#### pandas as pd import numpy as np import matplotlib.pyplot as plt import seaborn as sns from google.colab import drive drive.mount('/content/drive') Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force remount=True). df=pd.read csv('/content/drive/MyDrive/insurance.csv') df.head() id Date number of bedrooms number of bathrooms living area \ 0 6762810145 42491 5 2.50 3650 1 6762810635 42491 4 2.50 2920 2 6762810998 42491 5 2.75 2910 3 6762812605 42491 2.50 4 3310 4 6762812919 42491 3 2.00 2710 lot area number of floors waterfront present number of views 9050 0 2.0 0 4000 1 1.5 0 0 2 9480 0 1.5 3 2.0 42998 0 4 4500 1.5 0 condition of the house ... Built Year Renovation Year Postal Code \ 5 . . . 1921 0 122003 1909 0 5 . . . 122004 0 3 1939 . . . 122004 3 2001 0 . . . 122005 4 1929 0 . . . 122006

# importing libraries import

```
Lattitude Longitude living area renov lot area renov \
0
    52.8645 -114.557
                                     2880
                                                    5400
1
    52.8878 -114.470
                                     2470
                                                    4000
2
                                     2940
                                                    6600
    52.8852 -114.468
3
    52.9532 -114.321
                                     3350
                                                   42847
4
    52.9047 -114.485
                                     2060
                                                   4500
  Number of schools nearby Distance from the airport Price 0
2
                         58 2380000
1
                         2
                                                  51 1400000
2
                                                  53 1200000
                         1
3
                         3
                                                  76
                                                      838000
                         1
4
                                                  51
                                                      805000
[5 rows x 23 columns]
df.tail()
              id Date number of bedrooms number of bathrooms \
14615 6762830250 42734
                                                            1.5
                                         2
14616 6762830339 42734
                                         3
                                                            2.0
14617 6762830618 42734
                                         2
                                                            1.0
14618 6762830709 42734
                                         4
                                                            1.0
      14619 6762831463 42734
                                                3
      1.0
      living area lot area number of floors waterfront present
             1556
                      20000
                                        1.0
14615
                                                               0
14616
             1680
                       7000
                                         1.5
                                                               0
14617
             1070
                       6120
                                         1.0
                                                               0
14618
             1030
                       6621
                                         1.0
                                                               0
                            900
                                   4770
             14619
                                                      1.0
      number of views condition of the house
                                              ... Built Year \
14615
                                                         1957
                    0
                                           4
14616
                    0
                                                         1968
                                            4
                    0
                                           3
                                                         1962
14617
                                               . . .
                    0
14618
                                           4
                                                         1955
                                               . . .
                    0
                                            3
14619
                                                        1969
                                               . . .
      Renovation Year Postal Code Lattitude Longitude
living area renov \
14615
                    0
                           122066
                                     52.6191 -114.472
2250
14616
                    0
                           122072
                                     52.5075 -114.393
1540
14617
                   0
                           122056 52.7289 -114.507
1130
```

```
0 122042 52.7157 -114.411
14618
1420
14619
                  2009
                            122018 52.5338 -114.552
900
        lot area renov Number of schools nearby Distance
from the airport \
14615
              17286
                                         3
76
14616
        7480
                                         3
59
        6120
14617
                                         2
64
         6631
14618
                                         3
14619
              3480
                                         2
               55
      Price
14615 221700
14616 219200
14617 209000
14618 205000
14619 146000
[5 rows x 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 --
- -----
                                     _____
  id
                                      14620 non-null int64
\cap
1 Date
                                      14620 non-null int64
   number of bedrooms
                                      14620 non-null int64
   number of bathrooms
                                     14620 non-null float64
                                          14620 non-null int64
   4 living area
   5 lot area
                                         14620 non-null int64
   6 number of floors
                                         14620 non-null
                                                  14620 non-
   float64 7 waterfront present
   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
                                           14620 non-null int64
22 Price
dtypes:
         float64(4), int64(19) memory usage: 2.6
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
```

#### Visulation

## **Univarient Analysis**

sns.distplot(df.Price)

<ipython-input-17-5e080168c38c>:1: UserWarning:

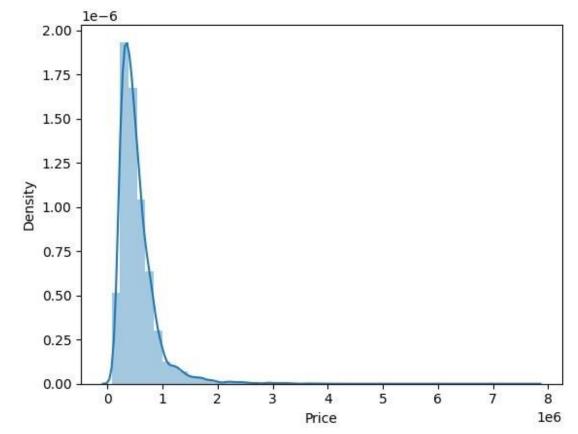
`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for

similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751 sns.distplot(df.Price)

<Axes: xlabel='Price', ylabel='Density'>



sns.distplot(df.id)

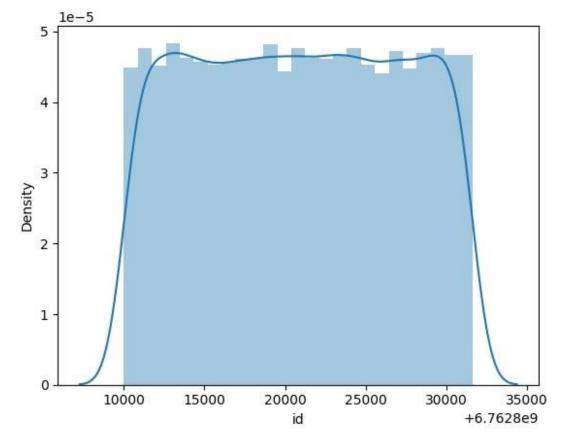
<ipython-input-8-ae12bbc1c629>:1: UserWarning:

`distplot` is a deprecated function and will be removed in seaborn v0.14.0.

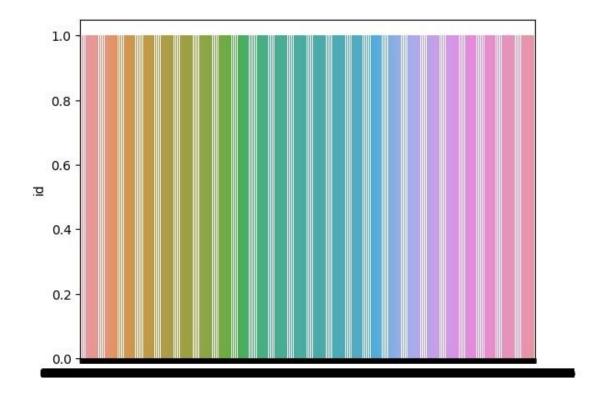
Please adapt your code to use either `displot` (a figure-level function with similar flexibility) or `histplot` (an axes-level function for histograms).

For a guide to updating your code to use the new functions, please see https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751 sns.distplot(df.id)

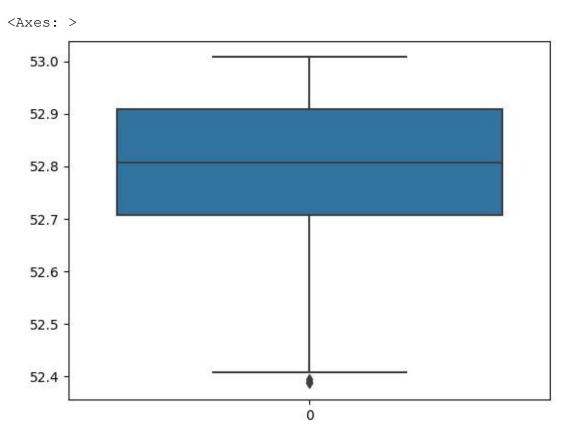
<Axes: xlabel='id', ylabel='Density'>



sns.barplot(x=df.id.value\_counts().index,y=df.id.value\_counts())
<Axes: ylabel='id'>



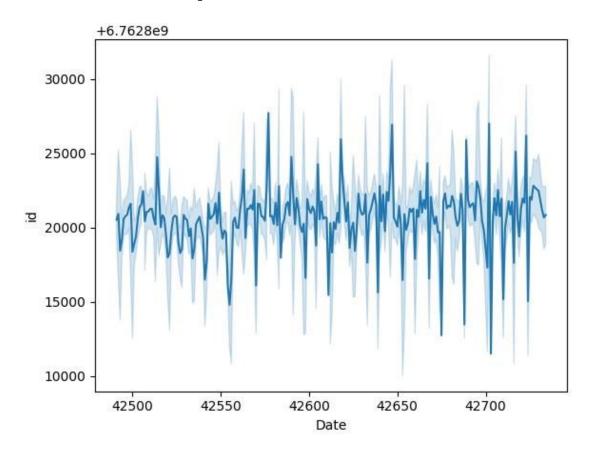
sns.boxplot(df.Lattitude)



## ##Bivarient

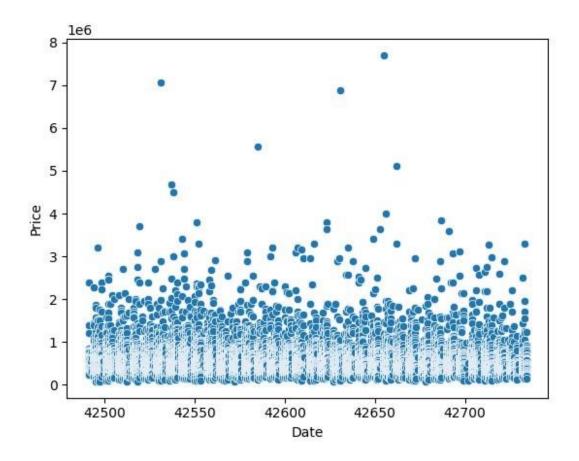
sns.lineplot(x=df.Date,y=df.id)

<Axes: xlabel='Date', ylabel='id'>



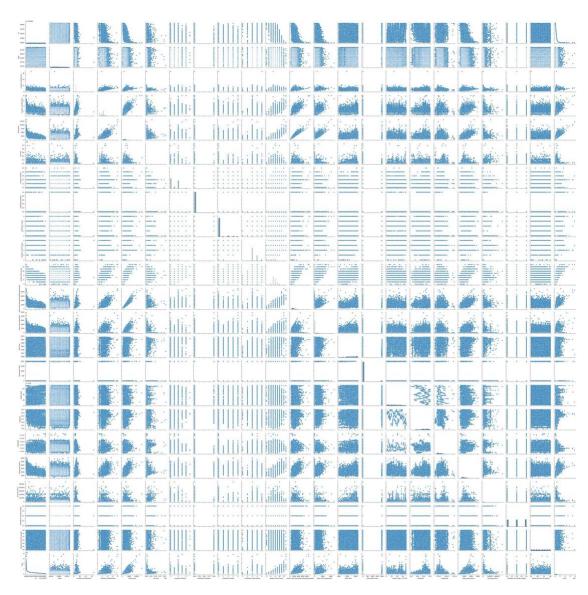
sns.scatterplot(x=df.Date,y=df.Price)

<Axes: xlabel='Date', ylabel='Price'>



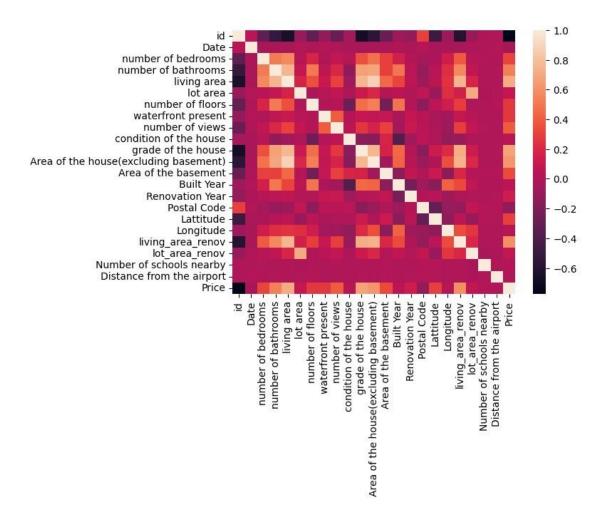
##Multivarient Analysis sns.pairplot(df)

<seaborn.axisgrid.PairGrid at 0x7ff2beaba940>



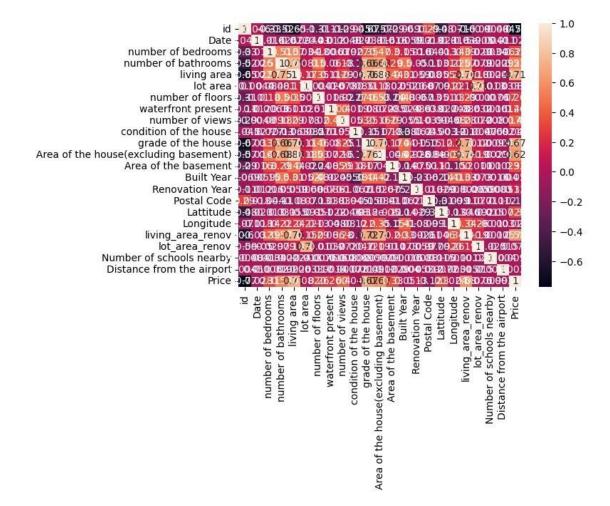
sns.heatmap(df.corr())

<Axes: >



sns.heatmap(df.corr(),annot=True)

<Axes: >



## #Descriptive statistic on the dataset

df.describe() #descriptive statistics

	id	Date	number of bedrooms	number of
bathro	ooms \			
count	1.462000e+04	14620.000000	14620.000000	
14620.	000000			
mean	6.762821e+09	42604.538646	3.379343	
2.1295	583			
std	6.237575e+03	67.347991	0.938719	
0.7699	934			
min	6.762810e+09	42491.000000	1.000000	
0.5000	000			
25%	6.762815e+09	42546.000000	3.000000	
1.7500	000			
50%	6.762821e+09	42600.000000	3.000000	
2.2500	000			
75%	6.762826e+09	42662.000000	4.00000	
2.5000	000			

living area lot area number of floors waterfront present \ count 14620.000000 1.462000e+04 14620.000000	
Count 14620.000000 1.462000e+04 14620.000000	
14620.00000	
mean 2098.262996 1.509328e+04 1.502360	
0.007661	
std 928.275721 3.791962e+04 0.540239	
0.087193 min 370.000000 5.200000e+02 1.000000	
min 370.000000 5.200000e+02 1.000000 0.000000	
25% 1440.000000 5.010750e+03 1.000000	
0.000000	
50% 1930.000000 7.620000e+03 1.500000	
0.000000	
75% 2570.000000 1.080000e+04 2.000000	
0.000000 max 13540.000000 1.074218e+06 3.500000	
1.000000	
number of views condition of the house $\dots$ Built Year $\setminus$	
count 14620.000000 14620.000000 14620.000000	
mean 0.233105 3.430506 1970.926402 std 0.766259 0.664151 29.493625	
min 0.000000 1.000000 1900.000000	
25% 0.000000 3.000000 1951.000000	
50% 0.000000 3.000000 1975.000000	
75% 0.000000 4.000000 1997.000000	
max 4.000000 5.000000 2015.000000	
Renovation Year Postal Code Lattitude Longitude \	
count 14620.000000 14620.000000 14620.000000 14620.000000	
mean 90.924008 122033.062244 52.792848 -114.404007	
std 416.216661 19.082418 0.137522 0.141326	
min 0.000000 122003.000000 52.385900 -114.709000	
25% 0.000000 122017.000000 52.707600 -114.519000	
50%       0.000000       122032.000000       52.806400       -114.421000         75%       0.000000       122048.000000       52.908900       -114.315000	
max 2015.000000 122072.000000 53.007600 -114.313000	
max 2010.00000 122072.00000 33.007000 113.303000	
living area renov lot area renov Number of schools nearby \	
count 14620.000000 14620.000000 14620.000000	
mean 1996.702257 12753.500068 2.012244	
std       691.093366       26058.414467       0.817284         min       460.000000       651.000000       1.000000	
min 460.000000 651.000000 1.000000 25% 1490.000000 5097.750000 1.000000	
50% 1850.000000 7620.000000 2.000000	
75% 2380.000000 10125.000000 3.000000	

```
max 6110.000000 560617.000000
                                          3.000000
Distance from the airport Price count
14620.000000 1.462000e+04 mean 64.950958
5 389322e+05 std 8.936008 3.675324e+05 min
50.000000 7.800000e+04 25%
                                       57.000000
3.200000e+05
             65.000000 4.500000e+05 75%
50%
73.000000 6.450000e+05 max
80.000000 7.700000e+06
[8 rows x 23 columns]
df.head()
       id Date number of bedrooms number of bathrooms living
0 6762810145 42491
                                               2.50
                                5
3650
1 6762810635 42491
                                               2.50
                                4
2920
2 6762810998 42491
                                5
                                              2.75
2910
3 6762812605 42491
                                               2.50
3310
                                               2.00
4 6762812919 42491
                                3
2710
  lot area number of floors waterfront present number of views \
  9050
                    2.0
1
     4000
                     1.5
                                        0
                                                      0
                    1.5
2.
     9480
                                        0
                                                      0
     3 42998
                                              0
     0 4 4500
                           1.5
     0
  condition of the house ... Built Year Renovation Year Postal
Code \
                   5 ... 1921
                                                0
0
122003
                   5 ... 1909
1
                                                0
122004
                   3 ... 1939
                                                 0
122004
3
                   3 ... 2001
                                                 0
122005
                    4 ... 1929
                                                0
122006
```

Lattitude Longitude living\_area\_renov lot\_area\_renov \

```
52.8645
                                                        5400
0
               -114.557
                                       2880
1
                                       2470
                                                        4000
     52.8878
               -114.470
2
     52.8852
               -114.468
                                       2940
                                                        6600
3
     52.9532
               -114.321
                                       3350
                                                       42847
4
     52.9047
               -114.485
                                       2060
                                                        4500
  Number of schools nearby Distance from the airport
                                                           Price
2
                              2380000
                           58
1
                           2
                                                      51
                                                          1400000
2
                           1
                                                      53
                                                          1200000
3
                           3
                                                      76
                                                           838000
4
                           1
                                                      51
                                                           805000
[5 rows x 23 columns]
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,
       2822, 2961, 2647, 3870, 3726, 4600, 2765, 2242, 2728, 1056,
1429,
       2604, 6110, 4220, 5340, 2255, 4730, 3413, 1886, 3515, 1321,
1677,
       4250, 1425, 2697, 1654, 11621)
df.corr()
                                              id
                                                      Date
                                                            number of
bedrooms
                                        1.000000
                                                 0.045966
id
0.329034
Date
                                        0.045966
                                                 1.000000
```

number of bedrooms
number of bathrooms       -0.516909 -0.026485         0.509784       -0.648127 -0.021958         1iving area       -0.648127 -0.021958         0.570526       -0.100269 0.004392         1ot area       -0.100269 0.004392         0.034416       -0.312305 -0.010335         number of floors       -0.312305 -0.012006         0.177294       -0.006257         number of views       -0.293004 -0.004782         0.078665       -0.078665         condition of the house       -0.045061 -0.027402         0.026597       grade of the house       -0.673448 -0.033097         0.352945       Area of the house (excluding basement)       -0.565116 -0.015994         0.473599       Area of the basement       -0.290806 -0.015711         0.300332       -0.152954         Renovation Year       -0.068645 -0.005869         0.152954       -0.016132         Postal Code       0.294709 0.018243 -0.01636         0.016132       -0.070841 -0.003327 -0.011363         Lattitude       -0.479334 -0.023327 -0.013163         Longitude       -0.070841 -0.018231         0.135712       -0.019157 -0.0032495
0.509784
living area
0.570526 lot area
lot area
0.034416 number of floors
number of floors       -0.312305 -0.010335         0.177294       -0.0112937 0.012006         waterfront present       -0.112937 0.012006         0.006257       -0.0293004 -0.004782         number of views       -0.293004 -0.004782         0.078665       -0.027402         condition of the house       -0.045061 -0.027402         0.026597       -0.0673448 -0.033097         0.352945       -0.0565116 -0.015994         Area of the house (excluding basement)       -0.565116 -0.015994         0.473599       -0.008645 -0.005869         Area of the basement       -0.098645 -0.005869         0.152954       -0.0109155 -0.011636         0.016132       -0.0109155 -0.011636         Postal Code       0.294709 0.018243       -         0.044156       -0.479334 -0.023327       -         Lattitude       -0.479334 -0.023327       -         0.013163       -0.0013163       -         Longitude       -0.070841 -0.018231       -         0.135712       -       -         living_area_renov       -0.599900 -0.032495       -
0.177294 waterfront present
waterfront present
0.006257 number of views
number of views       -0.293004 -0.004782         0.078665       -0.045061 -0.027402         condition of the house       -0.673448 -0.033097         0.026597       -0.673448 -0.033097         grade of the house (excluding basement)       -0.565116 -0.015994         0.473599       -0.290806 -0.015711         Area of the basement       -0.290806 -0.015711         0.300332       -0.068645 -0.005869         Built Year       -0.068645 -0.005869         0.152954       -0.109155 -0.011636         Renovation Year       0.294709 0.018243 -         0.016132       -0.044156         Lattitude       -0.479334 -0.023327 -         0.013163       -0.070841 -0.018231         Longitude       -0.070841 -0.018231         0.135712       -0.599900 -0.032495
0.078665 condition of the house
0.026597 grade of the house 0.352945 Area of the house(excluding basement) 0.473599 Area of the basement 0.300332 Built Year 0.152954 Renovation Year 0.016132 Postal Code 0.044156 Lattitude 0.013163 Longitude 0.135712 living_area_renov -0.673448 -0.033097 -0.0673448 -0.033097 -0.055994 -0.015994
grade of the house
0.352945 Area of the house(excluding basement) -0.565116 -0.015994 0.473599 Area of the basement -0.290806 -0.015711 0.300332 Built Year -0.068645 -0.005869 0.152954 Renovation Year -0.109155 -0.011636 0.016132 Postal Code 0.294709 0.018243 - 0.044156 Lattitude -0.479334 -0.023327 - 0.013163 Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
Area of the house (excluding basement) -0.565116 -0.015994 0.473599 Area of the basement -0.290806 -0.015711 0.300332 Built Year -0.068645 -0.005869 0.152954 Renovation Year -0.109155 -0.011636 0.016132 Postal Code 0.294709 0.018243 - 0.044156 Lattitude -0.479334 -0.023327 - 0.013163 Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
0.473599 Area of the basement 0.300332 Built Year 0.152954 Renovation Year 0.016132 Postal Code 0.044156 Lattitude 0.013163 Longitude 0.135712 living_area_renov -0.290806 -0.015711 -0.290806 -0.015711 -0.005869 -0.00
Area of the basement 0.300332  Built Year 0.152954  Renovation Year 0.016132  Postal Code 0.044156  Lattitude 0.013163  Longitude 0.135712 living_area_renov  -0.290806 -0.015711 -0.005869 -0.005869 -0.0109155 -0.011636 -0.0109155 -0.011636 -0.0109155 -0.011636 -0.0109155 -0.011636 -0.0109155 -0.011636 -0.0109155 -0.011636 -0.0109155 -0.011636 -0.011636 -0.0109155 -0.011636 -0.011636 -0.011636 -0.011636 -0.018231
0.300332 Built Year
Built Year
0.152954 Renovation Year
Renovation Year -0.109155 -0.011636 0.016132 Postal Code 0.294709 0.018243 - 0.044156 Lattitude -0.479334 -0.023327 - 0.013163 Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
0.016132 Postal Code
Postal Code 0.294709 0.018243 - 0.044156  Lattitude -0.479334 -0.023327 - 0.013163  Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
0.044156 Lattitude
Lattitude -0.479334 -0.023327 - 0.013163 Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
0.013163 Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
Longitude -0.070841 -0.018231 0.135712 living_area_renov -0.599900 -0.032495
0.135712 living_area_renov -0.599900 -0.032495
living_area_renov -0.599900 -0.032495
0.303033
lot_area_renov -0.089604 -0.000050
0.029400
Number of schools nearby -0.004821 -0.004071
0.003397
Distance from the airport -0.004542 0.011457 -
0.006157
Price -0.773114 -0.027919
0.308460
number of bathrooms living
area \
id -0.516909 -
0.648127

Date		-0.02648	5 <b>–</b>	
0.021958 number of bedrooms		0.50978	4	
0.570526				
number of bathrooms		1.00000	0	
0.753517			_	
living area		0.75351	7	
1.000000 lot area		0.08080	6	
0.174420		0.00000	O	
number of floors		0.50292	4	
0.354743				
waterfront present		0.06010	4	
0.105837				
number of views		0.18378	9	
0.287728			_	
condition of the house		-0.12823	2 -	
0.063358 grade of the house		0.66305	1	
0.761835		0.00303	4	
Area of the house (excluding basement)		0.68439	1	
0.875793		0.00103	_	
Area of the basement		0.28719	0	
0.441491				
Built Year		0.49812	7	
0.309602				
Renovation Year		0.04966	9	
0.059400		0 10554		
Postal Code		-0.10554	6 –	
0.080303 Lattitude		0.03115	6	
0.054518		0.03113	ð	
Longitude		0.22390	4	
0.240208		0.2200	-	
living_area_renov		0.57053	0	
0.757571				
lot_area_renov		0.07862	7	
0.180312				
Number of schools nearby		0.00218	0	
0.002370		0 00000	6	
Distance from the airport 0.002511		0.00920	6	
Price		0.53173	5	
0.712169		0.331/3	J	
	lot area	number o	f floors	\
id	-0.100269	_	0.312305	
Date	0.004392	-	0.010335	

number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the house(excluding basement) Area of the basement	0.034416 0.080806 0.174420 1.000000 -0.004138 0.026282 0.078308 -0.008548 0.110546 0.183553 0.019755	0.502924 0.354743 -0.004138 1.000000 0.016316 0.020153 -0.269928 0.463082 0.525643
Built Year	0.051615	0.481565
Renovation Year Postal Code	0.006848 0.070131	
Lattitude	-0.090983	
Longitude	0.221432	
living area renov	0.149744	
lot_area_renov	0.706812	-0.010120
Number of schools nearby	-0.012671	-0.007579
Distance from the airport		0.016567
Price	0.081992	0.262732
views \	waterfron	t present number of
id		-0.112937 -
0.293004		0.112337
Date		0.012006 -
0.004782		
number of bedrooms 0.078665		-0.006257
number of bathrooms 0.183789		0.060104
living area 0.287728		0.105837
lot area 0.078308		0.026282
number of floors 0.020153		0.016316
waterfront present 0.400206		1.000000
number of views 1.000000		0.400206
condition of the house 0.052533		0.018644
grade of the house 0.254532		0.079831
Area of the house(excluding basement) 0.162672		0.071865

Area of the basement	0.085441		
0.293062 Built Year	-0.024226	_	
0.055357	0.021220		
Renovation Year	0.085865		
0.102944			
Postal Code	0.038318		
0.039268	0 001705		
Lattitude 0.004555	-0.021795	_	
Longitude	-0.047791	_	
0.079706	0.017731		
living area renov	0.085743		
0.281452			
lot_area_renov	0.032055		
0.072300			
Number of schools nearby	0.001563		
0.008004 Distance from the airport	0.001448	_	
0.001657	0.001440		
Price	0.263687		
0.395973			
	condition of the house	• • •	\
id	-0.045061	• • •	
Date number of bedrooms	-0.027402 0.026597		
number of bathrooms	-0.128232		
living area	-0.063358		
lot area	-0.008548		
number of floors	-0.269928		
waterfront present	0.018644		
number of views	0.052533		
condition of the house	1.000000	• • •	
grade of the house	-0.152530	• • •	
Area of the house (excluding basement) Area of the basement	-0.167695 0.180609		
Built Year	-0.381718		
Renovation Year	-0.062126		
Postal Code	0.045334		
Lattitude	-0.002998		
Longitude	-0.121189		
living_area_renov	-0.099743		
lot_area_renov	-0.004748	• • •	
Number of schools nearby	-0.006939 -0.002136	• • •	
Distance from the airport Price	0.041376		
	0.011570	• • •	

1d		Built Year	Renovation Year \
number of bethrooms         0.152954         0.016132           number of bathrooms         0.498127         0.04969           living area         0.309602         0.059400           lot area         0.051615         0.006848           number of floors         0.481565         0.006705           waterfront present         -0.024226         0.085865           number of views         -0.055357         0.102944           condition of the house         0.440358         0.014501           grade of the house         0.440358         0.014501           Area of the basement         -0.138843         0.075104           Area of the bouse (excluding basement)         0.419369         0.025727           Area of the basement         -0.138843         0.0075104           Built Year         -0.033683         1.000000           Postal Code         -0.062349         0.018006           Battitude         -0.143153         0.028908           Longitude         -0.143153         0.028908           Longitude \         -0.001631         -0.00826           Distance from the airport         -0.003968         0.005342           Price         0.039268         0.005342           Price	id	-0.068645	-0.109155
number of bathrooms         0.498127         0.049669           living area         0.309602         0.059400           lot area         0.051615         0.006848           number of floors         0.481565         0.006705           waterfront present         -0.024226         0.085865           number of views         -0.055357         0.102944           condition of the house         0.440358         0.014501           grade of the house (excluding basement)         0.449369         0.025727           Area of the basement         -0.138843         0.075104           Built Year         -0.138843         0.075104           Built Year         -0.062349         0.018006           Renovation Year         -0.062349         0.018006           Lattitude         -0.062349         0.018006           Lattitude         -0.072874         0.005805           Longitude         0.414591         -0.08005           living area renov         0.072874         0.005869           Number of schools nearby         -0.001631         -0.00826           Distance from the airport         -0.003968         0.005322           Postal Code         Lattitude           Longitude         -0.004156 <td>Date</td> <td>-0.005869</td> <td>-0.011636</td>	Date	-0.005869	-0.011636
1.1   1.2	number of bedrooms	0.152954	0.016132
10t area	number of bathrooms	0.498127	0.049669
lot area         0.051615         0.006848           number of floors         0.481565         0.006705           waterfront present         -0.024226         0.088865           number of views         -0.055357         0.102944           condition of the house         -0.381718         -0.062126           grade of the house         0.440358         0.014501           Area of the basement         0.419369         0.025727           Area of the basement         -0.138843         0.075104           Built Year         1.000000         -0.233683           Renovation Year         -0.233683         1.000000           Postal Code         -0.062349         0.018006           Lattitude         -0.143153         0.028908           Longitude         0.414591         -0.80050           living_area_renov         0.072874         0.005869           Number of schools nearby         -0.001631         -0.00826           Distance from the airport         -0.003968         -0.003322           Price         0.03968         -0.003322           Price         0.03968         -0.00332           Postal Code         Lattitude           Longitude \         0.005303         0.03156	living area	0.309602	0.059400
waterfront present         -0.024226         0.085865           number of views         -0.055357         0.102944           condition of the house         -0.381718         -0.062126           grade of the house (excluding basement)         0.440358         0.014501           Area of the basement         -0.138843         0.075104           Built Year         1.000000         -0.233683           Renovation Year         -0.233683         1.000000           Postal Code         -0.062349         0.018006           Lattitude         -0.143153         0.028908           Longitude         0.414591         -0.080050           living_area_renov         0.328625         -0.002601           lot_area_renov         0.072874         0.005869           Number of schools nearby         -0.001631         -0.000826           Distance from the airport         -0.003968         0.005342           Price         0.05307         0.133173           Date         0.018243         -0.023327         -           0.070841         0.018243         -0.023327         -           0.135712         0.018243         -0.013163         -           0.135712         0.018243         -0.013163	_	0.051615	0.006848
waterfront present         -0.024226         0.085865           number of views         -0.055357         0.102944           condition of the house         -0.381718         -0.062126           grade of the house (excluding basement)         0.440358         0.014501           Area of the basement         -0.138843         0.075104           Built Year         1.000000         -0.233683           Renovation Year         -0.233683         1.000000           Postal Code         -0.062349         0.018006           Lattitude         -0.143153         0.028908           Longitude         0.414591         -0.080050           living_area_renov         0.328625         -0.002601           lot_area_renov         0.072874         0.005869           Number of schools nearby         -0.001631         -0.000826           Distance from the airport         -0.003968         0.005342           Price         0.05307         0.133173           Date         0.018243         -0.023327         -           0.070841         0.018243         -0.023327         -           0.135712         0.018243         -0.013163         -           0.135712         0.018243         -0.013163	number of floors	0.481565	0.006705
number of views         -0.055357         0.102944           condition of the house         -0.381718         -0.062126           grade of the house         0.440358         0.014501           Area of the house(excluding basement)         0.419369         0.025727           Area of the basement         -0.138843         0.075104           Built Year         1.000000         -0.233683           Renovation Year         -0.233683         1.000000           Postal Code         -0.062349         0.018006           Lattitude         -0.143153         0.028908           Longitude         0.414591         -0.08005           living area_renov         0.328625         -0.002601           lot_area_renov         0.072874         0.005869           Number of schools nearby         -0.001631         -0.00826           Distance from the airport         -0.003968         0.005342           Price         0.050307         0.133173           Longitude \         0.0294709         -0.479334         -           0.070841         0.018231         -0.018243         -0.023327         -           0.018231         0.018243         -0.023327         -           0.023904         -0.019305	waterfront present	-0.024226	
condition of the house         -0.381718         -0.062126           grade of the house (excluding basement)         0.440358         0.014501           Area of the house (excluding basement)         0.419369         0.025727           Area of the basement         -0.138843         0.075104           Built Year         1.000000         -0.233683           Renovation Year         -0.233683         1.000000           Postal Code         -0.062349         0.018006           Lattitude         -0.143153         0.028908           Longitude         0.414591         -0.080050           living area_renov         0.328625         -0.002601           Number of schools nearby         0.072874         0.005869           Number of schools nearby         -0.001631         -0.000826           Distance from the airport         -0.003968         0.005342           Price         0.050307         0.133173           Longitude \         0.0294709         -0.479334         -           0.070841         0.03826         -0.013163         -           0.135712         0.018243         -0.023327         -           0.135712         0.018546         0.031166         -           0.223904         0			
grade of the house Area of the house (excluding basement) Area of the house (excluding basement) Area of the basement Area of the basement  -0.138843 0.075104 Built Year 1.000000 -0.233683 Renovation Year -0.062349 0.018006 Lattitude -0.143153 0.028908 Longitude Longitude Longitude Longitude Longitude Lotting area_renov 0.328625 0.00028625 0.00028608 Number of schools nearby 0.072874 0.05869 Number of schools nearby Distance from the airport Postal Code Lattitude Longitude Longitude Longitude Longitude  0.070874 Date 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bedrooms 0.135712 number of bathrooms 0.223904 Living area 0.040208 Lot area 0.070131 0.070131 0.02998 Longitude Longitude Longitude O.070871 O.000826 O.000827 O.000827 O.000827 O.000828 O.0008			
Area of the house (excluding basement) Area of the basement  Area of the basement  -0.138843 0.075104 1.000000 -0.233683 Renovation Year -0.233683 1.000000 Postal Code -0.062349 0.018006 Lattitude -0.143153 0.028908 Longitude 0.414591 -0.080050 living_area_renov 0.328625 -0.002601 lot_area_renov 0.072874 0.005869 Number of fschools nearby -0.001631 -0.000826 Distance from the airport -0.003968 0.005342 Price -0.001631 -0.000826 Lattitude Longitude \( \) 0.294709 -0.479334 -0.018231  number of bedrooms -0.018231 -0.018231 number of bathrooms -0.044156 -0.233904 living area -0.044156 -0.233904 living area -0.080303 0.054518 0.223904 living area -0.080303 0.054518 0.221432 number of floors -0.129788 0.050731 0.127550 waterfront present -0.04791 number of views -0.039268 -0.002998 -0.079706 condition of the house -0.12189 grade of the house -0.146342 -0.115256			
Area of the basement  Built Year  1.000000			
Built Year Renovation Year Postal Code Postal Code Lattitude Longitude Postal Code Postal Code Lattitude Postal Code Lattitude Postal Code Lattitude Postal Code Lattitude Postal Code Postal Code Lattitude Postal Code Posta	<del>_</del>		
Renovation Year			
Postal Code Lattitude Longitude Long			
Lattitude			
Longitude living_area_renov lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_lot_area_renov lot_area_renov lot_area_lot_area_renov lot_area_renov lot_area_renov lot_area_renov			
living_area_renov       0.328625       -0.002601         lot_area_renov       0.072874       0.005869         Number of schools nearby       -0.001631       -0.000826         Distance from the airport       -0.003968       0.005342         Price       0.050307       0.133173         Postal Code Lattitude         Longitude \       1       0.294709       -0.479334       -0.0070841         Date       0.018243       -0.023327       -0.018231       -0.018243       -0.023327       -0.013163         0.135712       0.105546       0.031156       0.023904       0.023304       0.05031       0.0503156       0.023904         living area       -0.080303       0.054518       0.050731       0.090983       0.0221432       0.0221432       0.0070131       -0.090983       0.050731       0.047791       0.047791       0.038318       -0.021795       -0.047791       0.079706       0.0039268       -0.004555       -0.0079706       0.079706       0.0045334       -0.002998       -0.011189       grade of the house       -0.146342       0.115256       0.115256			
lot_area_renov         0.072874         0.005869           Number of schools nearby         -0.001631         -0.000826           Distance from the airport         -0.003968         0.005342           Price         0.050307         0.133173           Postal Code Lattitude           Longitude \ id         0.294709         -0.479334         -           0.070841         0.018243         -0.023327         -           0.018231         -0.018243         -0.023327         -           number of bedrooms         -0.044156         -0.013163         -           0.135712         -0.015546         0.031156         -           0.223904         -0.023327         -         -           1iving area         -0.080303         0.054518         -           0.240208         -0.240208         -         -           1ot area         0.070131         -0.090983         -           0.127550         -         -         -         -           waterfront present         0.038318         -0.021795         -           0.079706         -         -         -         -           condition of the house         0.045334         -0.002998         - <td></td> <td></td> <td></td>			
Number of schools nearby	<del>-</del> -		
Distance from the airport	<del>-</del> -		
Price 0.050307 0.133173  Postal Code Lattitude Longitude \ id 0.294709 -0.479334 - 0.070841 Date 0.018243 -0.023327 - 0.018231 number of bedrooms -0.044156 -0.013163 0.135712 number of bathrooms -0.105546 0.031156 0.223904 living area -0.080303 0.054518 0.240208 lot area 0.070131 -0.090983 0.221432 number of floors -0.129788 0.050731 0.127550 waterfront present 0.038318 -0.021795 - 0.047791 number of views 0.039268 -0.004555 - 0.079706 condition of the house 0.045334 -0.002998 - 0.121189 grade of the house -0.146342 0.115256			
Postal Code Lattitude Longitude \ id			
Longitude \ id	Frice	0.050307	0.1331/3
id       0.294709       -0.479334       -         0.070841       0.018243       -0.023327       -         0.018231       -0.044156       -0.013163       -         0.135712       -0.105546       0.031156       -         0.223904       -0.080303       0.054518       -         0.240208       -0.070131       -0.090983       -         0.221432       -0.129788       0.050731       -         0.127550       waterfront present       0.038318       -0.021795       -         0.047791       -0.047791       -0.039268       -0.004555       -         0.079706       -0.012189       -0.002998       -         0.121189       grade of the house       -0.146342       0.115256			
0.070841  Date		Postal Code	Lattitude
Date 0.018243 -0.023327 - 0.018231 number of bedrooms -0.044156 -0.013163 0.135712 number of bathrooms -0.105546 0.031156 0.223904 living area -0.080303 0.054518 0.240208 lot area 0.070131 -0.090983 0.221432 number of floors -0.129788 0.050731 0.127550 waterfront present 0.038318 -0.021795 - 0.047791 number of views 0.039268 -0.004555 - 0.079706 condition of the house 0.045334 -0.002998 - 0.121189 grade of the house -0.146342 0.115256	Longitude \	Postal Code	Lattitude
0.018231 number of bedrooms	_		
0.018231 number of bedrooms	id		
number of bedrooms       -0.044156       -0.013163         0.135712       -0.105546       0.031156         0.223904       -0.080303       0.054518         1iving area       -0.080303       0.054518         0.240208       -0.070131       -0.090983         1ot area       0.070131       -0.090983         0.221432       -0.129788       0.050731         0.127550       0.047791       0.038318       -0.021795         number of views       0.039268       -0.004555       -         0.079706       0.0079706       0.045334       -0.002998       -         0.121189       grade of the house       -0.146342       0.115256	id 0.070841	0.294709	-0.479334 -
0.135712 number of bathrooms	id 0.070841 Date	0.294709	-0.479334 -
number of bathrooms       -0.105546       0.031156         0.223904       -0.080303       0.054518         1iving area       -0.080303       0.054518         0.240208       0.070131       -0.090983         1ot area       0.070131       -0.090983         0.221432       0.127550       0.038318       -0.050731         waterfront present       0.038318       -0.021795       -         0.047791       0.039268       -0.004555       -         0.079706       0.079706       0.045334       -0.002998       -         0.121189       grade of the house       -0.146342       0.115256	id 0.070841 Date 0.018231	0.294709	-0.479334 - -0.023327 -
0.223904 living area	id 0.070841 Date 0.018231 number of bedrooms	0.294709	-0.479334 - -0.023327 -
living area	id 0.070841 Date 0.018231 number of bedrooms 0.135712	0.294709 0.018243 -0.044156	-0.479334 - -0.023327 - -0.013163
0.240208 lot area	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms	0.294709 0.018243 -0.044156	-0.479334 - -0.023327 - -0.013163
lot area 0.070131 -0.090983 0.221432	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904	0.294709 0.018243 -0.044156 -0.105546	-0.4793340.0233270.013163 0.031156
0.221432 number of floors	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area	0.294709 0.018243 -0.044156 -0.105546	-0.4793340.0233270.013163 0.031156
number of floors -0.129788 0.050731 0.127550 waterfront present 0.038318 -0.021795 - 0.047791 number of views 0.039268 -0.004555 - 0.079706 condition of the house 0.045334 -0.002998 - 0.121189 grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208	0.294709 0.018243 -0.044156 -0.105546 -0.080303	-0.4793340.0233270.013163 0.031156 0.054518
0.127550 waterfront present 0.047791 number of views 0.079706 condition of the house 0.121189 grade of the house 0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area	0.294709 0.018243 -0.044156 -0.105546 -0.080303	-0.4793340.0233270.013163 0.031156 0.054518
<pre>waterfront present 0.047791 number of views 0.079706 condition of the house 0.121189 grade of the house 0.038318 -0.021795 - 0.039268 -0.004555 - 0.045334 -0.002998 - 0.1216342 0.115256</pre>	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983
0.047791 number of views 0.039268 -0.004555 - 0.079706 condition of the house 0.121189 grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983
number of views 0.039268 -0.004555 - 0.079706 condition of the house 0.045334 -0.002998 - 0.121189 grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731
0.079706 condition of the house 0.121189 grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731
condition of the house 0.045334 -0.002998 - 0.121189 grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present 0.047791	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788 0.038318	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731 -0.021795 -
0.121189 grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present 0.047791 number of views	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788 0.038318	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731 -0.021795 -
grade of the house -0.146342 0.115256	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present 0.047791 number of views 0.079706	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788 0.038318 0.039268	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731 -0.0217950.004555 -
	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present 0.047791 number of views 0.079706 condition of the house	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788 0.038318 0.039268	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731 -0.0217950.004555 -
0.203754	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present 0.047791 number of views 0.079706 condition of the house 0.121189	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788 0.038318 0.039268 0.045334	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731 -0.0217950.0045550.002998 -
	id 0.070841 Date 0.018231 number of bedrooms 0.135712 number of bathrooms 0.223904 living area 0.240208 lot area 0.221432 number of floors 0.127550 waterfront present 0.047791 number of views 0.079706 condition of the house 0.121189 grade of the house	0.294709 0.018243 -0.044156 -0.105546 -0.080303 0.070131 -0.129788 0.038318 0.039268 0.045334	-0.4793340.0233270.013163 0.031156 0.054518 -0.090983 0.050731 -0.0217950.0045550.002998 -

Area of the house(excluding basement)	-0.083730 -0.000088	
0.345899		
Area of the basement	-0.010542 0.112989	-
0.145879	0.060040	
Built Year	-0.062349 -0.143153	
0.414591	0 010006 0 020000	
Renovation Year 0.080050	0.018006 0.028908	_
Postal Code	1.000000 -0.310172	_
0.099003	1.000000 0.310172	
Lattitude	-0.310172 1.000000	_
0.131472		
Longitude	-0.099003 -0.131472	
1.000000		
living_area_renov	-0.108454 0.046148	
0.341221		
lot_area_renov	0.077483 -0.091622	
0.258066		
Number of schools nearby	0.010605 0.014949	-
0.010163	0.011500 0.007100	
Distance from the airport	0.011528 0.007193	_
0.003100 Price	-0.115908 0.297490	
0.024414	-0.113908 0.297490	
0.02111		
	living area renov	
lot_area_renov \		
id	-0.599900	_
0.089604		
Date	-0.032495	_
0.000050		
number of bedrooms	0.389855	
0.029400	0.550500	
number of bathrooms	0.570530	
0.078627 living area	0.757571	
0.180312	0.737371	
lot area	0.149744	
0.706812	0.113711	
number of floors	0.285093	_
0.010120		
waterfront present	0.085743	
0.032055		
number of views	0.281452	
0.072300		
condition of the house		
	-0.099743	-
0.004748		-
	-0.099743 0.720019	-

0.116725	
Area of the house (excluding basement)	0.737744
0.194670	
Area of the basement	0.196403
0.011283	
Built Year	0.328625
0.072874	
Renovation Year	-0.002601
0.005869	
Postal Code	-0.108454
0.077483	
Lattitude	0.046148 -
0.091622	0 241001
Longitude	0.341221
0.258066	1 00000
living_area_renov 0.189225	1.000000
lot area renov	0.189225
1.000000	0.109223
Number of schools nearby	-0.001203 -
0.025014	0.001200
Distance from the airport	-0.005673 -
0.014587	
Price	0.584924
0.075535	
0.075535	
0.075535	Number of schools nearby \
0.075535 id	-0.004821
id Date	-0.004821 -0.004071
id Date number of bedrooms	-0.004821 -0.004071 0.003397
<pre>id Date number of bedrooms number of bathrooms</pre>	-0.004821 -0.004071 0.003397 0.002180
<pre>id Date number of bedrooms number of bathrooms living area</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370
<pre>id Date number of bedrooms number of bathrooms living area lot area</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the house(excluding basement)</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894
<pre>id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the basement</pre>	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the basement Built Year	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the basement Built Year Renovation Year	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631 -0.000826
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the basement Built Year	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631 -0.000826 0.010605
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the house (excluding basement) Area of the basement Built Year Renovation Year Postal Code Lattitude	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631 -0.000826
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the house(excluding basement) Area of the basement Built Year Renovation Year Postal Code Lattitude Longitude	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631 -0.000826 0.010605 0.014949
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the house (excluding basement) Area of the basement Built Year Renovation Year Postal Code Lattitude	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631 -0.000826 0.010605 0.014949 -0.010163
id Date number of bedrooms number of bathrooms living area lot area number of floors waterfront present number of views condition of the house grade of the house Area of the house(excluding basement) Area of the basement Built Year Renovation Year Postal Code Lattitude Longitude living_area_renov	-0.004821 -0.004071 0.003397 0.002180 0.002370 -0.012671 -0.007579 0.001563 0.008004 -0.006939 0.000986 -0.002894 0.010284 -0.001631 -0.000826 0.010605 0.014949 -0.010163 -0.001203

Distance from the airport Price	0.004035 0.009890
	Distance from the airport
Price	-
id	-0.004542 -
0.773114	
Date	0.011457 -
0.027919	
number of bedrooms	-0.006157
0.308460	0.00000
number of bathrooms	0.009206
0.531735	0.000511
living area	0.002511
0.712169	0.002001
lot area	0.003291
0.081992	0.016567
number of floors 0.262732	0.016567
waterfront present	0.001448
0.263687	0.001448
number of views	-0.001657
0.395973	-0.001637
condition of the house	-0.002136
0.041376	0.002130
grade of the house	0.004940
0.671814	
Area of the house (excluding basement)	0.001222
0.615220	
Area of the basement	0.002926
0.330202	
Built Year	-0.003968
0.050307	
Renovation Year	0.005342
0.133173	
Postal Code	0.011528 -
0.115908	
Lattitude	0.007193
0.297490	
Longitude	-0.003100
0.024414	
living_area_renov	-0.005673
0.584924	
lot_area_renov	-0.014587
0.075535	0.004007
Number of schools nearby	0.004035
0.009890	1 00000
Distance from the airport	1.000000

```
0.003804
Price
                                                      0.003804
1.000000
[23 rows x 23 columns]
#mode
df['id'].mode()
        6762810020
1
        6762810021
        6762810022
3
        6762810023
        6762810026
                              ... 14615 6762831611
14616
       6762831612
14617 6762831613
14618
       6762831615
14619
       6762831616
Name: id, Length: 14620, dtype: int64
#mean df['lot
area'].mean()
15093.281121751026
#median
df['lot area'].median()
7620.0
round(df['lot area'].std(),2)
37919.62
round(df.describe(),2)
                       Date number of bedrooms number of bathrooms
                id
\ count 1.462000e+04 14620.00
                                        14620.00
                                                            14620.00
mean 6.762821e+09 42604.54
                                           3.38
                                                               2.13
     6.237570e+03 67.35
                                           0.94
                                                               0.77
std
min
     6.762810e+09 42491.00
                                          1.00
                                                               0.50
25% 6.762815e+09 42546.00
                                          3.00
                                                               1.75
50%
      6.762821e+09 42600.00
                                           3.00
                                                               2.25
75%
     6.762826e+09 42662.00
                                           4.00
                                                               2.50
max 6.762832e+09 42734.00
                                          33.00
                                                               8.00
```

	liv	ing a	rea		lot are	a :	numbe	r of	flooi	rs v	waterfr	ont p	resent
\ coun	t	1462	20.0	0	14620.	.00			14620.	00		14	620.00
mean		2098	.26		15093.2	8			1.5	50			0.01
std		928	.28		37919.6	2			0.5	54			0.09
min		370	.00		520.0	0			1.0	00			0.00
25%		1440	.00		5010.7	5			1.0	0 (			0.00
50%		1930	.00		7620.0	0			1.5	50			0.00
75% max		2570 13540			L0800.0 74218.0				2.0				0.00
count mean 0.77 0.00 0.00 50% 0.00	numk		4620 0		0.66 1.00 3.00			146 2 190 195	house 20.00 3.43 9.49 0.00 1.00 3.00 7.00	min	1	t Year 620.00 970.93	) 3 std
4.00					5.00				5.00	maz	`		
living					Posta	l Co	ode	Latt	itude	Lon	ıgitude		
count 14620.	_				14	620	.00	146	20.00	14	620.00		
mean			90	.92	122	033	.06		52.79	-	114.40		
1996.7 std	U		416	.22		19	.08		0.14		0.14		
691.09 min			0	.00	122	003	.00		52.39	_	114.71		
460.00 25%			0	.00	122	017	.00		52.71	_	114.52		
1490.0 50%	0		0	.00	122	032	.00		52.81	_	114.42		
1850.0 75%	0		0	.00	122	048	.00		52.91	_	114.32		
2380.0 max 6110.0			2015	.00	122	072	.00		53.01	_	113.50		
	lot	area	ren	OV	Number	of	scho	ols	nearby	7 Di	.stance	from	the

lot\_area\_renov Number of schools nearby Distance from the airport \
count 14620.00 14620.00

```
14620.00
mean
                                          2.01
            12753.50
64.95
            26058.41
                                          0.82
std
8.94
              651.00
                                          1.00
min
50.00
25%
             5097.75
                                          1.00
57.00
             7620.00
                                          2.00
50%
65.00
                                          3.00
75%
            10125.00
73.00
max
           560617.00
                                          3.00
80.00
           Price
       14620.00
count
       538932.22
mean
std
       367532.38
min
        78000.00
25%
       320000.00
50%
      450000.00
        645000.00
75%
max 7700000.00
[8 rows x 23 columns]
#statistics by groups df['lot
area'].groupby(df['id'])
```

<pandas.core.groupby.generic.SeriesGroupBy object at 0x7f89d72697f0>

## #Handle the missing values

#replacing with arbitary value
df.fillna(method='ffill')

	id	Date	number of	bedrooms	number	of bathrooms	\
0	6762810145	42491		5		2.50	
1	6762810635	42491		4		2.50	
2	6762810998	42491		5		2.75	
3	6762812605	42491		4		2.50	
4	6762812919	42491		3		2.00	
	• • •						
14615	6762830250	42734		2		1.50	
14616	6762830339	42734		3		2.00	
14617	6762830618	42734		2		1.00	

14618	6762830 14619 1.00	709 4 676283		2734	4	1.00		
0 1 2 3 4		area 3650 2920 2910 3310 2710	lot area 9050 4000 9480 42993 4500	O O O 8	of floors 2.0 1.1 2.0 1.1	5 5 0	present \	
14615 14616 14617 14618		1556 1680 1070 1030	2000) 700) 612) 6623	0 0	1.0 1.0 1.0 1.0	5 0 0	0 0 0 0	
		0	nur			dition of the		
0 1 2 3 4		Built	Year \ 4			5 5 3 4 4	1921 1909 1939 2001 1929	
14616 14617 14618 14619			0 0 0 0		:	4 3 4 3	1968 1962 1955 1969	
0	Renovat _area_re:		ar Post 0	122003	52.864	-		
2880 1 2470			0	122004	52.887	8 -114.470		
2 2940			0	122004	52.885	2 -114.468		
3 3350			0	122005	52.953			
4 2060			0	122006	52.904	7 -114.485		
		•	• •	• • •	• •	• • • • • • • • • • • • • • • • • • • •		

0 122066 52.6191 -114.472

14615

```
0 122072 52.5075 -114.393
14616
1540
                 0
                        122056 52.7289 -114.507
14617
1130
                 0 122042 52.7157 -114.411
14618
1420
14619
                 2009 122018 52.5338 -114.552
900
     lot area renov Number of schools nearby Distance from the
airport \
              5400
                                       2
0
58
              4000
                                       2
1
51
2
              6600
                                       1
53
                                       3
3
              42847
76
4
             4500
                                       1
51
. . .
              . . .
                                      . . .
. . .
14615
      17286
                                       3
76
14616
             7480
                                       3
59
14617
             6120
                                       2
64
14618
             6631
                                       3
54
14619
              3480
                                       2
              55
      Price
0
      2380000
1
      1400000
2
      1200000
3
      838000
     805000 ...
14615 221700
14616 219200
14617 209000
14618 205000
14619 146000
```

[14620 rows x 23 columns]

```
df.isnull().sum()
id
                                          0
                                          0
Date
number of bedrooms
                                          0
number of bathrooms
                                          0
living area
lot area
                                          0
number of floors
waterfront present
number of views
                                          0
condition of the house
grade of the house
Area of the house (excluding basement)
Area of the basement
Built Year
                                          0
                                          0
Renovation Year
Postal Code
                                          0
Lattitude
                                          0
                                          0
Longitude
living area renov
                                          0 Number
lot area renov
of schools nearby
                                   0
Distance from the airport
                                          0
                                          0
Price
dtype: int64
#filling missing values with 0
new df=df.fillna(0) new df
                   Date number of bedrooms number of bathrooms \
0
       6762810145 42491
                                            5
                                                               2.50
1
       6762810635 42491
                                            4
                                                               2.50
2
                                            5
       6762810998 42491
                                                               2.75
3
       6762812605 42491
                                            4
                                                               2.50
       6762812919 42491
                                            3
                                                               2.00
       . . .
                             . . .
                                                  . . .
14615 6762830250 42734
                                            2
                                                               1.50
                                            3
                                                               2.00
14616 6762830339 42734
                                            2
14617 6762830618 42734
                                                               1.00
14618 6762830709 42734
                                            4
                                                               1.00
       14619 6762831463 42734
                                                   3
       1.00
       living area lot area number of floors waterfront present
0
              3650
                        9050
                                           2.0
                                                                   0
1
              2920
                        4000
                                            1.5
                                                                   \Omega
```

# checking the missing value

2 3 4	2910 3310 2710	9480 42998 4500		1.5 2.0 1.5		0 0 0
14615 14616 14617 14618	1556 1680 1070 1030 14619	20000 7000 6120 6621	900	1.0 1.5 1.0 1.0	1	0 0 0 0 0
0 1 2 3 4 14615 14616 14617 14618 14619	number of view	s condi 4 0 0 0 0 0 0 0 0 0	tion of	the house 5 5 3 3 4 4 4 4 4 3 3 4 3	Built	Year \ 1921 1909 1939 2001 1929 1957 1968 1962 1955 1969
0 2880	Renovation Yea _area_renov \	0	122003	Lattitude 52.8645	-114.557	
1 2470 2 2940 3 3350		0 0	122004 122004 122005	52.8878 52.8852 52.9532	-114.470 -114.468 -114.321	
4 2060 		0	122006	52.9047	-114.485	
14615 2250 14616 1540		0	122066 122072	52.5075	-114.472 -114.393	
14617 1130 14618 1420 14619		0 0 2009	122056 122042 12203		-114.507 -114.411 38 -114.5	52

```
lot area renov Number of schools nearby Distance from the
airport \
0
                5400
                                             2
58
1
                4000
                                             2
51
2
                6600
                                             1
53
3
                42847
                                             3
                     4500
76 4
                                                                  30
51 ...
                     . . .
                                                . . .
                                                                  30
. . .
14615
               17286
                                                                  30
14616
                7480
                                                                  30
76
59
14617
               6120
                                             2
64
14618
               6631
                                             3
54
14619
                3480
                                             2
                55
       Price
0
       2380000
1
       1400000
2
       1200000
3
      838000
      805000 ...
                         . . .
14615 221700
14616 219200
14617 209000
14618 205000
14619 146000
[14620 rows x 23 columns]
#filling NaN values with forward fill value
new df=df.fillna(method="ffill") new df
              id Date number of bedrooms number of bathrooms \
      6762810145 42491
                                                           2.50
0
                                         5
                                         4
                                                           2.50
1
      6762810635 42491
2
      6762810998 42491
                                         5
                                                           2.75
     6762812605 42491
                                         4
                                                           2.50
```

4	6762812919 4	2491		3		2.00
	• • •				• • •	
14615 14616 14617 14618	6762830339 4		734	2 3 2 4	3	1.50 2.00 1.00 1.00
0 1 2 3 4 14615 14616 14617 14618	living area 3650 2920 2910 3310 2710 1556 1680 1070 1030	lot area 9050 4000 9480 42998 4500 20000 7000 6120 6621	number	of floors	waterfront	present \
	14619 0		900	4770	1	.0
0 1 2 3 4	number of vie	4 0 0 0	ition of	the house 5 5 3 3 3	Built	Year \ 1921 1909 1939 2001
		0  14615		4 •••		1929
		14615	1957	0		4
14616 14617 14618 14619		14615	1957			
14617 14618 14619	Renovation Ye	 14615  0 0 0		0 4 3 4 3	Longitude	4 1968 1962 1955
14617 14618 14619	Renovation Ye _area_renov \	 14615  0 0 0		0 4 3 4 3	• • •	4 1968 1962 1955
14617 14618 14619 living 0 2880		 14615  0 0 0 0	al Code	0  4 3 4 3 Lattitude	 Longitude	4 1968 1962 1955
14617 14618 14619 living 0 2880		14615  0 0 0 0 0 ar Posta	al Code 122003	0 4 3 4 3 Lattitude 52.8645	Longitude -114.557 -114.470	4 1968 1962 1955

2250						
3350 4		0	12200	6 52.9047	_11/ /85	
2060		O	12200	0 32.9047	-114.403	
• • •		• • •	• •	• • • • • •	•••	
 14615		0	12206	6 52.6191	-114.472	
2250		O	12200	0 52.0191	114.4/2	
14616		0	12207	2 52.5075	-114.393	
1540		O	12207	2 32.3073	114.373	
14617		0	12205	6 52.7289	-114.507	
1130		O	12203	0 52.7203	-114.507	
14618		0	12204	0 50 7157	-114.411	
14010		U	12204	2 32./13/	-114.411	
1420		2009	3 12	2010 52 5	220 _11/ 552	
900		2003	9 12.	2010 52.5	338 -114.552	
900						
	10+ 2x02	ropou Ni	mbor of so	ahoola noarb	y Distance fro	om tho
airport		Tellov Nu	miber of so	ZHOOIS HEALD	y Distance iid	III CHE
0	. \	5400			2	
58		3400			2	
1		4000			2	
51		4000			2	
2		6600			1	
53		0000			_	
3		42847			3	
76		12017			5	
4		4500			1	
51		1000			_	
14615		17286			3	
76						
14616		7480			3	
59						
14617		6120			2	
		64				
14618		6631			3	
54						
14619		3480			2	
		55				
	Price					
0	2380000					
1	1400000					
2	1200000					
3	838000					
4	805000					
14615	221700					

```
14616 219200
14617 209000
14618 205000
14619 146000
```

[14620 rows x 23 columns]

# #interpolate of missing values

new\_df=df.interpolate() df

0 1 2 3 4 14615 14616 14617 14618	id 6762810145 6762810635 6762810998 6762812919  6762830250 6762830339 6762830618 6762830709 14619 676 1.00	42491 42491 42491 42491  42734 42734 42734	number	of	bedro	oms 1 5 4 5 4 3 2 4	number 	of b	1. 2. 2. 2. 2. 2.	50 50 75 50 00 50 00	
0 1 2 3 4	living are 365 292 291 331 271	0 9 0 4 0 9 0 42 0 4	rea nur 050 0000 480 998 500	mbei	of f	loors 2.0 1.5 1.5 2.0 1.5		rfron	t prese	ent 0 0 0 0	
14615 14616	155 168	6 20	000			1.0 1.5				0	
14617	107		120			1.0				0	
14618	103		621			1.0				0	
14619	900		70			1.0				0	
	num Yea	ber of v r \ 0		ond:	ition	of th	e house	e	. Bui	lt	5
_	• • •		1921			_					
1 2		0				5 3			1909		
3		0				3			1939		
4		0				3 4	• • •		2001 1929		
1		• • •						_			• • •
14615		0				4		-	1957		
14616		0				4			1968		
14617		0				3			1962		

14618 14619	0 0		4 3	1955 1969
	ion Year Pos	tal Code I	attitude 1	Longitude
living_area_re 0	enov \ 0	122003	52.8645	-114.557
2880 1 2470	0	122004	52.8878	-114.470
2 2940	0	122004	52.8852	-114.468
3	0	122005	52.9532	-114.321
3350 4 2060	0	122006	52.9047	-114.485
• • • •	•••	• • •	• • •	• • •
14615 2250	0	122066	52.6191	-114.472
14616	0	122072	52.5075	-114.393
1540 14617	0	122056	52.7289	-114.507
1130 14618	0	122042	52.7157	-114.411
1420 14619 900	2009	122018	52.533	8 -114.552
<del>-</del>	ea_renov Numb	er of schoo	ols nearby	Distance from the
airport \ 0	5400		2	
58 1	4000		2	
51				
2 53	6600		1	
3 76	42847		3	
4	4500 51		1	
	•••			
14615	17286		3	
76 14616	7480		3	
59 14617 64	6120		2	

```
14618
               6631
                                              3
54
14619
                 3480
                                              2
                 55
        Price
0
        2380000
1
        1400000
2
        1200000
3
        838000
       805000
               . . .
                           . . .
14615 221700
14616 219200
14617 209000
14618
      205000
14619 146000
[14620 rows x 23 columns]
#dropna()
new df=df.dropna()
new_df
               id
                  Date number of bedrooms number of bathrooms \
0
       6762810145 42491
                                                              2.50
1
       6762810635 42491
                                           4
                                                              2.50
2
                                           5
       6762810998 42491
                                                             2.75
3
       6762812605 42491
                                           4
                                                             2.50
                                           3
       6762812919 42491
                                                              2.00
                            . . .
                                                 . . .
14615 6762830250 42734
                                           2
                                                             1.50
14616 6762830339 42734
                                           3
                                                             2.00
                                           2
14617 6762830618 42734
                                                             1.00
14618 6762830709 42734
                                                             1.00
                                                  3
       14619 6762831463 42734
       1.00
       living area lot area number of floors waterfront present
0
              3650
                        9050
                                           2.0
                                                                  0
              2920
                                           1.5
                                                                  0
1
                        4000
2
              2910
                        9480
                                           1.5
                                                                  0
                                                         2.0
              3
                          3310 42998
              0
              2710
                                           1.5
                                                                  0
4
                        4500
              . . .
                                           . . .
. . .
                        . . .
                                                                . . .
                       20000
                                           1.0
                                                                  0
14615
              1556
14616
             1680
                       7000
                                           1.5
                                                                  0
                                           1.0
                                                                  0
14617
              1070
                        6120
```

```
6621 1.0
900 4770
14618 1030 6621
14619 900
                                                       0
                                               1.0
            0
     number of views condition of the house ... Built Year \
0
                                      5 ...
                                                  1921
1
                  0
                                      5
                                                  1909
2
                  0
                                      3
                                                  1939
                                         . . .
3
                  0
                                      3
                                                  2001
4
                  0
                                                  1929 ...
                                         . . .
                  . . .
14615
                  0
                                                  1957
14616
                  0
                                      4
                                                  1968
                                         . . .
                 0
                                      3
14617
                                                  1962
                  0
14618
                                                  1955
14619
                  0
                                      3
                                         . . .
                                                  1969
     Renovation Year Postal Code Lattitude Longitude
living area renov \
0
                    122003 52.8645 -114.557
2880
1
                 0
                        122004 52.8878 -114.470
2470
2
                 0
                        122004 52.8852 -114.468
2940
                        122005 52.9532 -114.321
3
                 Ω
3350
4
                 0 122006 52.9047 -114.485
2060
. . .
                . . .
                         . . .
                                 . . .
                 0
                        122066 52.6191 -114.472
14615
2250
                 0
                                52.5075 -114.393
14616
                        122072
1540
                 0
14617
                        122056 52.7289 -114.507
1130
14618
                 0 122042 52.7157 -114.411
1420
               2009 122018 52.5338 -114.552
14619
900
     lot area renov Number of schools nearby Distance from the
airport \
0
              5400
                                       2
              58
                                       2
1
              4000
```

```
2
                 6600
                                              1
53
3
                 42847
                                              3
76
4
                 4500
                                              1
51
. . .
                 . . .
                                           . . .
. . .
14615
                17286
                                              3
76
14616
                7480
                                              3
59
14617
                                              2
                6120
64
14618
                                              3
                 6631
54
                                              2
14619
                 3480
                 55
        Price
0
        2380000
1
       1400000
2
       1200000
3
       838000
      805000 ...
14615 221700
14616 219200
14617 209000
14618 205000
14619 146000
[14620 rows x 23 columns]
#deleting the rows having all NaN values
new_df=df.dropna(how='all') new_df
              id Date number of bedrooms number of bathrooms \
0
       6762810145 42491
                                          5
                                                            2.50
1
       6762810635 42491
                                                            2.50
                                          4
2
                                          5
                                                            2.75
       6762810998 42491
3
       6762812605 42491
                                                            2.50
                                          4
4
       6762812919 42491
                                          3
                                                            2.00
       . . .
                   ...
                                                . . .
                                          2
14615 6762830250 42734
                                                            1.50
14616 6762830339 42734
                                          3
                                                            2.00
                                                 2
       14617 6762830618 42734
```

1.00

	6762830 6762833						4			1.0		
0 1 2 3 4	living	area 3650 2920 2910 3310 2710		area 9050 4000 9480 42998 4500	number	of f	2.0 1.5 1.5 2.0 1.5	waterf	ront	prese	0 0 0 0 0	\
14615 14616 14617 14618		1556 1680 1070 1030 14619		20000 7000 6120 6621	900	47	1.0 1.5 1.0 1.0		1.	.0	0 0 0 0	
0 1 2 3 4	number	of vi	4 0 0 0 0	condi	ition of	the	house 5 5 3 3 4	B	uilt	1921 1909 1939 2001 1929		
14615 14616 14617 14618 14619			0 0 0 0	•			4 4 3 4 3			1957 1968 1962 1955 1969	•	
livina	Renovat			Posta	al Code	Latt	itude	Longit	ude			
0 2880 1	_0100_10	5110 V	0		122003 122004		2.8645	-114. -114.				
2470			0		122004	52	2.8852	-114.	468			
2940 3 3350			0		122005	52	2.9532	-114.	321			
4 2060			0		122006	52	2.9047	-114.	485			
			•••		• • •		• • •		• • •			
14615 2250			0		122066	52	2.6191	-114.	472			
14616			0		122072	52	2.5075	-114.	393			

```
1540
                  0 122056 52.7289 -114.507
14617
                 1130
14618
                  0 122042 52.7157 -114.411
1420
                2009 122018 52.5338 -114.552
14619
900
      lot area renov Number of schools nearby Distance from the
airport \
              5400
                                        2
58
1
              4000
                                        2
51
2
              6600
                                        1
53
                                        3
3
              42847
76
4
              4500
                                        1
51
. . .
                                      . . .
. . .
              17286
                                        3
14615
76
                                        3
14616
             7480
59
14617
             6120
                                        2
64
14618
             6631
                                        3
54
              3480
14619
                                        2
              55
       Price
0
      2380000
1
      1400000
2
      1200000
3
      838000
4
     805000 ...
                    . . .
14615 221700
14616 219200
14617 209000
14618 205000
14619 146000
```

[14620 rows x 23 columns]