
“House Price Prediction Project”

Using SQL



Objective of the Project:

To analyse and predict house prices based on various factors such as area, number of bedrooms, bathrooms, presence of amenities (like a basement, air conditioning, etc.), and location features (such as being on a main road or in a preferred area). This project aims to identify key variables that significantly impact house prices and provide insights into the real estate market trends.

Data Exploration:

```
SELECT * FROM house_pricing_predication.housing;
```

[illegible]

View the total number of records:

```
SELECT COUNT(*) AS TotalHouses FROM Housing;
```

TotalHouses
545

Guest Room:

```
SELECT DISTINCT guestroom FROM Housing;
```

guestroom
no
yes

Furnishing Status:

```
SELECT DISTINCT furnishingstatus FROM Housing;
```

furnishingstatus	^
furnished	
semi-furnished	
unfurnished	

Aggregation and Summary Statistics:

Average price of houses by the number of bedrooms:

```
SELECT bedrooms, AVG(price) AS AvgPrice
FROM Housing
GROUP BY bedrooms
ORDER BY AvgPrice DESC;
```

bed...	▼	AvgPrice
6		4791500.0000
5		5819800.0000
4		5729757.8947
3		4954598.1333
2		3632022.0588
1		2712500.0000

Count of houses with and without air conditioning:

```
SELECT airconditioning, COUNT(*) AS NumHouses  
FROM Housing  
GROUP BY airconditioning;
```

airconditioni...	NumHouses	
yes	172	
no	373	

Total parking spaces available by neighborhood preference area:

```
SELECT prefarea, SUM(parking) AS TotalParkingSpaces
FROM Housing
GROUP BY prefarea;
```

airconditioni...	NumHouses
------------------	-----------

yes	172
-----	-----

no	373
----	-----

Filtering Data:

1. Houses with more than 2 stories and located on the main road:

```
SELECT *  
FROM Housing  
WHERE stories > 2 AND mainroad = 'yes';
```

price	area	bedrooms	bathrooms	stories	mainroad	guestroom	basement	hotwaterheati...	airconditioni...	parking	prefarea	furnishingstatus
2852500	5200	4	1	3	yes	no	no	no	no	0	no	unfurnished
3430000	2145	3	1	3	yes	no	no	no	no	0	yes	furnished
3465000	2145	3	1	3	yes	no	no	no	no	0	yes	furnished
3640000	2275	3	1	3	yes	no	no	yes	yes	0	yes	semi-furnished
3780000	2856	3	1	3	yes	no	no	no	no	0	yes	furnished
4060000	3000	4	1	3	yes	no	yes	no	yes	2	no	semi-furnished
4200000	4079	3	1	3	yes	no	no	no	no	0	no	semi-furnished
4200000	2145	3	1	3	yes	no	no	no	no	1	yes	unfurnished
4340000	4500	3	2	3	yes	no	no	yes	no	1	no	furnished
4515000	3510	3	1	3	yes	no	no	no	no	0	no	semi-furnished
4550000	8400	4	1	4	yes	no	no	no	no	3	no	unfurnished
4690000	5170	3	1	4	yes	no	no	no	yes	0	no	semi-furnished
4795000	8100	4	1	4	yes	no	yes	no	yes	2	no	semi-furnished
4830000	4160	3	1	3	yes	no	no	no	no	0	no	unfurnished
4900000	2970	3	1	3	yes	no	no	no	no	0	no	semi-furnished
5160000	6210	4	1	4	yes	yes	no	no	yes	0	no	furnished

2. Houses with a guestroom, basement, and air conditioning:

```
SELECT *
```

```
FROM Housing
```

```
WHERE guestroom = 'yes' AND basement = 'yes' AND airconditioning = 'yes';
```

price	area	bedrooms	bathrooms	stories	mainroad	guestroom	basement	hotwaterheati...	airconditioni...	parking	prefarea	furnishingstatus
2852500	5200	4	1	3	yes	no	no	no	no	0	no	unfurnished
3430000	2145	3	1	3	yes	no	no	no	no	0	yes	furnished
3465000	2145	3	1	3	yes	no	no	no	no	0	yes	furnished
3640000	2275	3	1	3	yes	no	no	yes	yes	0	yes	semi-furnished
3780000	2856	3	1	3	yes	no	no	no	no	0	yes	furnished
4060000	3000	4	1	3	yes	no	yes	no	yes	2	no	semi-furnished
4200000	4079	3	1	3	yes	no	no	no	no	0	no	semi-furnished
4200000	2145	3	1	3	yes	no	no	no	no	1	yes	unfurnished
4340000	4500	3	2	3	yes	no	no	yes	no	1	no	furnished
4515000	3510	3	1	3	yes	no	no	no	no	0	no	semi-furnished
4550000	8400	4	1	4	yes	no	no	no	no	3	no	unfurnished
4690000	5170	3	1	4	yes	no	no	no	yes	0	no	semi-furnished
4795000	8100	4	1	4	yes	no	yes	no	yes	2	no	semi-furnished
4830000	4160	3	1	3	yes	no	no	no	no	0	no	unfurnished
4900000	2970	3	1	3	yes	no	no	no	no	0	no	semi-furnished
5160000	6210	4	1	4	yes	yes	no	no	yes	0	no	furnished

3.Houses with a specific furnishing status:

```
SELECT *
```

```
FROM Housing
```

```
WHERE furnishingstatus = 'furnished';
```

price	area	bedrooms	bathrooms	stories	mainroad	guestroom	basement	hotwaterheati...	airconditioni...	parking	prefarea	furnishingstatus
2852500	5200	4	1	3	yes	no	no	no	no	0	no	unfurnished
3430000	2145	3	1	3	yes	no	no	no	no	0	yes	furnished
3465000	2145	3	1	3	yes	no	no	no	no	0	yes	furnished
3640000	2275	3	1	3	yes	no	no	yes	yes	0	yes	semi-furnished
3780000	2856	3	1	3	yes	no	no	no	no	0	yes	furnished
4060000	3000	4	1	3	yes	no	yes	no	yes	2	no	semi-furnished
4200000	4079	3	1	3	yes	no	no	no	no	0	no	semi-furnished
4200000	2145	3	1	3	yes	no	no	no	no	1	yes	unfurnished
4340000	4500	3	2	3	yes	no	no	yes	no	1	no	furnished
4515000	3510	3	1	3	yes	no	no	no	no	0	no	semi-furnished
4550000	8400	4	1	4	yes	no	no	no	no	3	no	unfurnished
4690000	5170	3	1	4	yes	no	no	no	yes	0	no	semi-furnished
4795000	8100	4	1	4	yes	no	yes	no	yes	2	no	semi-furnished
4830000	4160	3	1	3	yes	no	no	no	no	0	no	unfurnished
4900000	2970	3	1	3	yes	no	no	no	no	0	no	semi-furnished
5160000	6210	4	1	4	yes	yes	no	no	yes	0	no	furnished

.Advanced Analysis:

1. Average price per square foot of area:

```
SELECT area, (price/area) AS PricePerSqFt  
FROM Housing  
ORDER BY PricePerSqFt DESC;
```

	area	PricePerSqFt	
	16200	626.5432	
	15600	380.9615	
	13200	742.4242	
	13200	525.0000	
	12944	270.3956	
	12900	379.8450	
	12090	561.6212	
	11460	512.4782	
	11440	641.8706	
	11410	447.8528	
	11175	626.3982	

2. Average price per square foot of area:

```
SELECT *  
FROM Housing  
ORDER BY price DESC, area DESC  
LIMIT 5;
```

price	area	bedrooms	bathrooms	stories	mainroad	guestroom	basement	hotwaterheati...	airconditioni...	parking	prefarea	furnishingstatus	
13300000	7420	4	2	3	yes	no	no	no	yes	2	yes	furnished	
12250000	9960	3	2	2	yes	no	yes	no	no	2	yes	semi-furnished	
12250000	8960	4	4	4	yes	no	no	no	yes	3	no	furnished	
12215000	7500	4	2	2	yes	no	yes	no	yes	3	yes	furnished	
11410000	7420	4	1	2	yes	yes	yes	no	yes	2	no	furnished	

3.Houses with parking more than 2 spaces and preferred area:

```
SELECT *  
FROM Housing  
WHERE parking > 2 AND prefarea = 'yes';
```

[illegible]

Predictive Queries:

1. Estimate the average price based on the number of bedrooms and

```
b SELECT bedrooms, bathrooms, AVG(price) AS AvgPrice  
FROM Housing  
GROUP BY bedrooms, bathrooms  
ORDER BY AvgPrice DESC;
```

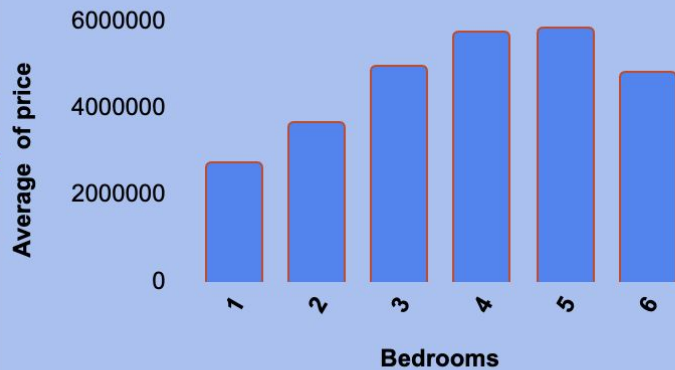
bed... ^	bathrooms	AvgPrice	
1	1	2712500.0000	
2	2	4194750.0000	
2	1	3596851.5625	
3	3	6807500.0000	
3	2	6379568.6111	
3	1	4463484.3750	
4	4	12250000.0000	
4	3	7250250.0000	
4	2	6358989.5833	
4	1	4710583.3333	
5	3	8295000.0000	

Predicting the price of houses with certain features (e.g., 3 bedrooms, 2 bathrooms, and air conditioning):

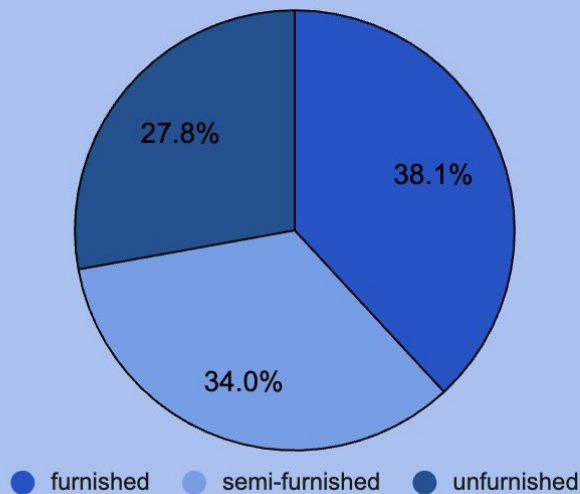
```
SELECT AVG(price) AS EstimatedPrice
FROM Housing
WHERE bedrooms = 3 AND bathrooms = 2 AND airconditioning = 'yes';
```

EstimatedPrice
6934236.6667

AVERAGE Of Price Vs Bedrooms



Price By Furnishing Status



Average Of Price Vs Area

