```
#import pandas required
```

NAME:SRIRAM R

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

```
df = pd.read_csv("/content/Houseprice Dataset.zip")
```

```
df.head()
```

	id	Date	number of bedrooms	number of living area	number of area	lot of floors	number of bathrooms	waterfront present	number co views
0	6762810145	42491	5	2.50	3650	9050	2.0	0	4
1	6762810635	42491	4	2.50	2920	4000	1.5	0	0
2	6762810998	42491	5	2.75	2910	9480	1.5	0	0
3	6762812605	42491	4	2.50	3310	42998	2.0	0	0
4	6762812919	42491	3	2.00	2710	4500	1.5	0	0

5 rows × 23 columns

```
df.head()
```

	id	Date	number of bedrooms	number of living area	number of area	lot of floors	number of bathrooms	waterfront present	number co views
0	6762810145	42491	5	2.50	3650	9050	2.0	0	4
1	6762810635	42491	4	2.50	2920	4000	1.5	0	0
2	6762810998	42491	5	2.75	2910	9480	1.5	0	0
3	6762812605	42491	4	2.50	3310	42998	2.0	0	0
4	6762812919	42491	3	2.00	2710	4500	1.5	0	0

5 rows × 23 columns

```
df.tail()
```

	id	Date	number of bedrooms	number of living area	number of the ...	lot	number of bathrooms	waterfront views	area house	number Built area	condition Renovation present	Po Year	id Year	Date floors	of
14615	6762830250	42734	2	1.5	1556	20000	1.0	0	0	4	...	1957	0	12	
14616	6762830339	42734	3	2.0	1680	7000	1.5	0	0	4	...	1968	0	12	
14617	6762830618	42734	2	1.0	1070	6120	1.0	0	0	3	...	1962	0	12	
14618	6762830709	42734	4	1.0	1030	6621	1.0	0	0	4	...	1955	0	12	
14619	6762831463	42734	3	1.0	900	4770	1.0	0	0	3	...	1969	2009	12	

5 rows × 23 columns

```
df.shape
```

```
(14620, 23)
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14620 entries, 0 to 14619
Data columns (total 23 columns):
 #   Column                                Non-Null Count  Dtype
---  ------                                --------------  -----
0   id                                    14620 non-null  int64
1   Date                                  14620 non-null  int64
2   number of bedrooms                    14620 non-null  int64
3   number of bathrooms                   14620 non-null  float64
4   living area                           14620 non-null  int64
5   lot area                              14620 non-null  int64
6   number of floors                      14620 non-null  float64
7   waterfront present                    14620 non-null  int64
8   number of views                       14620 non-null  int64
9   condition of the house                14620 non-null  int64
10  grade of the house                    14620 non-null  int64
11  Area of the house(excluding basement)  14620 non-null  int64
12  Area of the basement                  14620 non-null  int64
13  Built Year                            14620 non-null  int64
14  Renovation Year                       14620 non-null  int64
15  Postal Code                           14620 non-null  int64
16  Lattitude                             14620 non-null  float64
17  Longitude                             14620 non-null  float64
18  living_area_renov                     14620 non-null  int64
19  lot_area_renov                        14620 non-null  int64
20  Number of schools nearby              14620 non-null  int64
21  Distance from the airport             14620 non-null  int64   22  Price
    14620 non-null  int64  dtypes: float64(4), int64(19) memory usage: 2.6 MB
```

```
df.isnull().any()
```

```
id                                    False
Date                                  False
number of bedrooms                    False
number of bathrooms                   False
living area                           False
lot area                              False
number of floors                      False
waterfront present                    False
number of views                       False
condition of the house                False
grade of the house                    False
Area of the house(excluding basement)    False
Area of the basement                  False
Built Year                            False
Renovation Year                       False
Postal Code                           False
Lattitude                             False
Longitude                             False
living_area_renov                     False
lot_area_renov                        False
Number of schools nearby              False
Distance from the airport             False
Price                                 False
dtype: bool
```

```
df.isnull().sum()
```

```
id                                    0
Date                                  0
number of bedrooms                    0
number of bathrooms                   0
living area                           0
lot area                              0
number of floors                      0
waterfront present                    0
number of views                       0
condition of the house                0
grade of the house                    0
Area of the house(excluding basement)    0
Area of the basement                  0
Built Year                            0
Renovation Year                       0
Postal Code                           0
Lattitude                             0
Longitude                             0
living_area_renov                     0
```

```
lot_area_renov                  0
Number of schools nearby        0
Distance from the airport       0
Price                           0
dtype: int64
```

Univariate Analysis

```
df.describe()
```

	id	Date	living area	lot area	number of bedrooms	number of bathrooms	number of floors	waterfront present	number of views	condi h
count	1.462000e+04	14620.000000	14620.000000	14620.000000	14620.000000	1.462000e+04	14620.000000	14620.000000	14620.000000	14620.00
mean	6.762821e+09	42604.538646	3.379343	2.129583	2098.262996	1.509328e+04	1.502360	0.007661	0.233105	3.43
std	6.237575e+03	67.347991	0.938719	0.769934	928.275721	3.791962e+04	0.540239	0.087193	0.766259	0.66
min	6.762810e+09	42491.000000	1.000000	0.500000	370.000000	5.200000e+02	1.000000	0.000000	0.000000	1.00
25%	6.762815e+09	42546.000000	3.000000	1.750000	1440.000000	5.010750e+03	1.000000	0.000000	0.000000	3.00
50%	6.762821e+09	42600.000000	3.000000	2.250000	1930.000000	7.620000e+03	1.500000	0.000000	0.000000	3.00
75%	6.762826e+09	42662.000000	4.000000	2.500000	2570.000000	1.080000e+04	2.000000	0.000000	0.000000	4.00
max	6.762832e+09	42734.000000	33.000000	8.000000	13540.000000	1.074218e+06	3.500000	1.000000	4.000000	5.00

8 rows × 23 columns

```
df.head()
```

	id	Date	number of bedrooms	number of bathrooms	living area	lot area	number of floors	waterfront present	number of views	condition of the house	...	Built Year	Renovation Year	Post Co
0	6762810145	42491	5	2.50	3650	9050	2.0	0	4	5	...	1921	0	1220
1	6762810635	42491	4	2.50	2920	4000	1.5	0	0	5	...	1909	0	1220
2	6762810998	42491	5	2.75	2910	9480	1.5	0	0	3	...	1939	0	1220
3	6762812605	42491	4	2.50	3310	42998	2.0	0	0	3	...	2001	0	1220
4	6762812919	42491	3	2.00	2710	4500	1.5	0	0	4	...	1929	0	1220

5 rows × 23 columns

```
df.living_area_renov.nunique()
```

```
665
```

```
df.living_area_renov.unique()
```

```
array([2880, 2470, 2940, 3350, 2060, 2380, 3320, 1570, 2010, 2320, 2820,        1910, 2390,
2410, 1300, 2730, 1860, 4050, 2570, 2200, 2590, 2860,
       1090, 3000, 1340, 2780, 2080, 2260, 2990, 1560, 1320, 1850, 1150,
       1770, 2340, 1680, 1260, 1450, 2070, 2290, 1960, 2830, 1440, 1790,
       1160, 1480, 1100, 2280, 1590, 1410, 2310, 1750, 2130, 1400, 1380,
       1580, 3030, 1280, 1940, 1390, 2315, 2240, 2350, 2140, 4850, 1870,
       2610, 2720, 3100, 4420, 4530, 3430, 2550, 1670, 3070, 2020, 3180,
       2970, 1690, 2750, 2170, 3715, 1950, 2580, 1810, 3010, 1350, 1720,
       1800, 2840, 2330, 1060, 2160, 2030, 1880, 1520, 2500, 1290, 1470,
       1890, 1730, 2220, 1840, 2670, 1200, 1408, 1620, 1430, 1630, 1310,
       1760, 1820, 1220, 1980, 1130, 1170, 1510, 1240, 2488, 3510, 2490,
       2540, 2120, 2040, 3040, 3240, 3130, 3770, 2790, 2800, 2530, 2450,
       2520, 2770, 2000, 1780, 2210, 1420, 1660, 1970, 1270, 1460, 1500,
       1930, 1330, 1740, 1370, 2090, 1230, 2441,  840, 2360, 1650, 1490,         900,  820,
1700, 4100, 2960, 3470, 3820, 2430, 4130, 2190, 1990,        2250, 3200, 2850, 2560, 1640, 2870,
2510, 1180, 2600, 1540, 1250,
       1040, 1360, 1516, 2230, 2440, 2011, 1010, 1140, 1070,  910, 1326,
       3450, 2930, 2900, 3260, 2920, 2950, 3620, 1900, 1210, 3140, 2300,
       1190, 2527, 2150, 2980, 1920, 1600, 1357, 1572, 4460, 3890, 3660,
       3230, 3500, 3080, 3880, 2700, 2690, 2100, 2270, 1110, 1439,  998,
       1714, 1610, 1550, 1020, 3220, 4760, 2890, 3530, 2400, 3600, 2480,
       3170, 3640, 2370,  980, 1080, 1120, 1830,  890, 1710, 3740, 4040,
       4240, 4440, 3290, 2180, 3120,  990, 2650, 3060, 1364, 2420, 3480,
       4560, 3210, 3390, 3360, 2910,  950,  920, 1030, 1530, 3860, 4210,
       3700, 2740, 2810, 2460, 2660, 1232,  850, 3490, 3150, 1445, 2114,
       1404, 3910, 3160, 3580, 2760,  930, 3300, 5170, 4060, 3920, 3610,
       2303, 1862, 1050, 3850, 3840, 1000, 2110, 2680, 2050, 2620, 3790,
       2415, 3440, 2640, 3110, 2052, 2095, 3630, 2710, 3270, 5030, 3680,
```

```
               970, 1571, 1307, 1658, 3540, 4290, 2358, 3370, 1665, 3494, 2434,
               860,  880, 3930, 3710, 4140, 1365, 4020, 3690, 3750, 3590, 1346,
              3330, 2630, 1518, 3190, 1495, 2305, 3730, 2037, 2363, 1765, 3810,
              4090, 3280, 4390, 2027,  960, 2437,  770,  700, 4900, 3960, 3050,
              2578, 1484, 2583, 1914, 4280, 2412, 4070, 3380, 1405, 1811, 3250,
              3550, 2518, 3020, 2106, 2009, 1188, 4630, 3800, 4670, 3950, 1295,
              2478,  740, 3310, 4180, 2683, 2955, 4000, 3400, 3900, 3670, 3780,
              4400, 3420,  830,  460, 1256, 1494, 1098, 3720, 3560, 2028, 1459,
              1584, 3340, 2496, 1934, 2456, 4470, 4170, 3980, 1798, 2376, 2594,
              2214, 1768, 4550, 4010, 2554, 4950, 1277, 1156,  940, 2667, 5080,
              5790, 3830, 3639, 1664, 1481, 4080, 2502, 4620, 3410, 3090, 3618,
              2912, 2238, 1078, 5070, 3970, 4490, 3570, 2516,  780, 1767, 4160,
              3760, 3520, 2566, 1678, 4920, 3650, 4510, 4030, 3625, 2165, 2156,
              2641, 3460, 4340,  800, 4680, 4300, 2234,  760, 3990, 4640, 1746,
              1569, 1696, 2815, 1309,  870, 2458, 4750, 3045, 1894, 2648, 1802,
              2598, 2154, 2029, 1616, 2738, 2634, 2166, 2673, 1137, 4270, 4310,
              1979, 1537, 1847, 4150, 2996, 1546, 1813, 2704, 5380, 3721, 4190,
              2475,  790, 4362,  806, 4330, 2597, 1522, 1466, 1264, 2616, 1536,
              4042, 4230, 2198, 2575, 4890, 3112, 1745, 1448, 2574, 2439, 1076,
               810, 4913, 2798, 2189, 1528, 3940, 2533, 2622, 5200, 2056, 1458,
              1509, 2382, 1975, 4120, 4110, 4590, 4690, 2451, 1984, 2323, 1358,
              5600, 2142, 3191, 1336, 4320, 4830, 4225, 2474, 3425, 2316, 2688,
              2112, 3557, 5110, 1716, 2725, 2396, 1981, 4930, 3008, 1554, 1442,
              1463, 4480, 1638, 3236, 1138, 2876, 3193,  750, 2424, 2901, 4540,
              1303, 1919, 2049, 2077, 1381,  710, 1282, 2612, 1941, 2136, 4370,
              2875, 2555, 2304, 1443, 3159, 2767, 4940, 4570, 2425, 1268, 1399,
              1356, 2221,  720, 4770, 2665, 3078, 2344, 2246, 1639, 2724, 2092,
              2389, 2406, 1566, 1168,  670, 2419, 2014, 2879, 2015, 3543, 2619,
              1092, 1608, 1884, 1691, 2927, 4800, 2495, 1845, 1763, 4410, 2873,
              2258, 1427,  690,  620, 2405, 4200, 1415, 2547, 3087, 2091, 4650,
```

```
df.living_area_renov.value_counts()
```

```
1440    136
1540    131
1560    127
1500    122
1510    117
       ...
2029      1
2634      1
1137      1
1537      1
1162      1
Name: living_area_renov, Length: 665, dtype: int64
```

```
df.lot_area_renov.value_counts()
```

```
5000      301
4000      256
6000      179
7200      138
4800      102
         ...
12068       1
185565      1
60112       1
14564       1
6631        1
Name: lot_area_renov, Length: 6835, dtype: int64
```

```
df.Price.value_counts()
```

```
450000    114
350000    113
400000    104
375000    103
550000    102
...    561600
1
856500      1
907687      1
307999      1
146000      1
Name: Price, Length: 2901, dtype: int64
```

```
plt.pie(df.Price.value_counts())
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```

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        Please adapt your code to use either `displot` (a figure-level function with<matplotlib.patches.Wedge at 0x7a41b73802e0>,
        similar flexibility) or `histplot` (an axes-level function for histograms).<matplotlib.patches.Wedge at 0x7a41b7380760>,
        <matplotlib.patches.Wedge at 0x7a41b7380be0>,
        For a guide to updating your code to use the new functions, please see<m tplotlib.patches.Wedge at 0x7a41b7381060>,
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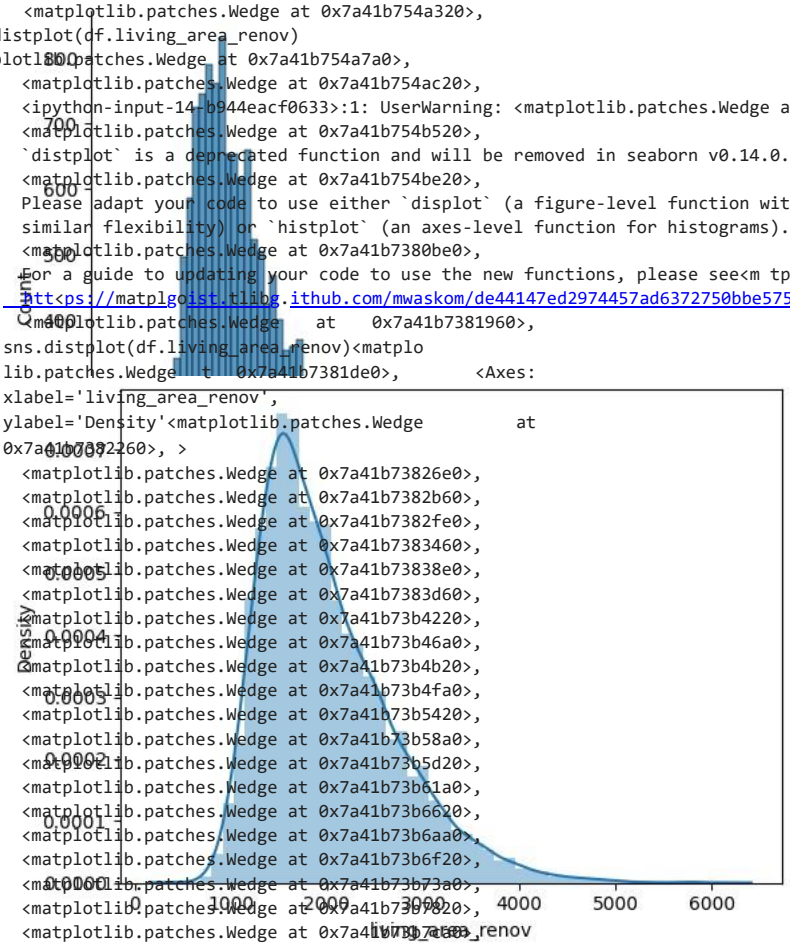

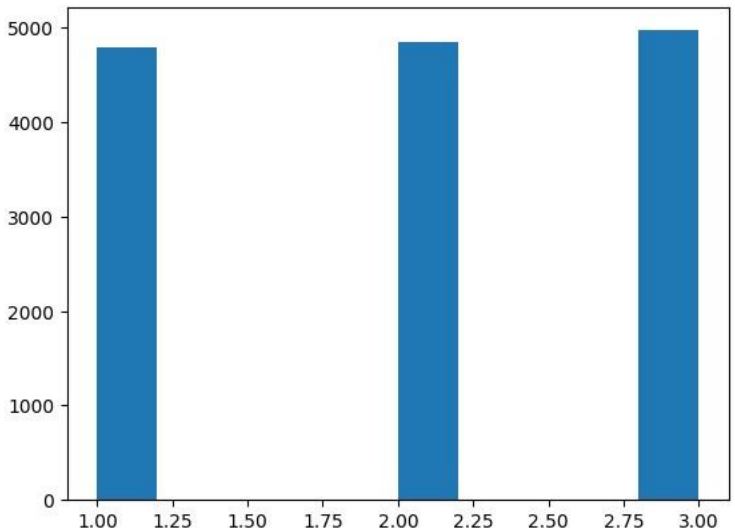

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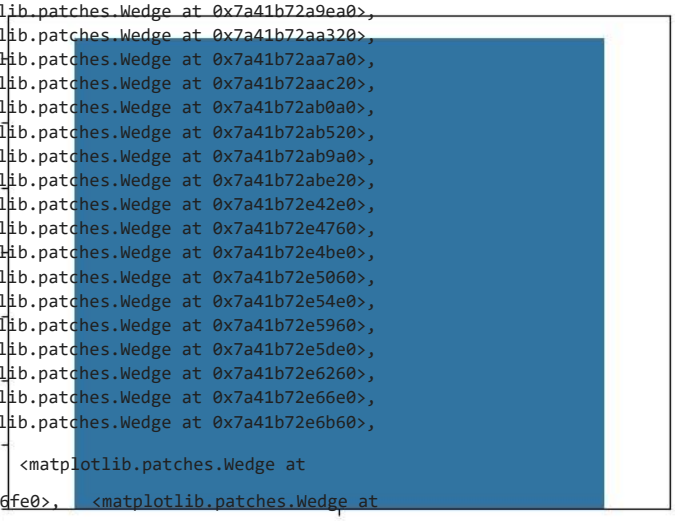

Bivariant Analysis

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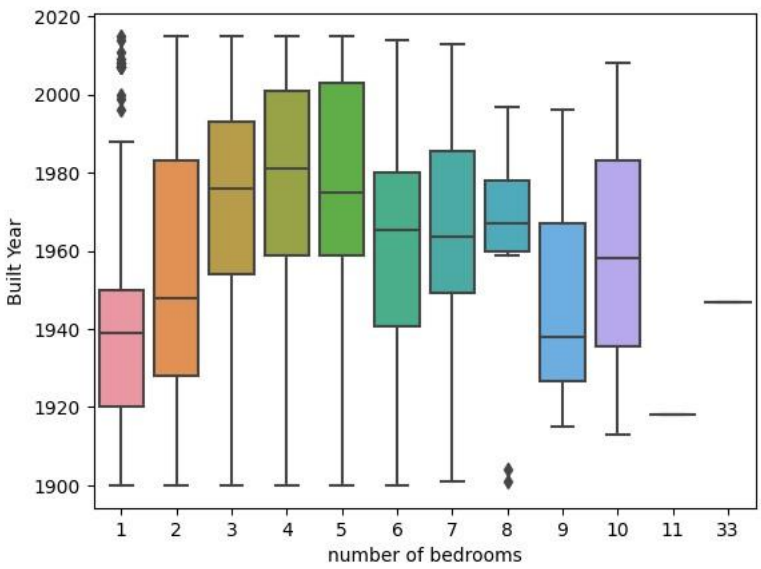


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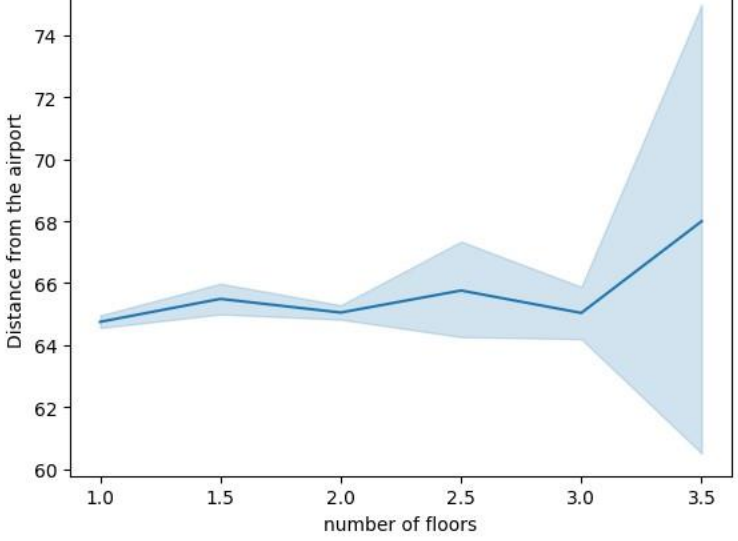


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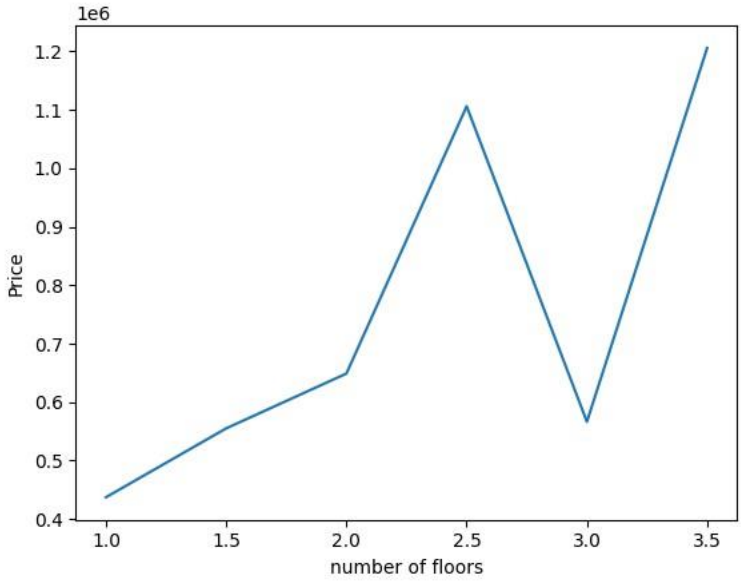


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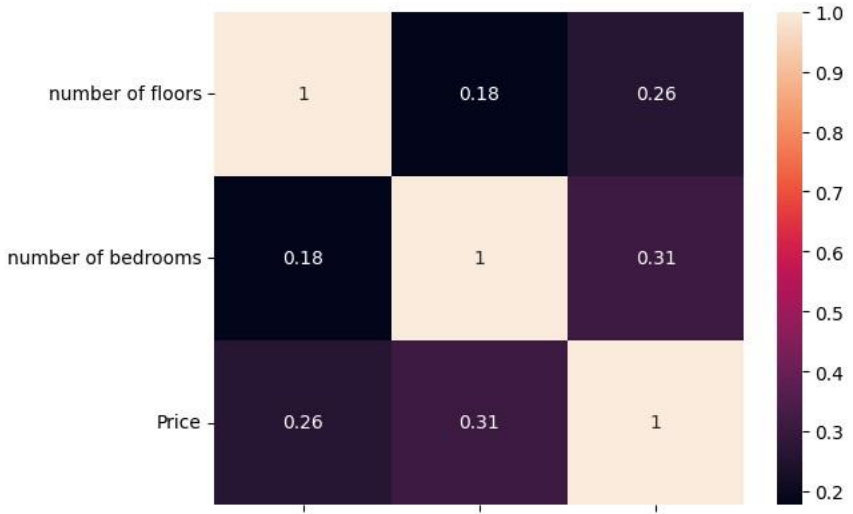

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Multivariate Analysis

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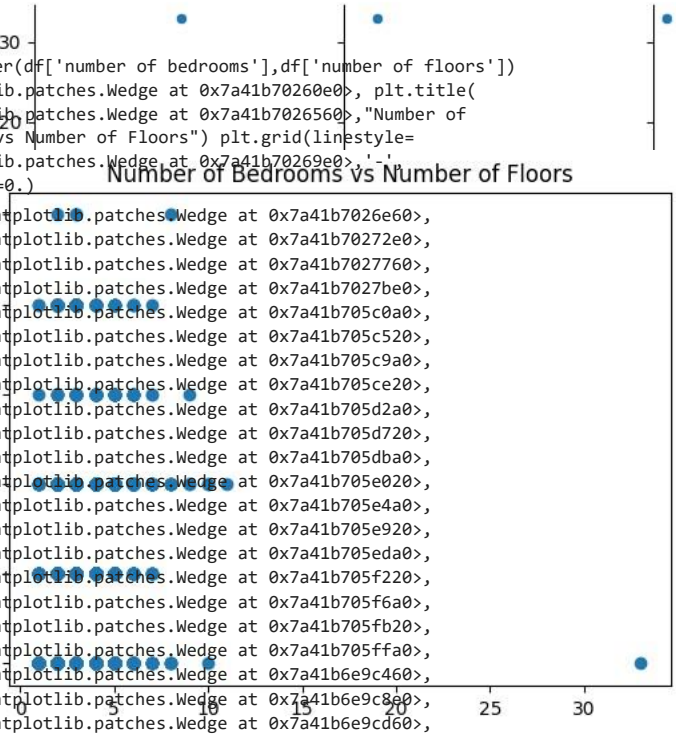

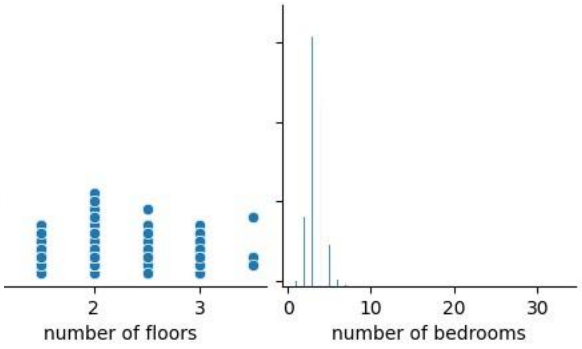


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plt.show()
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     0x7a41b6d8f760>,   <matplotlib.patches.Wedge at
     0x7a41b6d8fbe0>,
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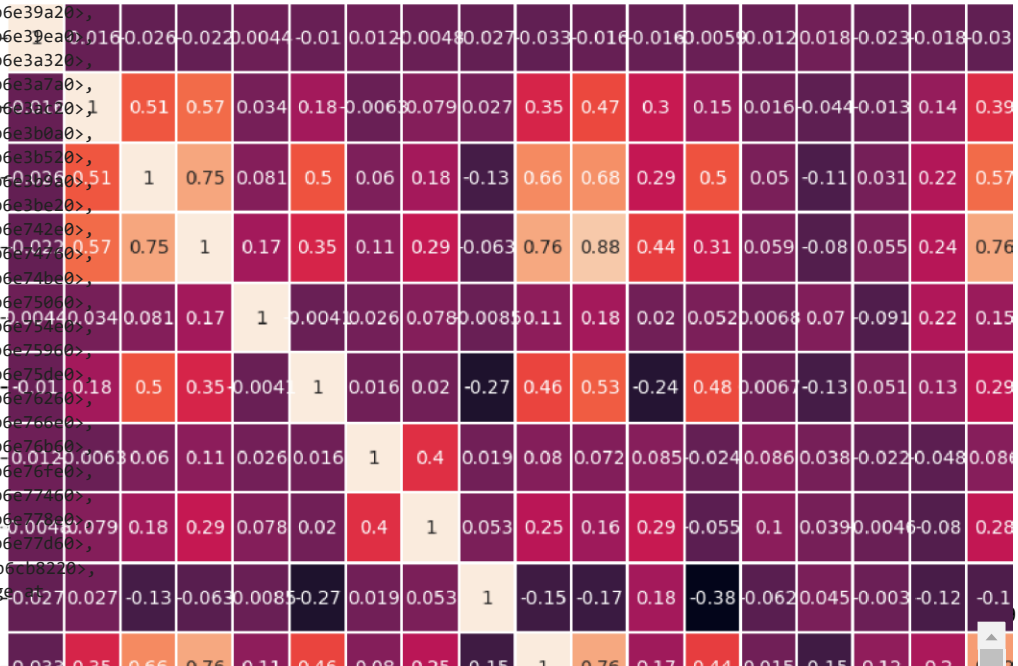
        <matplotlib.patches.Wedge at 0x7a41b6cb8220>,
print(  df.describe<matplotlib.patches.Wedge at
```



```
0x7a41b6cb86a0>,())   <matplotlib.patches.Wedge at
0x7a41b6cb8b20>,
  <matplotlib.patches.Wedge at 0x7a41b6cb8fa0>,
                id          Date  number of bedrooms  number of bathrooms  \
  <matplotlib.patches.Wedge at 0x7a41b6cb9420>,
count  1.462000e+04  14620.000000        14620.000000         14620.000000
  <matplotlib.patches.Wedge at 0x7a41b6cb98a0>,
mean   6.762821e+09  42604.538646            3.379343             2.129583
  <matplotlib.patches.Wedge at 0x7a41b6cb9d20>,
std    6.237575e+03     67.347991            0.938719             0.769934
  <matplotlib.patches.Wedge at 0x7a41b6cba1a0>,
min    6.762810e+09  42491.000000            1.000000             0.500000
  <matplotlib.patches.Wedge at 0x7a41b6cba620>,
25%    6.762815e+09  42546.000000            3.000000             1.750000
  <matplotlib.patches.Wedge at 0x7a41b6cbaaa0>,
50%    6.762821e+09  42600.000000            3.000000             2.250000
  <matplotlib.patches.Wedge at 0x7a41b6cbaf20>,
75%    6.762826e+09  42662.000000            4.000000             2.500000
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max    6.762832e+09  42734.000000           33.000000             8.000000
  <matplotlib.patches.Wedge at 0x7a41b6cbb820>,
  <matplotlib.patches.Wedge at 0x7a41b6cbbca0>,
       living area      lot area  number of floors  waterfront present  \
  <matplotlib.patches.Wedge at 0x7a41b6cfc160>,
count  14620.000000  1.462000e+04      14620.000000        14620.000000
  <matplotlib.patches.Wedge at 0x7a41b6cfc5e0>,
mean    2098.262996  1.509328e+04          1.502360            0.007661
  <matplotlib.patches.Wedge at 0x7a41b6cfca60>,
std      928.275721  3.791962e+04          0.540239            0.087193
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min      370.000000  5.200000e+02          1.000000            0.000000
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25%     1440.000000  5.010750e+03          1.000000            0.000000
  <matplotlib.patches.Wedge at 0x7a41b6cfd7e0>,
50%     1930.000000  7.620000e+03          1.500000            0.000000
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75%     2570.000000  1.080000e+04          2.000000            0.000000
  <matplotlib.patches.Wedge at 0x7a41b6cfe0e0>,
max    13540.000000  1.074218e+06          3.500000            1.000000
  <matplotlib.patches.Wedge at 0x7a41b6cfe560>,
  <matplotlib.patches.Wedge at 0x7a41b6cfe9e0>,
       number of views  condition of the house  ...    Built Year  \
  <matplotlib.patches.Wedge at 0x7a41b6cfee60>,
count     14620.000000            14620.000000  ...  14620.000000
  <matplotlib.patches.Wedge at 0x7a41b6cff2e0>,
mean          0.233105                3.430506  ...   1970.926402
  <matplotlib.patches.Wedge at 0x7a41b6cff760>,
std           0.766259                0.664151  ...     29.493625
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min           0.000000                1.000000  ...   1900.000000
  <matplotlib.patches.Wedge at 0x7a41b6d300a0>,
25%           0.000000                3.000000  ...   1951.000000
  <matplotlib.patches.Wedge at 0x7a41b6d30520>,
50%           0.000000                3.000000  ...   1975.000000
  <matplotlib.patches.Wedge at 0x7a41b6d309a0>,
75%           0.000000                4.000000  ...   1997.000000
  <matplotlib.patches.Wedge at 0x7a41b6d30e20>,
max           4.000000                5.000000  ...   2015.000000
  <matplotlib.patches.Wedge at 0x7a41b6d312a0>,
  <matplotlib.patches.Wedge at 0x7a41b6d31720>,
       Renovation Year    Postal Code     Lattitude     Longitude  \
  <matplotlib.patches.Wedge at 0x7a41b6d31ba0>,
count     14620.000000   14620.000000  14620.000000  14620.000000
  <matplotlib.patches.Wedge at 0x7a41b6d32020>,
mean         90.924008  122033.062244     52.792848   -114.404007
  <matplotlib.patches.Wedge at 0x7a41b6d324a0>,
std         416.216661      19.082418      0.137522      0.141326
  <matplotlib.patches.Wedge at 0x7a41b6d32920>,
min           0.000000  122003.000000     52.385900   -114.709000
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25%           0.000000  122017.000000     52.707600   -114.519000
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max        2015.000000  122072.000000     53.007600   -113.505000
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  <matplotlib.patches.Wedge at 0x7a41b6d68460>,
       living_area_renov  lot_area_renov  Number of schools nearby  \
  <matplotlib.patches.Wedge at 0x7a41b6d688e0>,
```

```
       count       14620.000000    14620.000000             14620.000000
         <matplotlib.patches.Wedge at 0x7a41b6d68d60>,
       mean         1996.702257    12753.500068                 2.012244
         <matplotlib.patches.Wedge at 0x7a41b6d691e0>,
       std           691.093366    26058.414467                 0.817284
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       min           460.000000      651.000000                 1.000000
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       25%          1490.000000     5097.750000                 1.000000
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       50%          1850.000000     7620.000000                 2.000000
         <matplotlib.patches.Wedge at 0x7a41b6d6a3e0>,
       75%          2380.000000    10125.000000                 3.000000
         <matplotlib.patches.Wedge at 0x7a41b6d6a860>,
       max          6110.000000   560617.000000                 3.000000
         <matplotlib.patches.Wedge at 0x7a41b6d6ace0>,
         <matplotlib.patches.Wedge at 0x7a41b6d6b160>,
              Distance from the airport         Price
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       mean                  64.950958  5.389322e+05
         <matplotlib.patches.Wedge at 0x7a41b6d6bee0>,
       std                    8.936008  3.675324e+05
         <matplotlib.patches.Wedge at 0x7a41b6ba83a0>,
       min                   50.000000  7.800000e+04
         <matplotlib.patches.Wedge at 0x7a41b6ba8820>,
       25%                   57.000000  3.200000e+05
         <matplotlib.patches.Wedge at 0x7a41b6ba8ca0>,
         <matplotlib.patches.Wedge at 0x7a41b6ba8ca0>,
       50  %                  65.000000  4.500000e+05  <matplotlib.patches.Wedge at 0x7a41b6ba9120>,
       75  %                  73.000000  6.450000e+05  <matplotlib.patches.Wedge at 0x7a41b6ba95a0>,
         <matplotlib.patches.Wedge at 0x7a41b6ba9a20>,
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   0x7a41b6ba9ea0>,())
         <matplotlib.patches.Wedge at 0x7a41b6baa320>,
                                                 id        Date   number of bedrooms
       \<matplotlib.patches.Wedge       at       0x7a41b6baa7a0>,                    id
       1.000000  0.045966         -0.329034   <matplotlib.patches.Wedge at 0x7a41b6baac2
       >,   Date                                  0.045966  1.000000           -0.015663
       <matplotlib.patches.Wedge at 0x7a41b6bab0a0>,  number of bedrooms               -
       0.329034 -0.015663          1.000000   <matplotlib.patches.Wedge at 0x7a41b6bab52
       >,   number of bathrooms                  -0.516909 -0.026485            0.509784
       <matplotlib.patches.Wedge at 0x7a41b6bab9a0>,  living area                      -
       0.648127  -0.021958                    0.570526     <matplotlib.patches.Wedge  at
       0x7a41b6babe20>,   lot area                                    -0.100269  0.004392
       0.034416     <m  tplotlib.patches.Wedge  at  0x7a41b6be42e0>,     number  of  floors
       -0.312305  -0.010335                   0.177294     <matplotlib.patches.Wedge  at
       0x7a41b6be4760>,   waterfront present                        -0.112937  0.012006
       -0.006257    <matplo  lib.patches.Wedge  at  0x7a41b6be4be0>,    number  of  views
       -0.293004 -0.004782          0.078665   <matplotl b.patches.Wedge at 0x7a41b6be506
       >,   condition of the house               -0.045061 -0.027402            0.026597
       <ma plotlib.patche .Wedge at 0x7a41b6be5 e >,  grade of the house               -
       0.673448  -0.033097                   0.352945     <matplo  lib.patches.Wedge  at
       0x7a41b6be5960>,    Area  of  the  house(excluding  basement)  -0.565116  -0.015994
       0.473599   <matplotlib.patches.Wedge at 0x7a41b6be de0>,
         Area of the basement                 -0.290806 -0.015711            0.300332   <matplotli
       .patches.Wedge at 0x7a41b6be6260>,
         Built Year                           -0.068645 -0.005869            0.152954
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         Renovation Year                      -0.109155 -0.011636            0.016132   <matpl
       tlib.patches.Wedge at 0x7a41b6be6b60>,
         Postal Code                           0.294709  0.018243           -0.044156   <m tpl
       tlib.patches.Wedge at 0x7a41b6be6fe0>,
         Lattitude                            -0.479334 -0.023327           -0.013163   <ma
       plotlib.patches.Wedge at 0x7a41b6be7460>,   Longitude                            -
       0.070841 -0.018231            0.135712   <ma plotlib.patches.Wedge at 0x7a41b6be78e0>,
       living_area_renov                     -0.599900 -0.032495            0.389855
       <matplotlib.patches.Wedge at 0x7a41b6be7d60>,   lot_area_renov
       -0.089604 -0.000050            0.029400   <m tplotlib.patches.Wedge at
       0x7a41b6c1c220>,   Number of schools nearby              -0.004821 -0.004071
       0.003397   <matplotlib.patch s.Wedge at 0x7a41b6c1c6a0>,
         Distance from the airport             -0.004542  0.011457           -0.006157   <m
       tplotlib.patches.Wedge at 0x7a41b6c1cb20>,
         Price                                -0.773114 -0.027919            0.308460
       <matplotlib.patches.Wedge at 0x7a41b6c1cfa0>,
         <matplotlib.patches.Wedge at 0x7a41b6c1d420>,
                                           number of bathrooms  living area
       \<matplotlib.patches.Wedge at 0x7a41b6c1d8a0>,   id
       -0.516909    -0.648127   <matplotlib.patches.Wedge at 0x7a41b6c1dd20>,
       Date                                        -0.026485    -0.021958
       <matplotlib.patches.Wedge at 0x7a41b6c1e1a0>,   number of bedrooms
```

```
0.509784     0.570526   <matplotlib.patches.Wedge at 0x7a41b6c1e620>,
number of bathrooms                                 1.000000     0.753517
<matplotlib.patches.Wedge at 0x7a41b6c1eaa0>,   living area
0.753517     1.000000   <matplotlib.patches.Wedge at 0x7a41b6c1ef20>,   lot
area                                          0.080806     0.174420   <m
tplotlib.patches.Wedge at 0x7a41b6c1f3a0>,   number of floors
0.502924     0.354743   <matplotlib.patches.Wedge at 0x7a41b6c1f820>,
waterfront present                                  0.060104     0.105837
<matplo lib.patches.Wedge at 0x7a41b6c1fca0>,   number of views
0.183789     0.287728   <matplotl b.patches.Wedge at 0x7a41b6c54160>,
condition of the house                            -0.128232    -0.063358
<ma plotlib.patche .Wedge at 0x7a41b6c545e0>,   grade of the house
0.663054     0.761835   <matplo lib.patches.Wedge at 0x7a41b6c54a60>,   Area
of the house(excluding basement)             0.684391     0.875793
<matplotlib.patches.Wedge at 0x7a41b6c54ee0>,
  Area of the basement                              0.287190     0.441491   <matplotli
.patches.Wedge at 0x7a41b6c55360>,
  Built Year                                        0.498127     0.309602
<matplotlib.patches.Wedge at 0x7a41b6c557e0>,
  Renovation Year                                   0.049669     0.059400   <matpl
tlib.patches.Wedge at 0x7a41b6c55c60>,
  Postal Code                                      -0.105546    -0.080303   <m tpl
tlib.patches.Wedge at 0x7a41b6c560e0>,
  Lattitude                                         0.031156     0.054518   <ma
plotlib.patches.Wedge at 0x7a41b6c56560>,   Longitude
0.223904     0.240208   <ma plotlib.patches.Wedge at 0x7a41b6c569e0>,
living_area_renov                                   0.570530     0.757571
<matplotlib.patches.Wedge at 0x7a41b6c56e60>,   lot_area_renov
0.078627     0.180312   <m tplotlib.patches.Wedge at 0x7a41b6c572e0>,   Number
of schools nearby                          0.002180     0.002370
<matplotlib.patch s.Wedge at 0x7a41b6c57760>,
  Distance from the airport                         0.009206     0.002511   <m
tplotlib.patches.Wedge at 0x7a41b6c57be0>,
  Price                                             0.531735     0.712169
<matplotlib.patches.Wedge at 0x7a41b6a9c0a0>,
  <matplotlib.patches.Wedge at 0x7a41b6a9c520>,
                                       lot area  number of floors
\<matplotlib.patches.Wedge at 0x7a41b6a9c9 0>,   id
-0.100269         -0.312305   <matplotlib.patches.Wedge at
0x7a41b6a9ce20>,   Date                                  0.004392
-0.010335   <matplotlib.patches.Wedge at 0x7a41b6a9d2a0>,   number of
bedrooms                     0.034416          0.177294
<matplotlib.patches.Wedge at 0x7a41b6a9d720>,   number of bathrooms
0.080806          0.502924   <matplotlib.patches.Wedge at
0x7a41b6a9dba0>,   living area                           0.174420
0.354743   <matplotlib.patches.Wedge at 0x7a41b6a9e020>,   lot area
1.000000         -0.004138   <m tplotlib.patches.Wedge at
0x7a41b6a9e4a >,   number of floors                     -0.004138
1.000000   <matplotlib.patches.Wedge at 0x7a41b6a9e920>,
  <matplotlib.patches.Wedge at 0x7a41b6a9eda0>,
  <matplotlib.patches.Wedge at 0x7a41b6a9f220>,
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  <matplotlib.patches.Wedge at 0x7a41b6a9f6a0>,
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1.0    7103
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2.0    5666
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1.5    1311
  <matplotlib.patches.Wedge at 0x7a41b6ad48e0>,
3.0     418
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2.5     118
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3.5       4
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Name: number of floors, dtype: int64
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  <matplotlib.patches.Wedge at 0x7a41b6ad65c0>,
print('Mean:',df['number of bedrooms'].mean())
  <matplotlib.patches.Wedge at 0x7a41b6ad6a40>,
print('Median:',df['number of views'].median())
  <matplotlib.patches.Wedge at 0x7a41b6ad6ec0>,
print(  'Mode:'<matplotlib.patches.Wedge at
0x7a41b6ad7340>,,df['number of bathrooms'].mode())
  <matplotlib.patches.Wedge at 0x7a41b6ad75b0>,
Mean: 3.379343365253078
<matplotlib.patches.Wedge at 0x7a41b6ad7a30>,
Median: 0.0  <matplotlib.patches.Wedge at
0x7a41b6ad7eb0>,
```

```
Mode: 0    2.5  <matplotlib.patches.Wedge at
0x7a41b6b10370>,
Name: number of bathrooms, dtype:
float64<matplotlib.patches.Wedge at
0x7a41b6b107f0>,
  <matplotlib patches Wedge at 0x7a41b6b10c70>
  <matplotlib.patches.Wedge at 0x7a41b6b10c70>,
<matplotlib.patches.Wedge at 0x7a41b6b110f0>,
```

Handle the Missing Values <matplotlib.patches.Wedge at 0x7a41b6b11570>,

```
  <matplotlib.patches.Wedge at 0x7a41b6b119f0>,
  <matplotlib.patches.Wedge at 0x7a41b6b11e70>,
print(  df.isnull<matplotlib.patches.Wedge at
0x7a41b6b122f0>,().sum())
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x.head()
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	id	grade	number of living	number of lot	condition of	waterfront	Area of the house(excluding	Area of the	Built	Renovation	Area of the basement)
			bathrooms	area	present	views	basement	house	Year	Year	
42491	6762810145	2.50	3650	9050	0	4	5	10	3370	280	1921	0	1
42491	6762810635	2.50	2920	4000	0	0	5	8	1910	1010	1909	0	1
42491	6762810998	2.75	2910	9480	0	0	3	8	2910	0	1939	0	1
42491	6762812605	2.50	3310	42998	0	0	3	9	3310	0	2001	0	1
42491	6762812919	2.00	2710	4500	0	0	4	8	1880	830	1929	0	1

y.head()

	id	Price
0	6762810145	2380000
1	6762810635	1400000
2	6762810998	1200000
3	6762812605	838000
4	6762812919	805000

from sklearn.model_selection import train_test_split

from sklearn.ensemble import RandomForestRegressor

from sklearn.ensemble import GradientBoostingRegressor

from sklearn.metrics import r2_score

```
x_train,x_test,y_train,y_test = train_test_split(x,y['Price'],test_size =0.1,random_state=2)
model = GradientBoostingRegressor(n_estimators=400,max_depth=5,min_samples_split=2,learning_rate=0.1)
model.fit(x_train,y_train)
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