



INNOVATION. AUTOMATION. ANALYTICS

PROJECT ON

Analysis on Rental Houses in Hyderabad



Done by :

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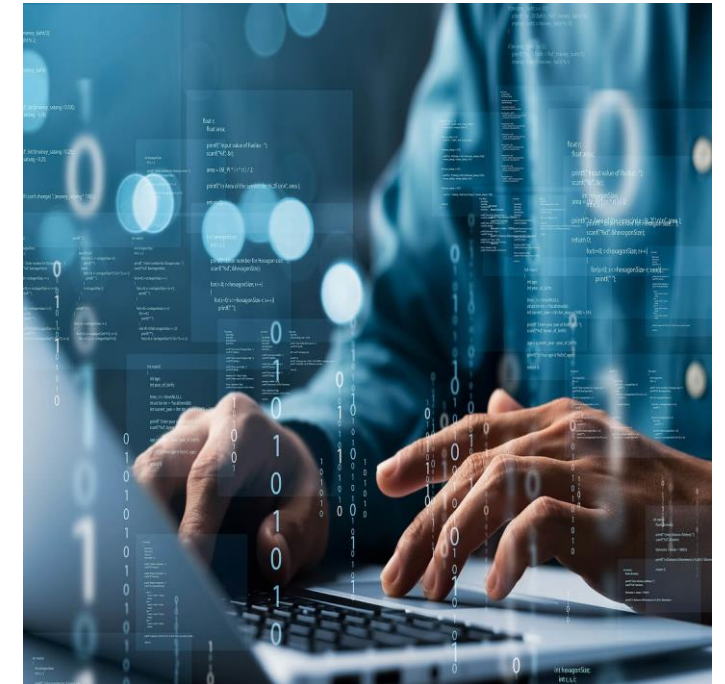
Objective:

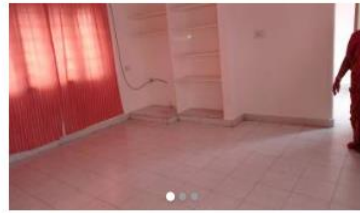
- The main objective of this project is about Analysis On Rental Houses.
- We aims to understand the strong relationship of the rental houses in Hyderabad and their features.
- Analyze the distribution of property types in the rental market.
- Evaluate the proportion of furnished, semi-furnished and unfurnished rental houses with property type.
- Investigate how the Number of BHK correlates with the rental prices.
- Determine the market prices of owner-listed versus agent-listed properties
- To provide buyers with quality homes with the affordable price amount.



Web Scrapping:

- We have Scrapped the data of Rental houses in Hyderabad from makaan.com using 'Beautiful Soup'.
- We have created a Data Frame with scrapped data called 'df' consists of 8 columns in it.
- After that we are removing the duplicates and cleaning the data frame.
- Then we stored that Data Frame into csv file format.





2 BHK Independent House

Shaikpet, Hyderabad

₹ 12,000

Price

1200

Area in sq ft

Unfurnished

Status

No Deposit | 1 bathrooms | NorthEast facing

2 BHK in Shaikpet Hyderabad: This spacious 2 bhk independent house is avail... More



Seller



Connect Now



5 BHK Villa in CPR Bella Vista

Nallagandla Gachibowli, Hyderabad

₹ 80,000

Price

4000

Area in sq ft

Semi-Furnished

Status

No Deposit | 5 bathrooms | West facing

5 BHK in Nallagandla Gachibowli Hyderabad: A 5 bhk property is available for... More



Seller



Connect Now



2 BHK Apartment

Boiguda, Hyderabad

₹ 17,000

Price

900

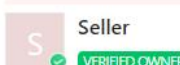
Area in sq ft

Unfurnished

Status

No Deposit | 1 bathrooms

2 BHK in Boiguda Hyderabad: A 2 bhk property is available for rent in Boigud... More



Seller



Connect Now



2 BHK Apartment in Swaraj Homes Younus Manzil A...

Moosapet, Hyderabad

₹ 15,000

Price

1100

Area in sq ft

Semi-Furnished

Status

No Deposit | 2 bathrooms

2 BHK in Moosapet Hyderabad: A 2 bhk property is available for rental in Swa... More



Seller



Connect Now

```
<div data-top-1010~/div>
<div class="max1366 clearfix">
  <div class="list-mainarea">
    <div data-lazymodule="filter" class="formobilefilters m3177" data-module="filter" id="mod-filter-1">...</div>
    <div data-module="listingsWrapper" id="mod-listingsWrapper-1">
      <script type="text/x-config">{"totalCount":4999,"listingCount":20,"isZeroListingPage":false}</script>
      <div data-listing-wrapper>
        <div class="search-result-wrap" search-result-wrap>
          <div class="srow">...</div>
          <div class="mp-match-wrap js-mp-match-banner hide">...</div>
          <div class="zero-results-similar-wrap minheight">
            <ul>
              <li class="cardholder" data-cardholder>...</li>
              <li class="cardholder" data-cardholder>
                <div class="cardWrapper initialized" data-module="listing" data-listing-id="21123037" data-track-scroll="2" data-listing-projectid="1694641" id="mod-listing-2"> == $0
                  <script type="text/x-config">...</script>
                  <div data-type="listing-card" class="cardLayout clearfix" itemscope itemType="http://schema.org/House" itemid="https://www.makaan.com/hyderabad/builder-project-in-khairatabad-roi-d-21123037/2bhk-1t-700-sqft-independenthouse-for-rent" itemref="itemNameFor-21123037">...</div>
                  <div class="adp-interscroller-container">...</div>
                </li>
              <li class="cardholder" data-cardholder>...</li>
              <li>...</li>
              <li class="cardholder" data-cardholder>
                <div class="cardWrapper initialized" data-module="listing">...</div>
              </li>
            </ul>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>
```


Data Cleaning

BEFORE



```
<class 'pandas . Core . Frame . Data Frame'>  
Int64Index: 418 entries, 0 to 579  
Data columns (total 8 columns):  
#  Column                Non-Null Count  D type  
---  ---  
0  No _ BHK                418 non-null   int32  
1  Prop _ type              418 non-null   object  
2  Location                 418 non-null   object  
3  Furnishing _ status      418 non-null   object  
4  Area _ in _ s q          418 non-null   int32  
5  Restrooms                418 non-null   int32  
6  Listed _ by              418 non-null   object  
7  Price                    418 non-null   int32  
D types: int32(4), object(4)  
memory usage: 22.9+ KB
```



```
<class 'pandas .core .frame . Data Frame'>  
Range Index: 580 entries, 0 to 579  
Data columns (total 8 columns):  
#  Column                Non-Null Count  D type  
---  ---  
0  No _ BHK                580 non-null   object  
1  Prop _ type              580 non-null   object  
2  Location                 580 non-null   object  
3  Furnishing _ status      580 non-null   object  
4  Area _ in _ sq           580 non-null   object  
5  Restrooms                580 non-null   object  
6  Listed _ by              580 non-null   object  
7  Price                    580 non-null   object  
d types: object(8)  
memory usage: 36.4+ KB
```

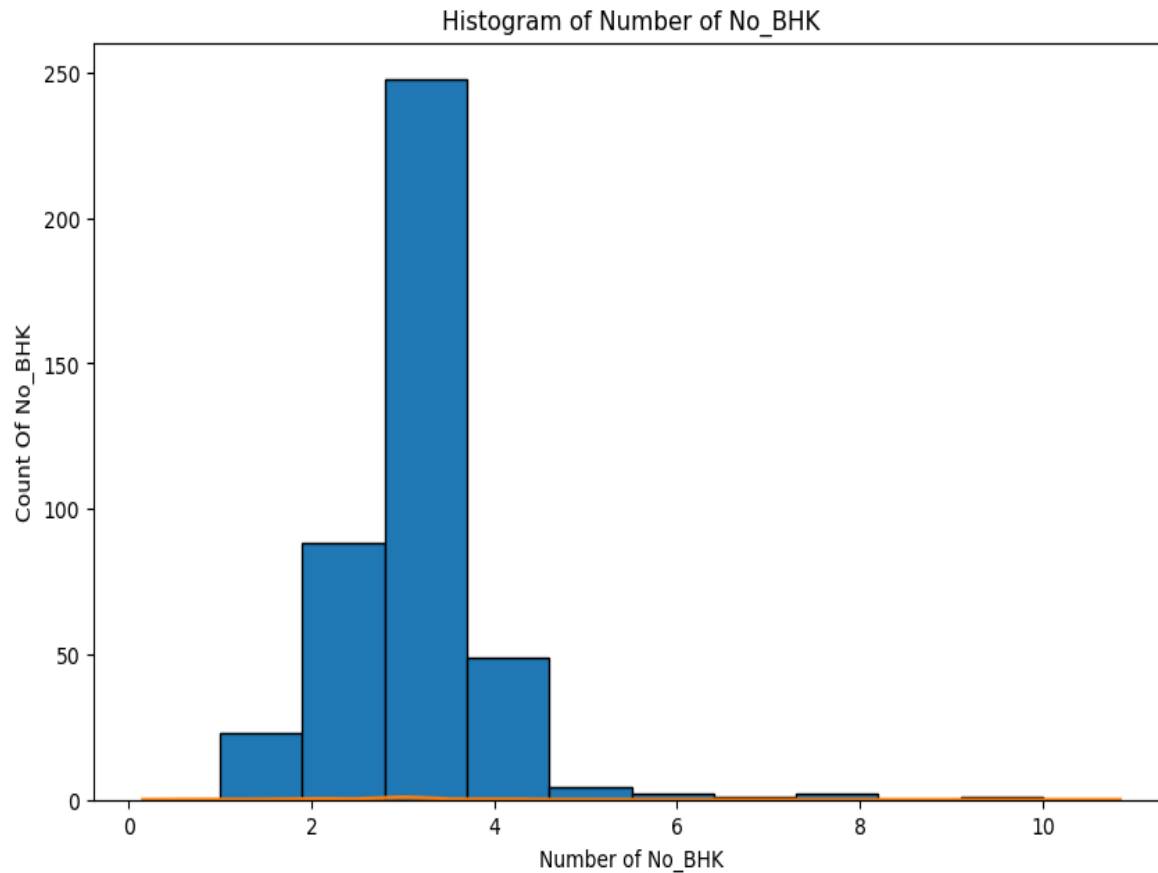
AFTER

Exploratory Data Analysis :

- Exploratory Data Analysis (EDA) is used to analyse and investigate data sets and summarize their main characteristics, employing data Visualization methods.
- This helps to detect any errors, outliers as well as to understand different patterns in the data.
- It allows us to understand the data better before making any assumptions.

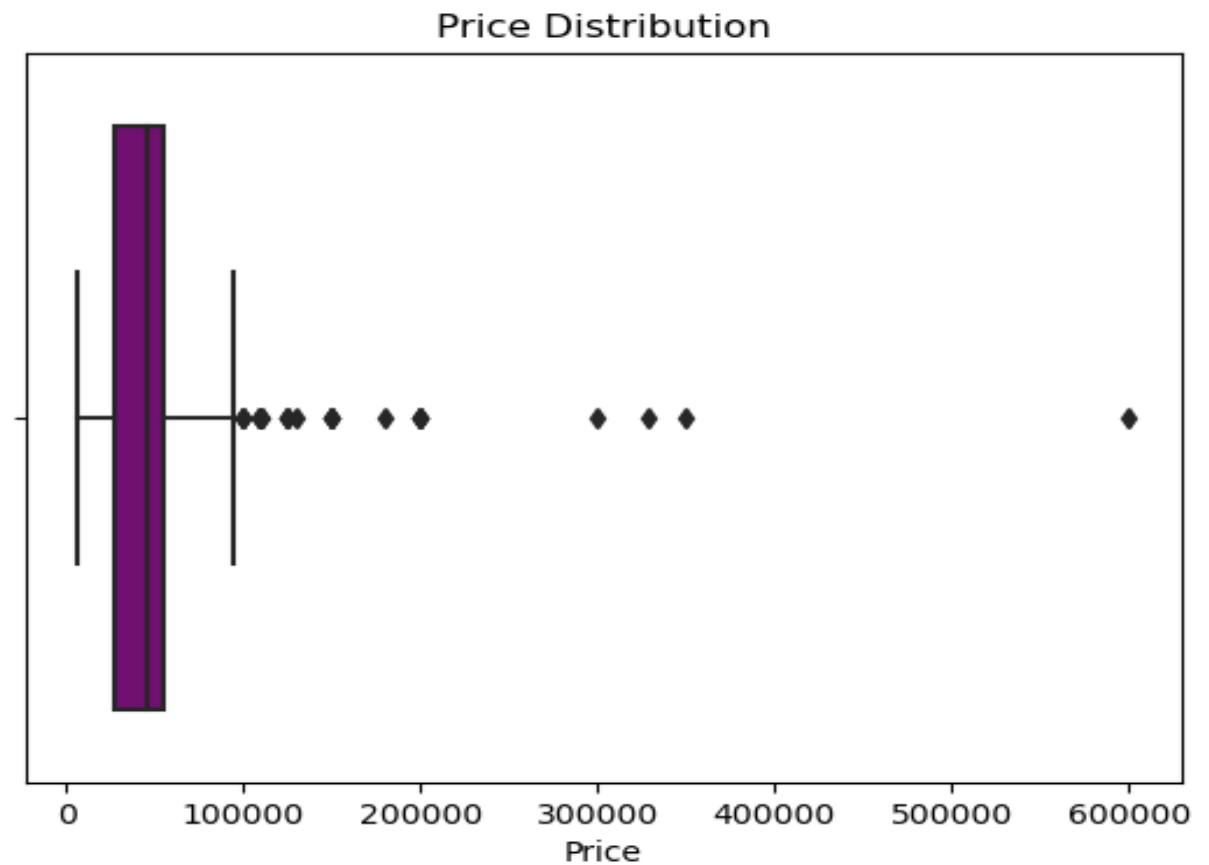
Univariate – Analysis :

Histogram



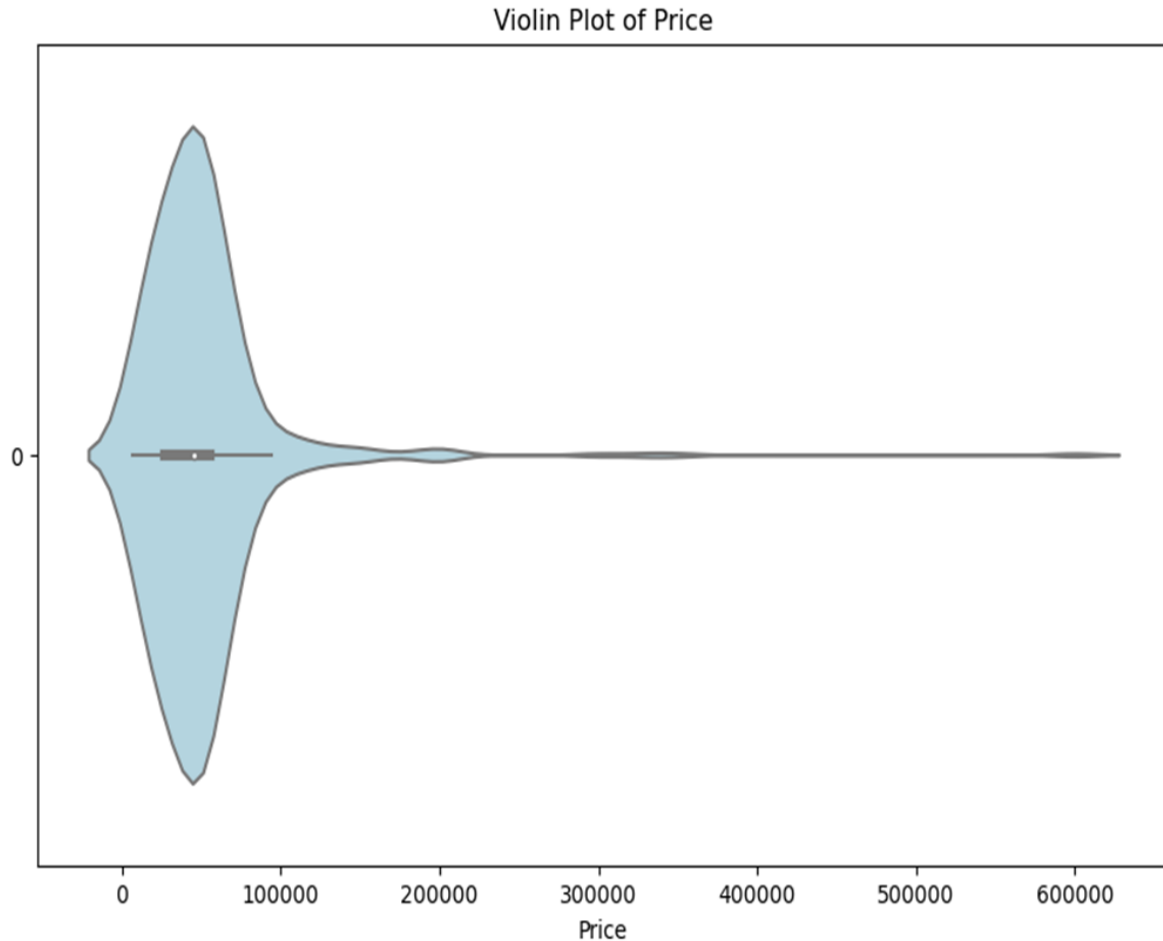
- Here we can see the count of BHK , in this data 3 BHK is higher than the others and 5 to 10 BHK is lower.

Boxplot



- Here we have lot of outliers from 100000 to 350000 in this plot .The Inter Quartile Range(IQR) of this plot is 28750.5

Violin plot



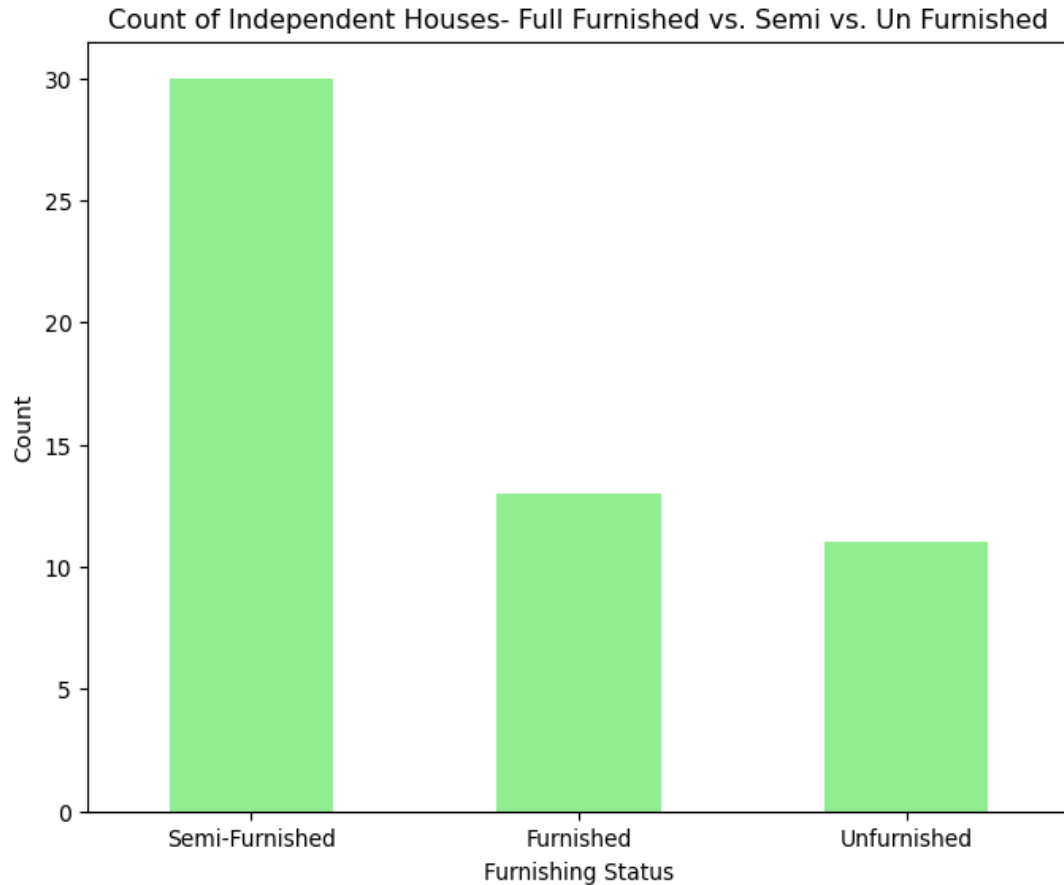
- Here the price amount is represented b/w 0 to 100000 and the white dot represent the median value.

Analysis on count of Apartments Furnishing - status



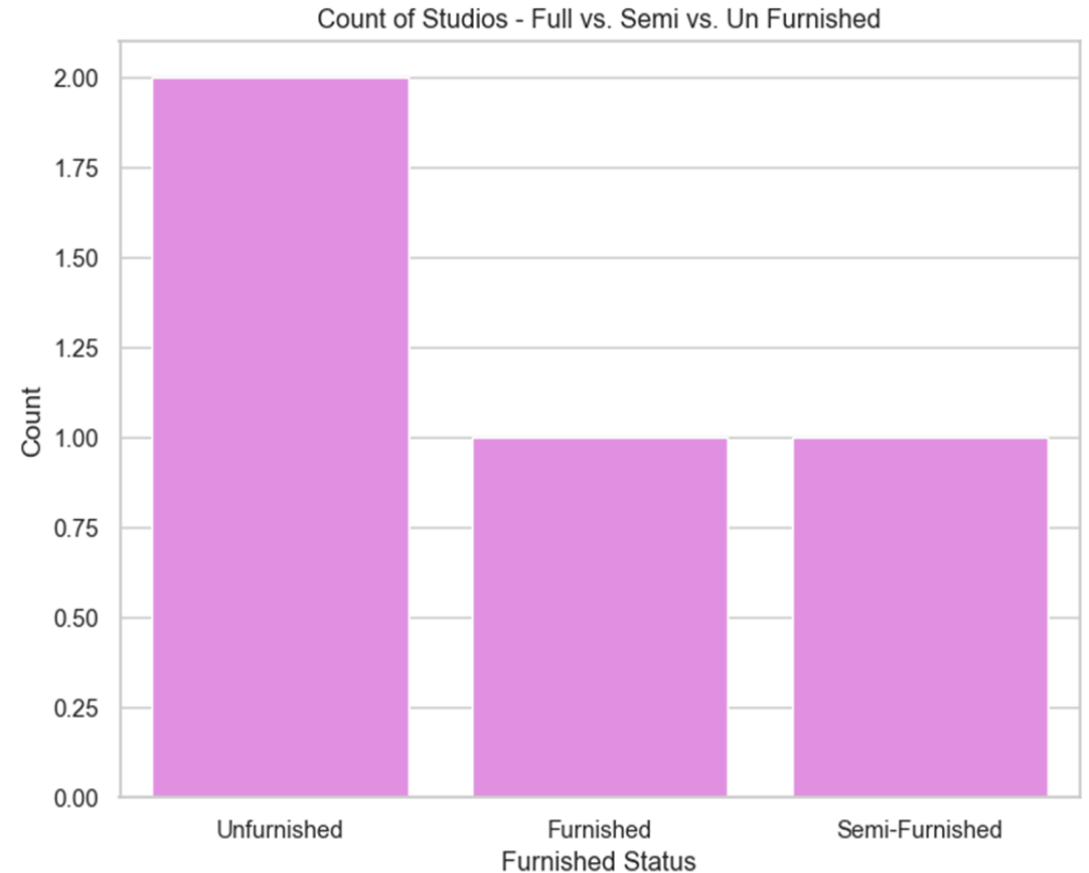
- Here in the Furnishing Status for Apartments, we have the highest count is for semi- Furnished.

Analysis on count of Independent Furnishing – status



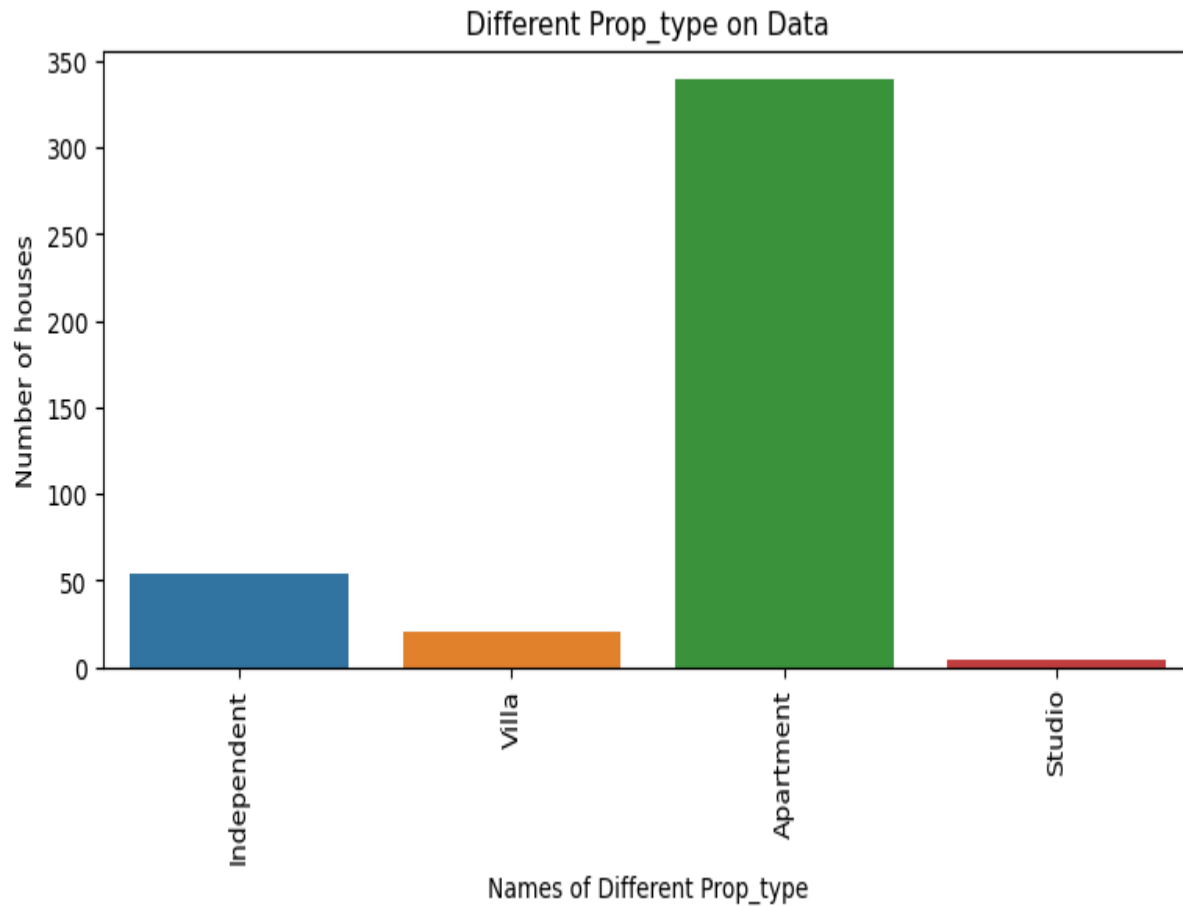
- Here we have highest count of Furnishing status is semi-furnished in independent houses.

Analysis on count of Studios Furnishing - status



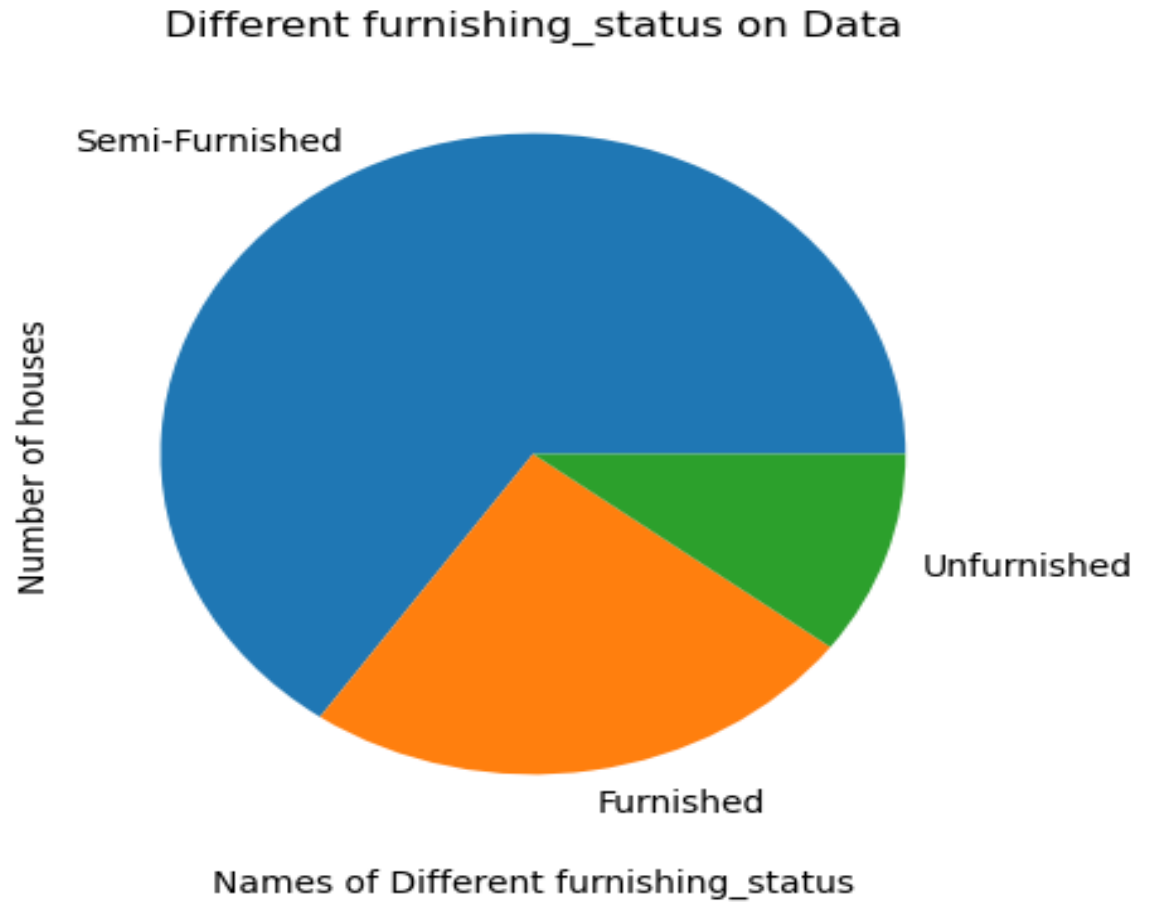
- The Un - Furnished studios have the highest count in Furnishing status

Count plot



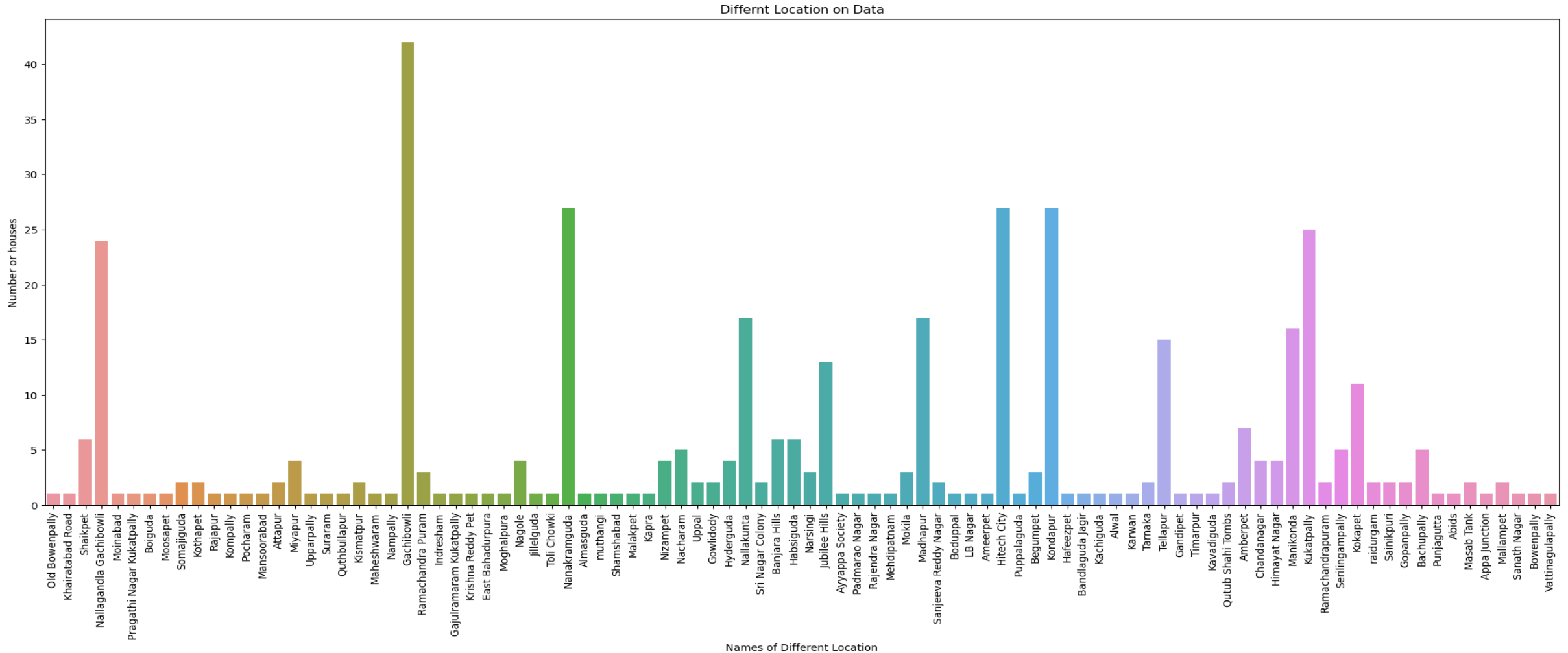
- In this plot the highest count of prop _ type is Apartment and lowest is studio.

Pie - Chart



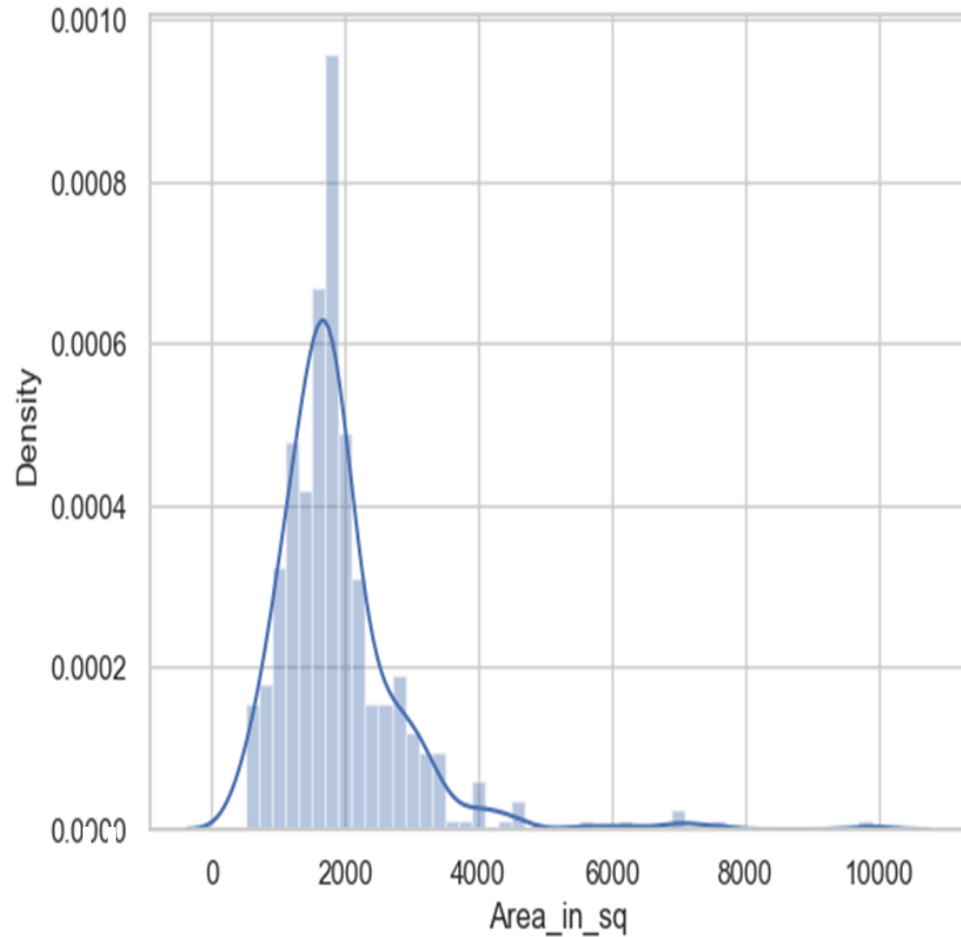
- Here it represents the semi – furnishing of furnishing _ status is high, unfurnished is low.

Analysis on Location



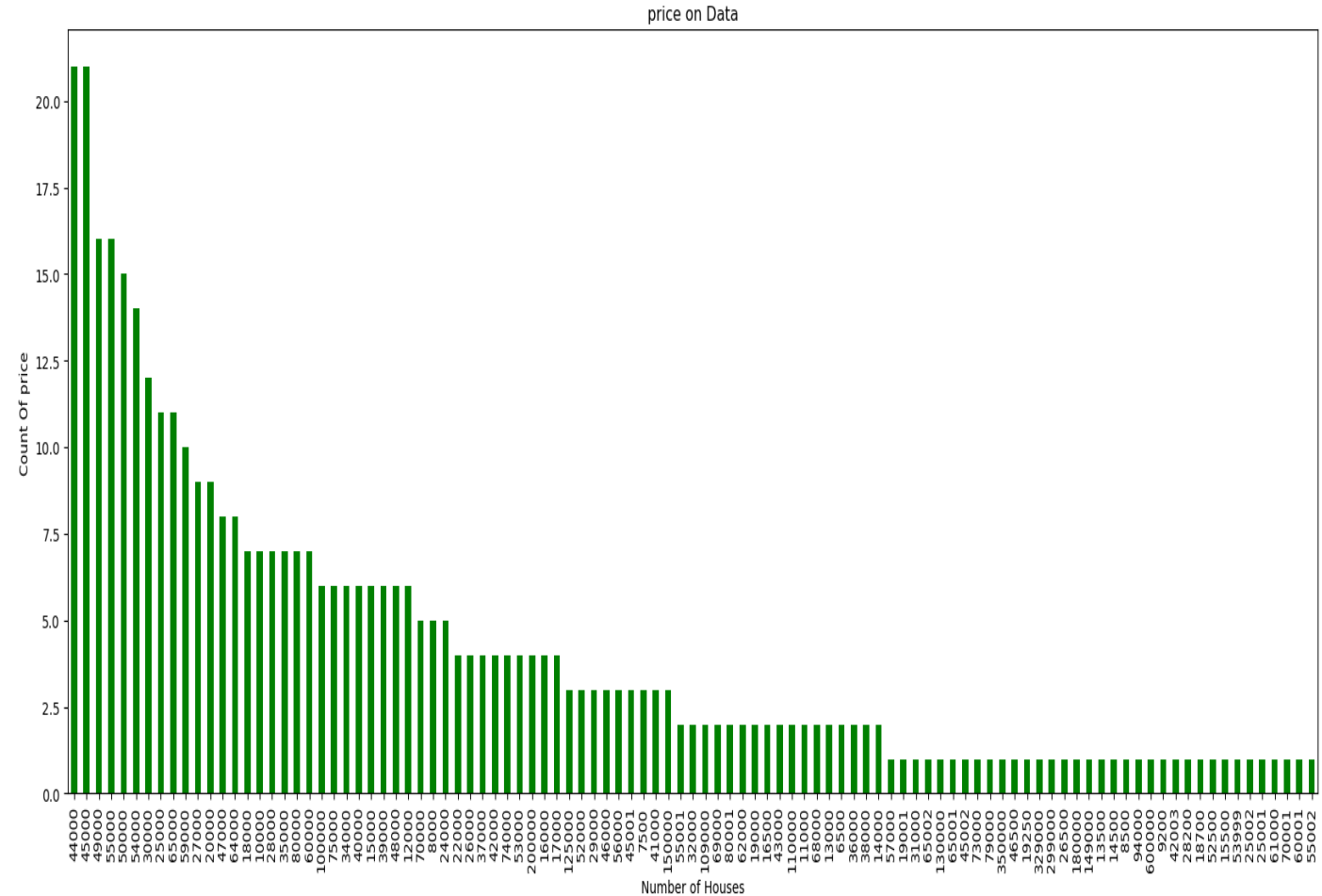
- Here its represents the most of the houses are located in Gachibowli in Hyderabad.

Analysis on Area in sq



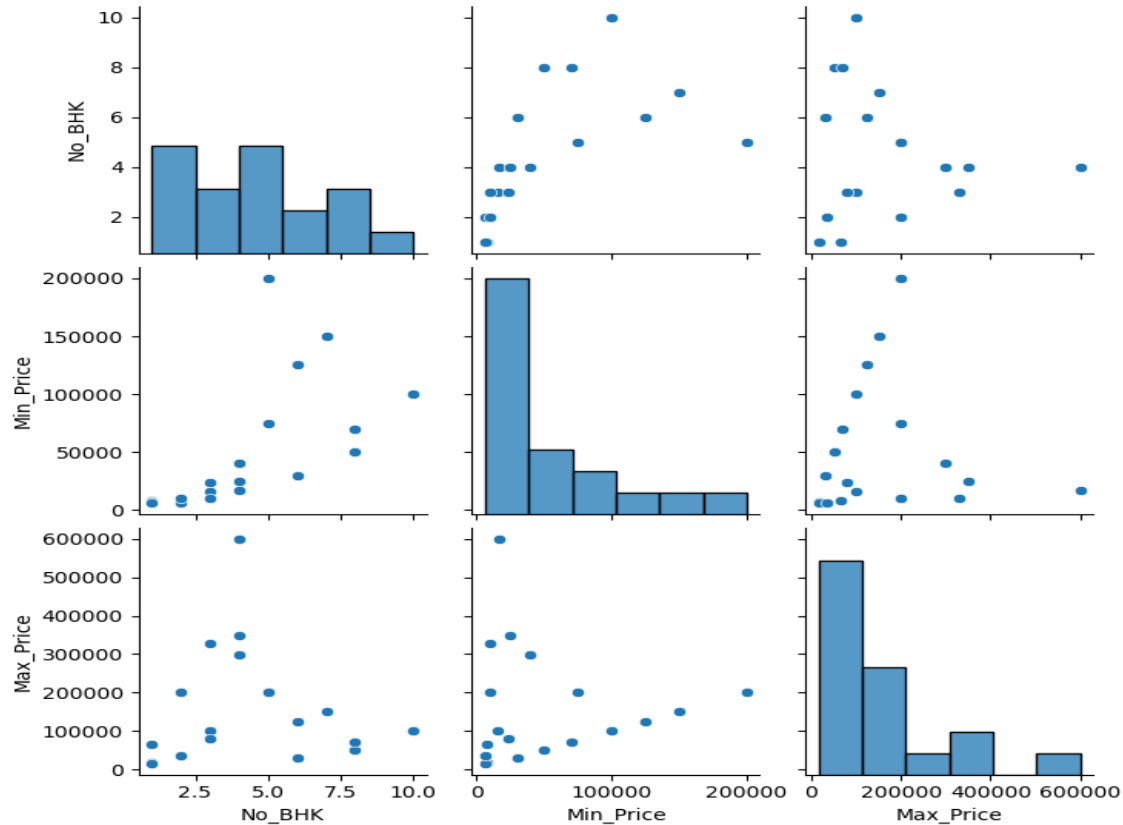
- The distribution of frequency 2000 is the highest density in Area _ in _sq.

Analysis on Price



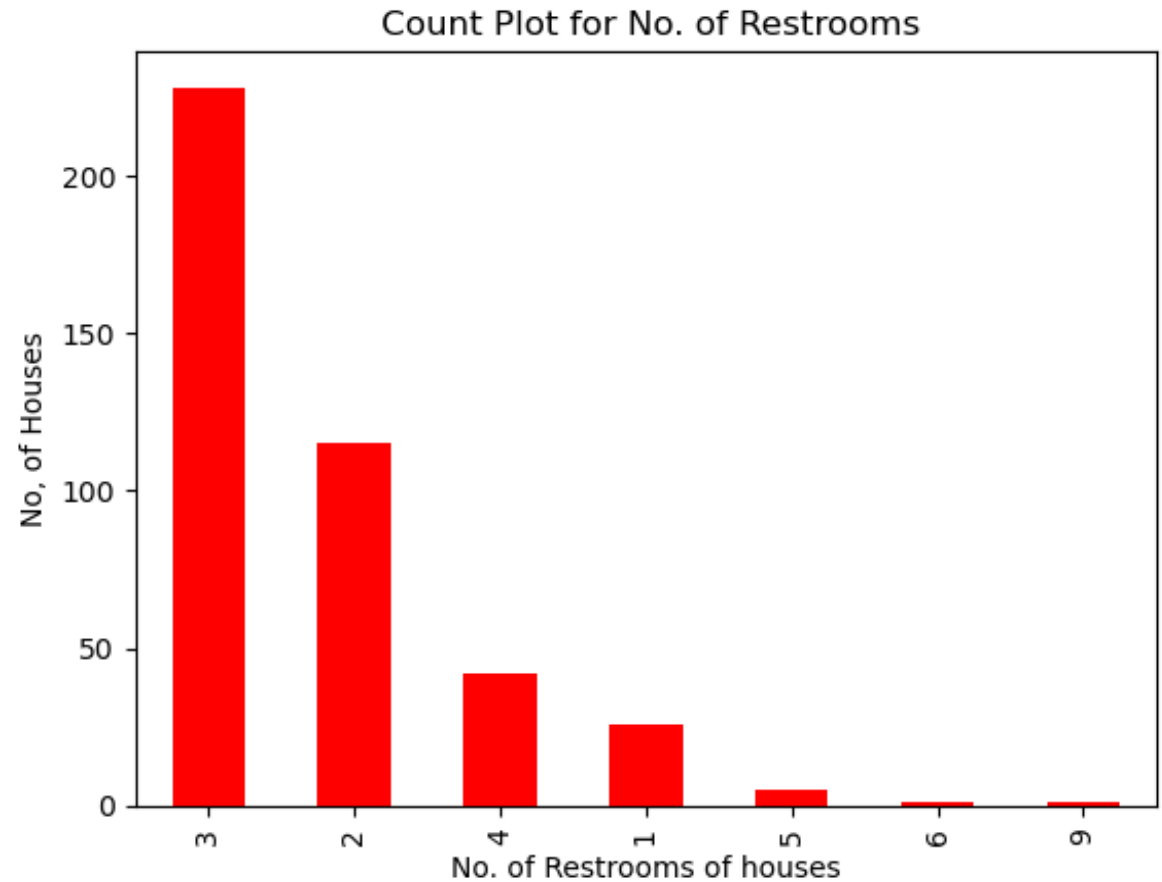
- Most of the houses are sold at the price of 44000 and 45000. Low as 57000 to 55002.

Pair plot



- The histogram in the diagonal represent the No-BHK
- The upper & lower triangular scatter plots represent the relationship between Maximum and Minimum prices Of number of BHK.

Bar plot

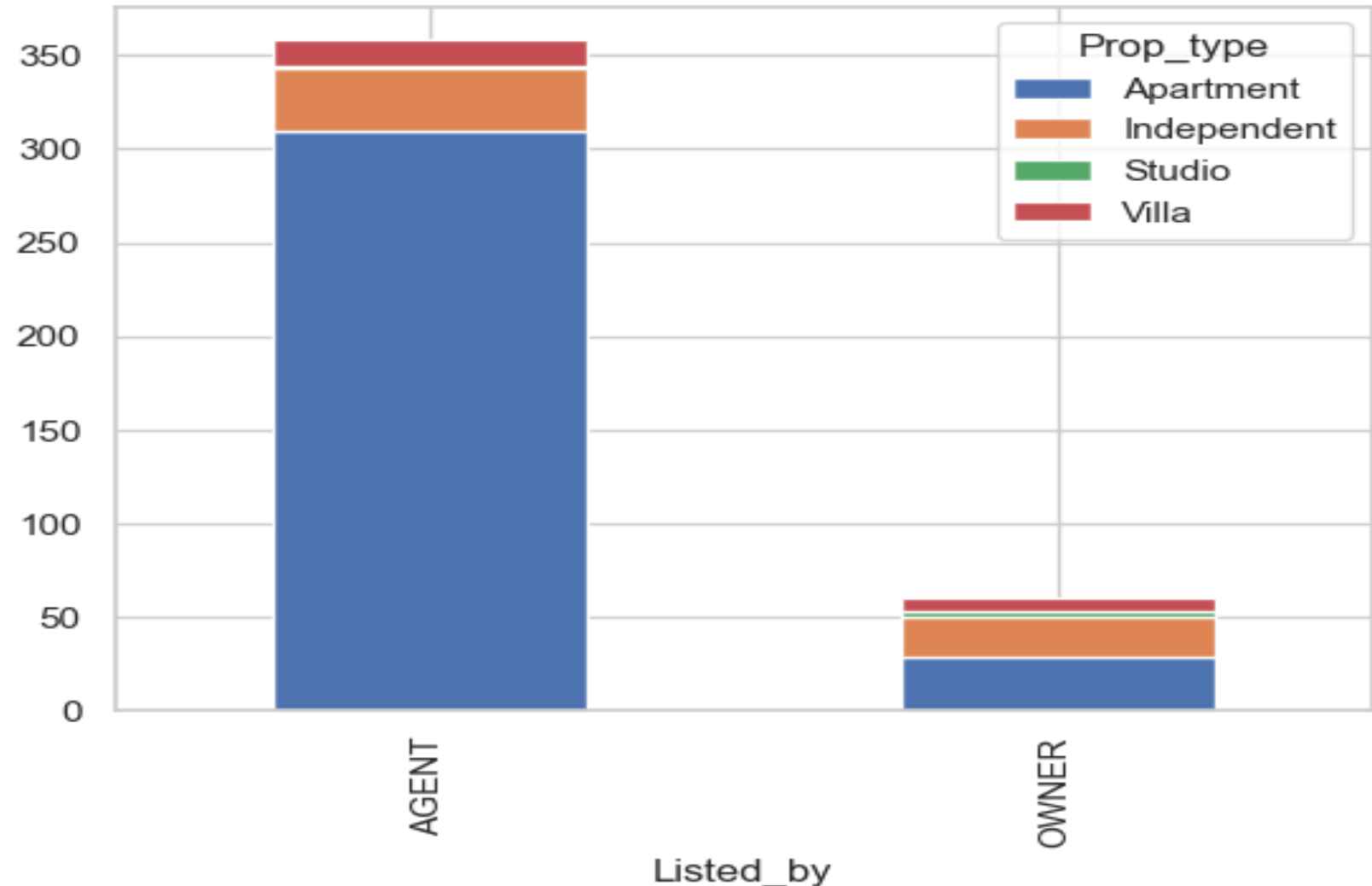


- In this plot we can see , most of the houses having 3 restrooms in it.

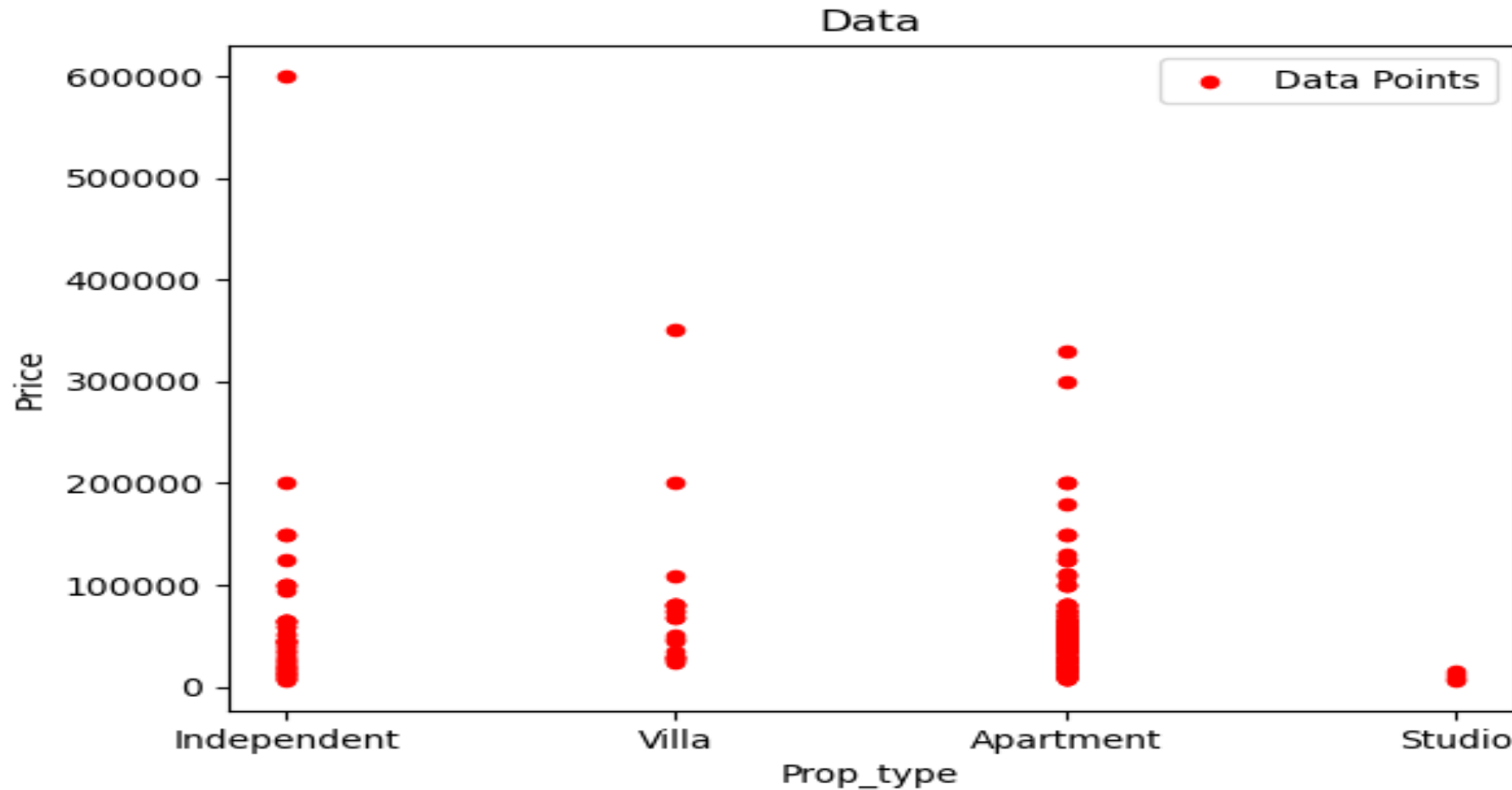
Bi-variate Analysis

Crosstab :

- By analysing the plot, it can represent the count of properties based on their type (Apartments, Independent, Studio, Villa).
- The entity that listed them(Listed _ by)as either agent or owner in the column of Listed _ by.
- Agent has the highest count than the owner.



Relationship between Prop type and Price



- Here we see the Villa in property type having the highest range of prices comparing the other types.

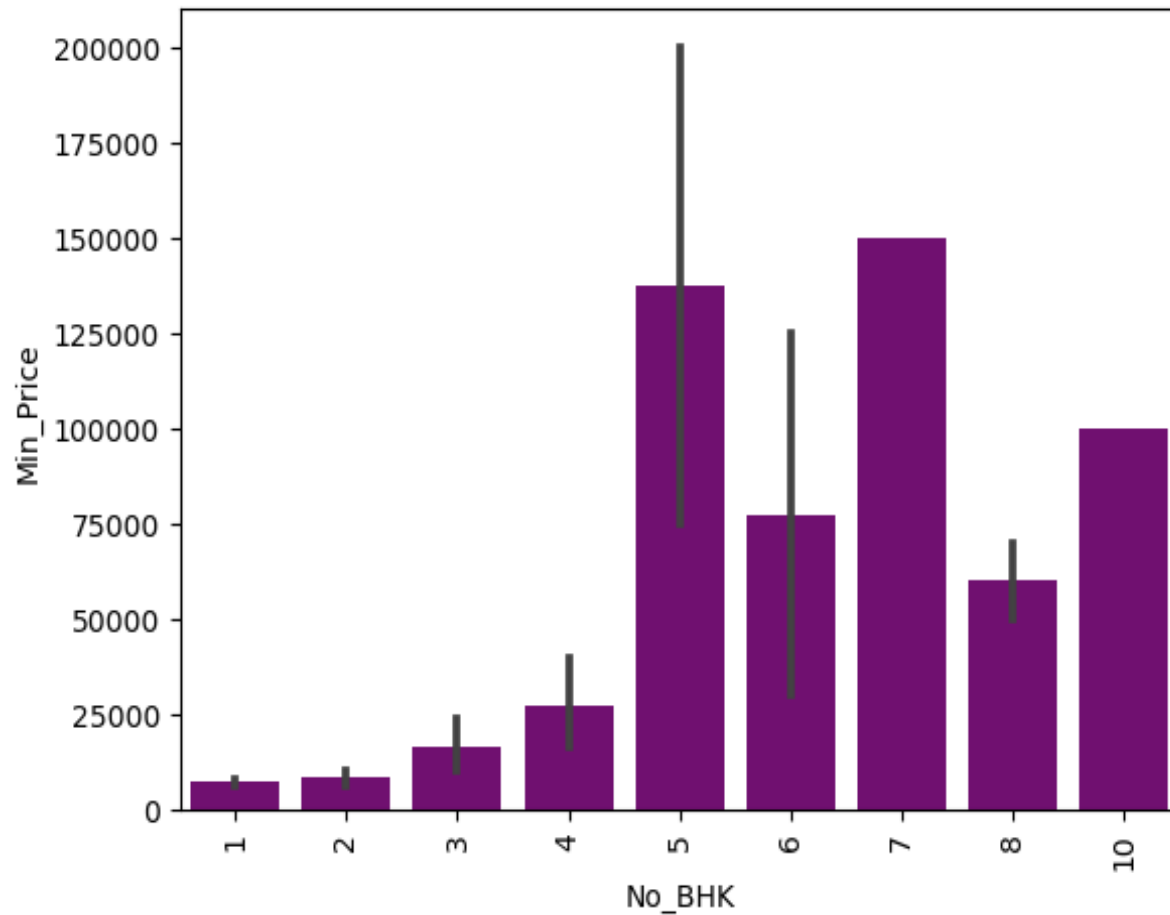
✓ Grouped-by based on price & ownership:

- A group by operation involves some combination of splitting the object, applying function and combining the results.
- This can be used to group large amounts of data and compute operations on these groups.
- We could use aggregate functions like min(), mean(), median(), count(), average() and sum() to find the minimum, mean, median, count, sum and average values in a group within our dataset.
- Here in this, we have taken mean() as an aggregate function to find the average of price amount which is owned by the owners and those managed by the agents.
- For Agent it is 51622.550279 and for Owner it is 355410650000.
- By comparing both the averages, we get the price of houses rented by the agent is very high.

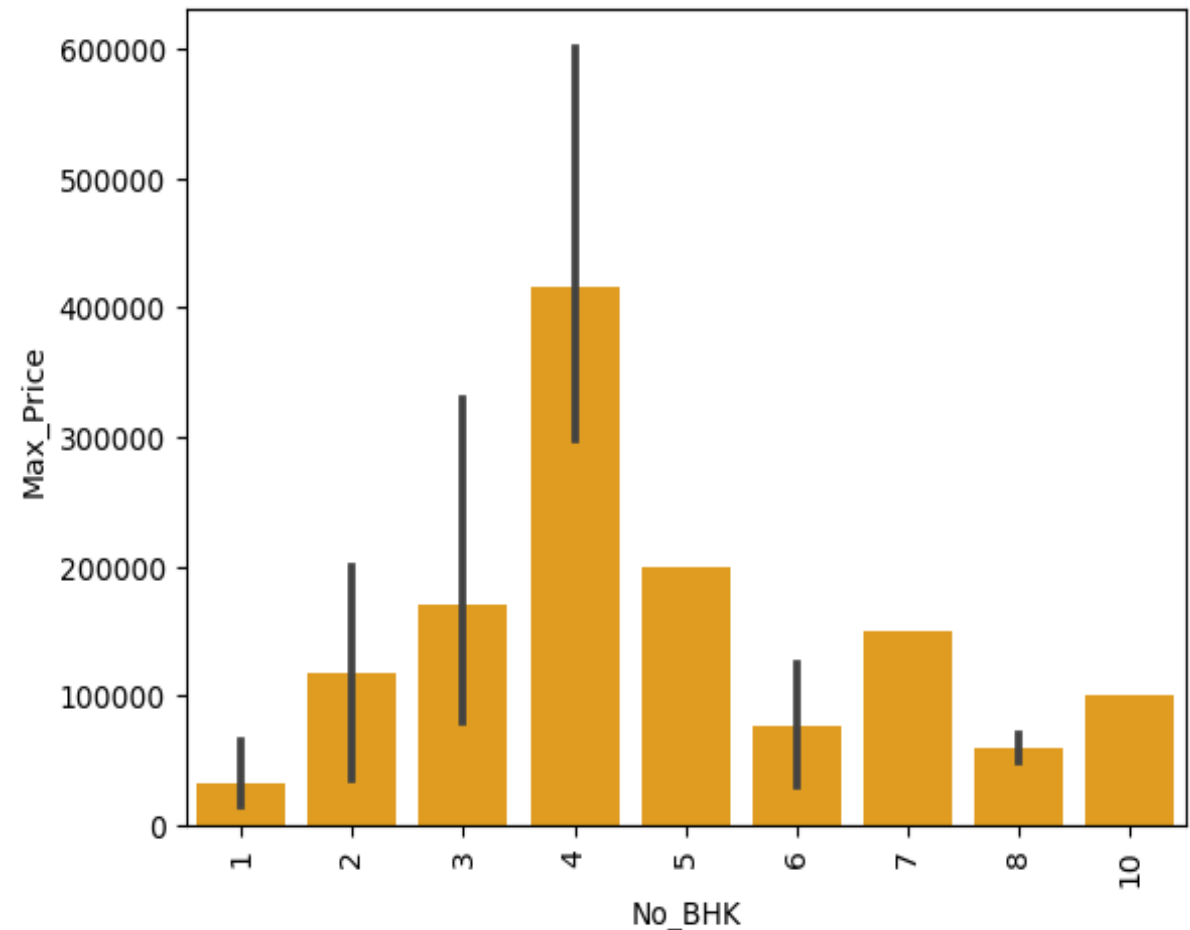
✓ Pivot Table:

- This pivot table will give us the summary for our dataset.
- Here, this pivot table is for the property type that is the total count for the apartment, independent houses and the villa, based on the number of areas in squarefeet.
- As a result we get, Apartment is 339, Independent houses is 54, Villa is 21 and Studios is 4.

Difference b/w min and max Price of No BHK



- This bar plot represent an estimate of central tendency for a numeric variable with the height of each rectangle.
- Here we are comparing the No-BHK with the Min- price.

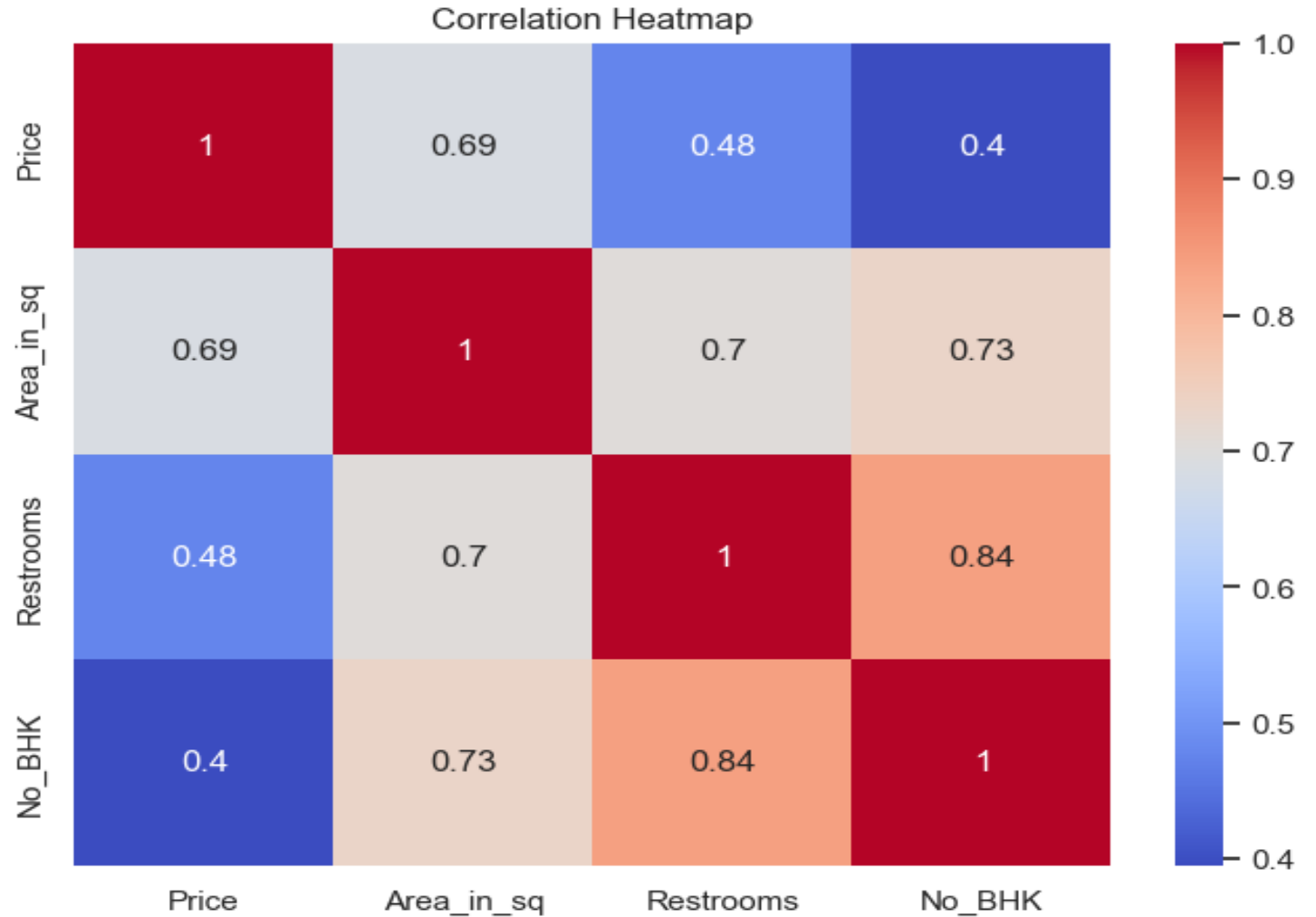


- Here in this bar plot , we are comparing the No- BHK and the Maximum prices.

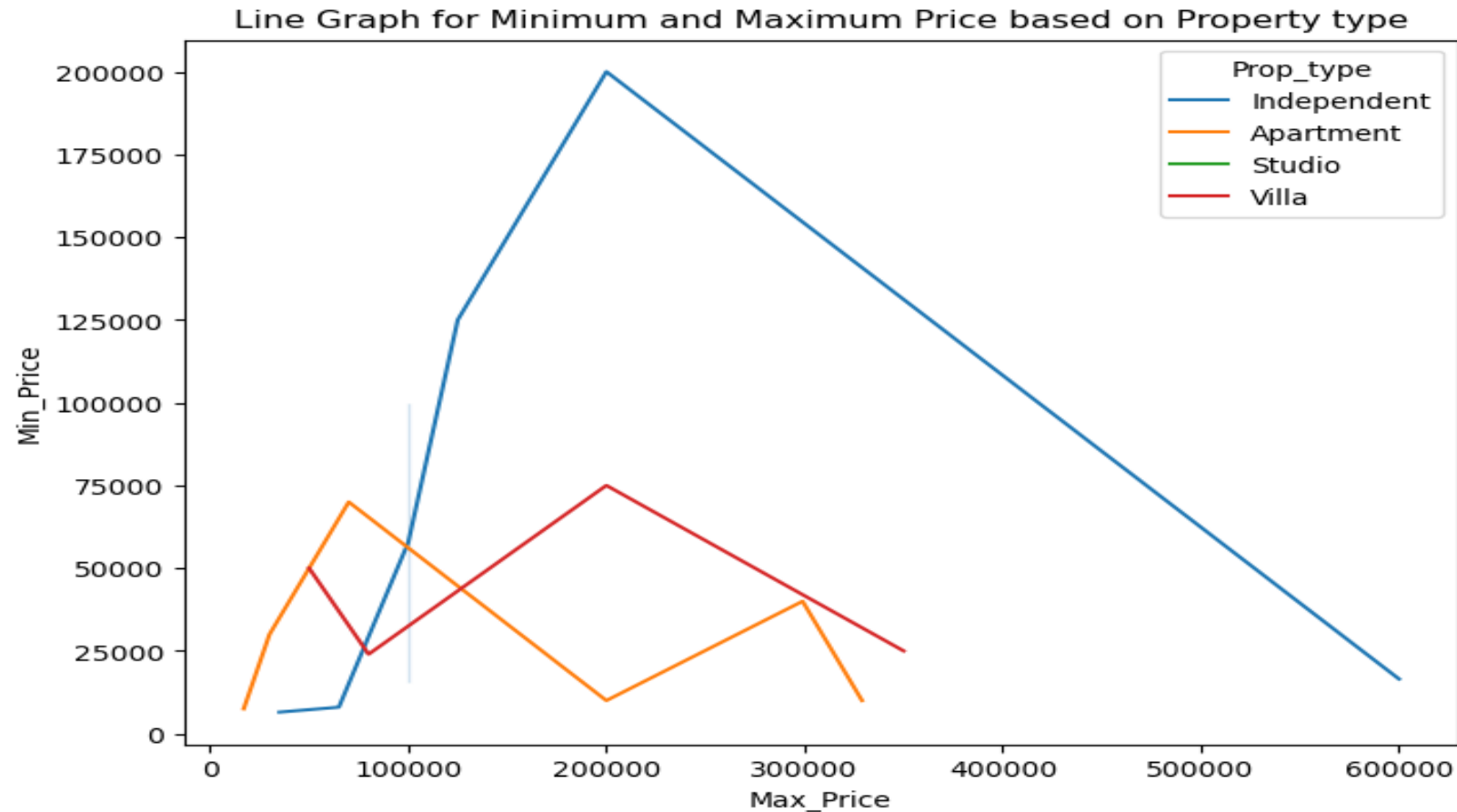
Multivariate Analysis

Correlation plot – Heat map:

- The 'Correlation Heatmap' shows the relationship between multiple variables as a colour - coded matrix.
- The color intensity and the values in the cells will give you an idea of the strength and direction of the correlations.
- This code will create a heatmap that visualizes the correlation between 'BHK', 'Area _ in _ sq', 'Restroom', and 'Price'.
- Correlation range is from -1 to $+1$.
- Columns which lies near the range of $+1$ has more relationship. Here, 'No _ BHK & Price' are highly Correlated.
- Columns which lies far away from the range of $+1$ has very less relationship. Here, 'Area _ in _ sq & Price' are very less Correlated.



Relationship b/w max and min Price of Prop type



- This line plot displays the numerical values on one axis, they are more commonly used to keep track of changes over time.

Conclusion

- From this analysis, It was great learning experience to us about the rental houses.
- It help us to understand better about the process of how to buy or rent the houses/properties by the owners or agents.
- Possible solutions were analysed and ideas were implemented.





THANK YOU