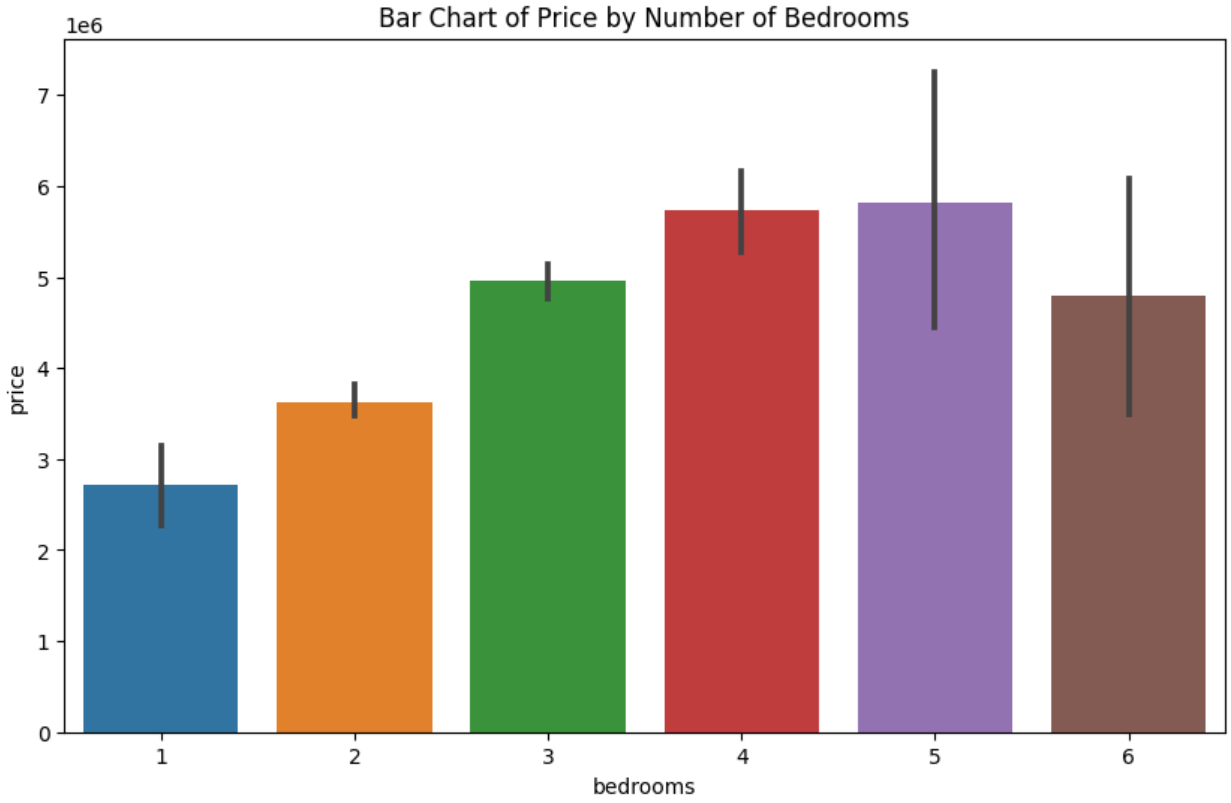

```
# v) Distribution plot (U)
plt.figure(figsize=(10, 6))
sns.histplot(data['price'], kde=True)
plt.title('Distribution Plot of Price')
plt.show()
```



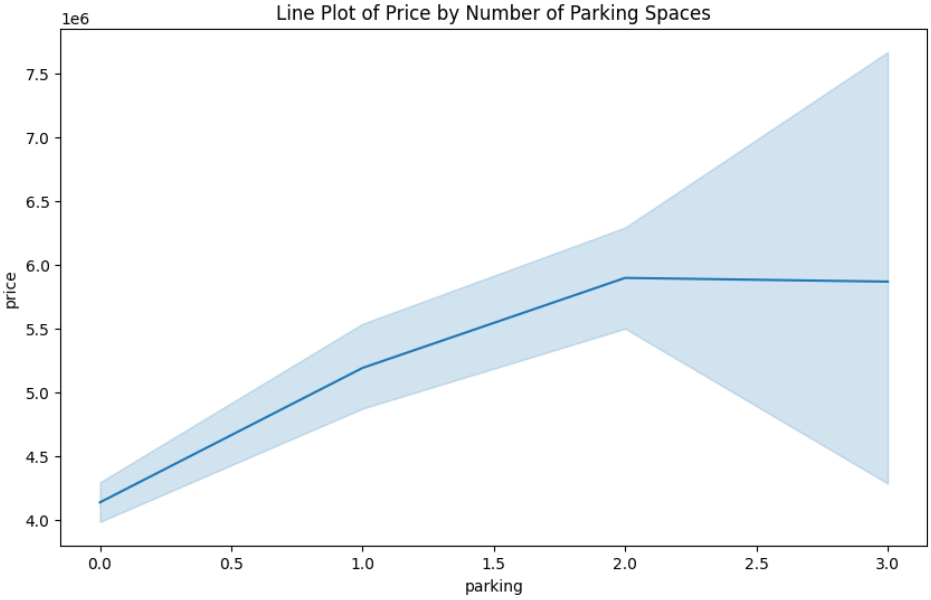
```
# vi) Joint plot (U) & (B)
sns.jointplot(x='area', y='price', data=data, kind='scatter')
plt.suptitle('Joint Plot of Area vs. Price')
plt.show()
```



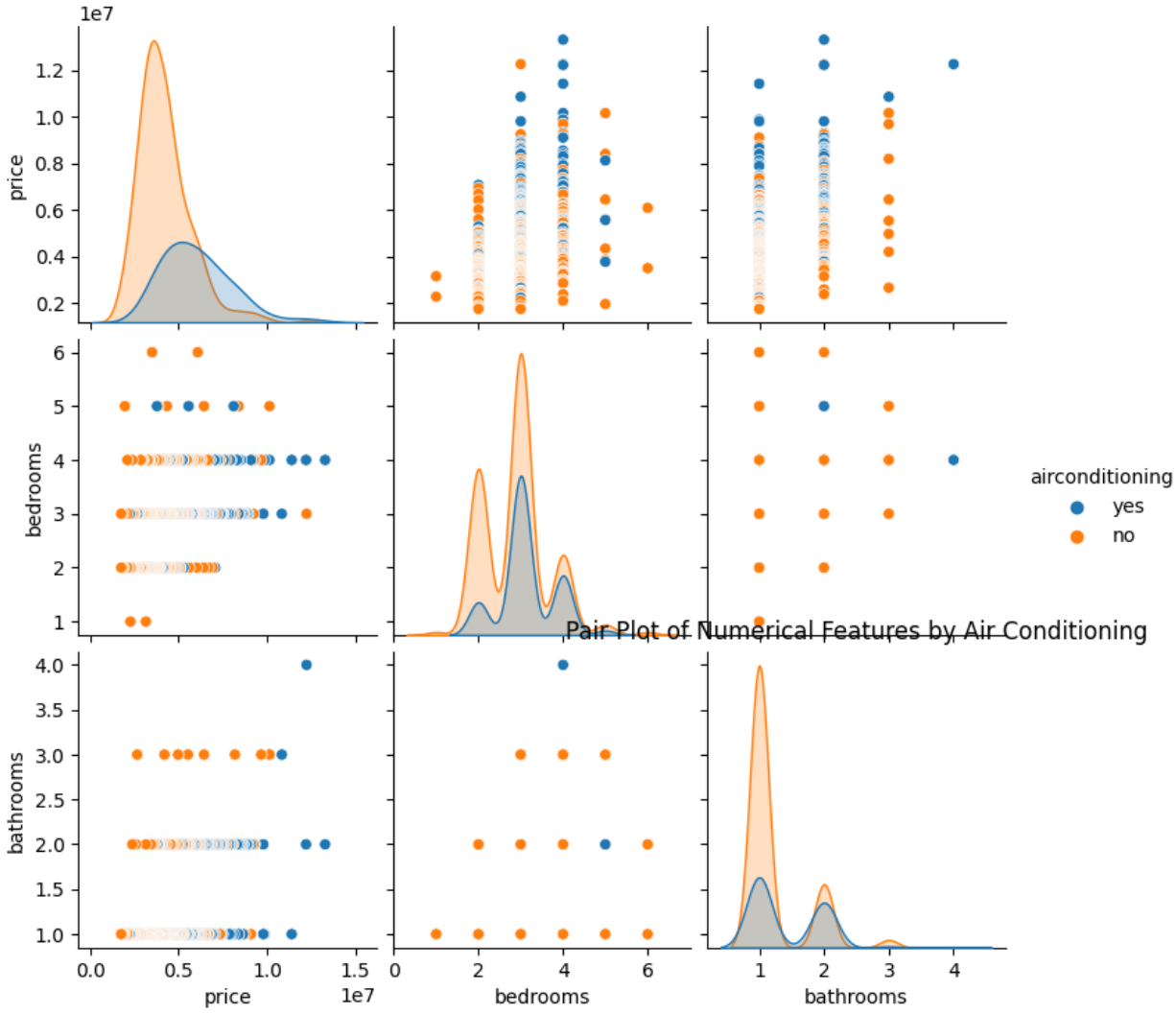

```
# vii) Bar chart (B)
plt.figure(figsize=(10, 6))
sns.barplot(x='bedrooms', y='price', data=data)
plt.title('Bar Chart of Price by Number of Bedrooms')
plt.show()
```



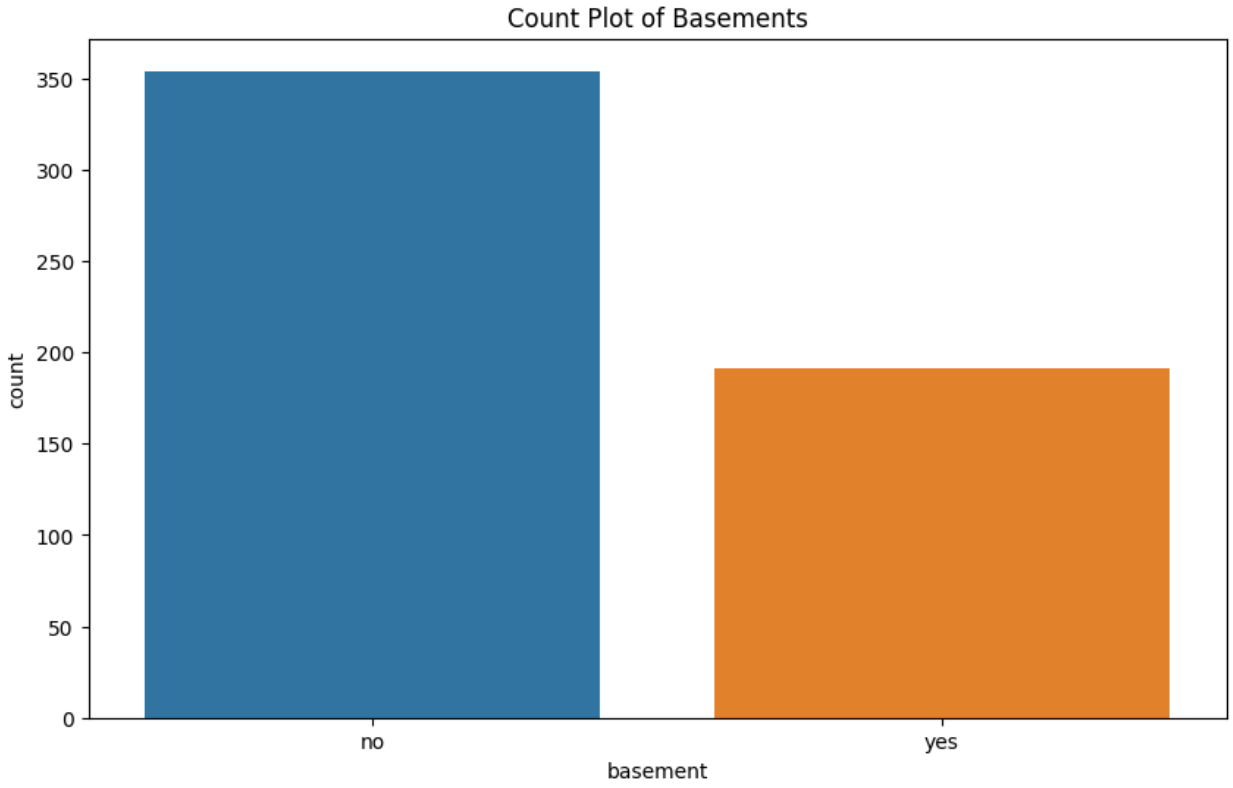

```
# viii) Line plot (B)
plt.figure(figsize=(10, 6))
sns.lineplot(x='parking', y='price', data=data)
plt.title('Line Plot of Price by Number of Parking Spaces')
plt.show()
```



```
# ix) Pair plot for Categorical Variables (M)
sns.pairplot(data, hue='airconditioning', vars=['price', 'bedrooms',
'bathrooms'])
plt.title('Pair Plot of Numerical Features by Air Conditioning')
plt.show()
```




```
# x) Count Plot (B)
plt.figure(figsize=(10, 6))
sns.countplot(x='basement', data=data)
plt.title('Count Plot of Basements')
plt.show()
```




```
# xi) Swarm Plot (U)
plt.figure(figsize=(10, 6))
sns.swarmplot(x='furnishingstatus', y='price', data=data)
plt.title('Swarm Plot of Price by Furnishing Status')
plt.xticks(rotation=45)
plt.show()
```