Name: JASTI PAVAN, Reg. No.: 21BDS0309

Assignment- 2 Campus: Vellore Email id: jasti.pavan2021@vitstudent.ac.in

- 1. Download the dataset: House Price India dataset is downloaded.
- 1. Load The dataset

```
import pandas as pd
import matplotlib.pyplot as plt
from matplotlib import rcParams
import seaborn as sns
df = pd.read csv('/content/House Price India.csv')
df.head()
                Date number of bedrooms
                                            number of bathrooms
           id
living_area \
0 676\overline{2}810145 42491
                                         5
                                                            2.50
3650
1 6762810635 42491
                                                            2.50
2920
2 6762810998 42491
                                                            2.75
2910
3 6762812605 42491
                                                            2.50
3310
4 6762812919 42491
                                                            2.00
2710
             number of floors
                                waterfront present
                                                     number of views
   lot area
0
       9050
                           2.0
                                                  0
                                                                    4
       4000
                           1.5
                                                  0
                                                                    0
1
2
                           1.5
                                                  0
                                                                    0
       9480
3
                                                  0
      42998
                           2.0
                                                                    0
4
       4500
                           1.5
                                                  0
                                                                    0
   condition_of_the_house ...
                                 Built_Year Renovation Year
Postal Code \
                         5
                                                             0
                                        1921
122003
                         5
                                        1909
                                                             0
122004
                         3
                                        1939
                                                             0
122004
                         3
                                        2001
                                                             0
3
122005
                         4
                                        1929
                                                             0
122006
   Lattitude
              Longitude living area renov lot area renov \
0
     52.8645
               -114.557
                                                         5400
                                        2880
```

```
1
     52.8878
                -114.470
                                         2470
                                                          4000
2
                -114.468
                                         2940
                                                          6600
     52.8852
3
     52.9532
                -114.321
                                         3350
                                                         42847
     52.9047
                -114.485
                                         2060
                                                          4500
   Number of schools nearby
                               Distance from the airport
                                                               Price
0
                                                             2380000
                                                        58
                            2
1
                                                        51
                                                             1400000
2
                            1
                                                        53
                                                             1200000
3
                            3
                                                              838000
                                                        76
4
                            1
                                                        51
                                                              805000
[5 rows x 23 columns]
```

1. Perform the Below Visualizations. Univariate Analysis Bi - Variate Analysis Multivariate Analysis.

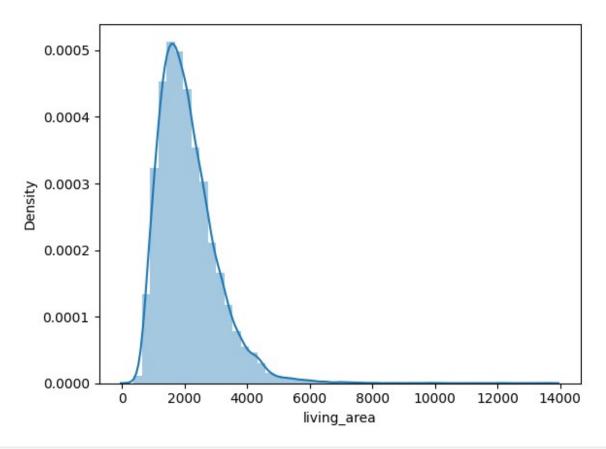
```
# Univariate Analysis (Analysis on single feature 'living area')
sns.distplot(df.living_area)

<ipython-input-9-18e0bb6416b1>:2: UserWarning:
   `distplot` is a deprecated function and will be removed in seaborn
v0.14.0.

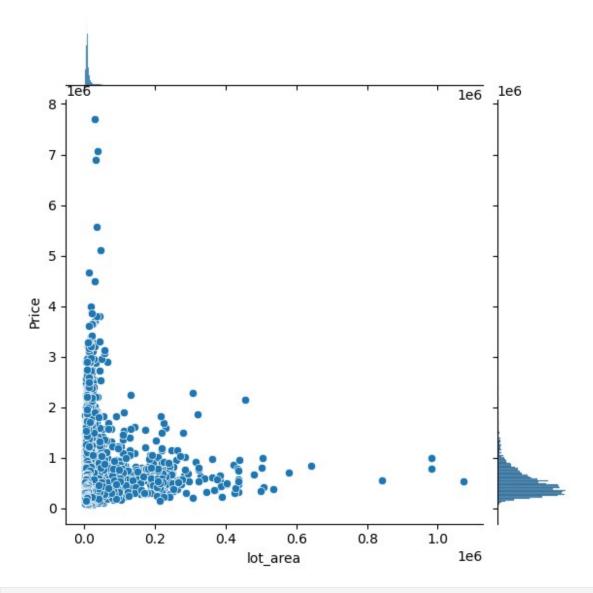
Please adapt your code to use either `displot` (a figure-level
function with
similar flexibility) or `histplot` (an axes-level function for
histograms).

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

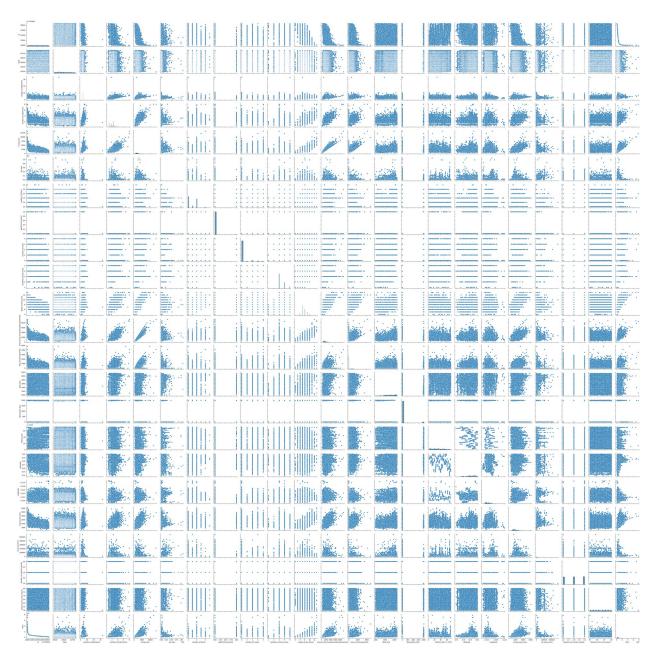
<Axes: xlabel='living area', ylabel='Density'>
```



Bivariate Analysis (Comparision between 'lot_area' feature and
'Price')
sns.jointplot(x='lot_area',y='Price',data=df)
<seaborn.axisgrid.JointGrid at 0x78d222d50ac0>



Multivariate analysis
sns.pairplot(df)
<seaborn.axisgrid.PairGrid at 0x78d21d2d6170>



1. Perform descriptive statistics on the dataset.

df.describe() number_of_bedrooms id Date number of bathrooms count $1.\overline{462000e+04}$ 14620.000000 14620.000000 14620.000000 6.762821e+09 42604.538646 3.379343 mean 2.129583 std 6.237575e+03 67.347991 0.938719 0.769934 42491.000000 1.000000 min 6.762810e+09

```
0.500000
                      42546.000000
25%
       6.762815e+09
                                                3.000000
1.750000
50%
       6.762821e+09
                      42600.000000
                                                3,000000
2.250000
75%
       6.762826e+09
                      42662,000000
                                                4.000000
2.500000
       6.762832e+09
                      42734.000000
                                               33.000000
max
8,000000
        living area
                          lot area
                                     number of floors
waterfront present
count
       14620.000000
                      1.462000e+04
                                         14620.000000
14620.000000
mean
        2098, 262996
                      1.509328e+04
                                              1.502360
0.007661
                      3.791962e+04
std
         928.275721
                                              0.540239
0.087193
         370.000000
                      5.200000e+02
min
                                              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
                      1.074218e+06
max
       13540.000000
                                              3.500000
1.000000
       number of views
                         condition of the house
                                                           Built Year
          14620.000000
                                    14620.000000
                                                         14620.000000
count
                                                   . . .
                                                         1970.926402
mean
               0.233105
                                        3.430506
std
               0.766259
                                        0.664151
                                                            29.493625
                                                   . . .
min
               0.000000
                                        1.000000
                                                         1900.000000
                                                   . . .
25%
               0.000000
                                        3.000000
                                                         1951.000000
50%
               0.00000
                                        3,000000
                                                         1975,000000
               0.00000
                                        4.000000
                                                         1997.000000
75%
max
               4.000000
                                        5,000000
                                                         2015.000000
                            Postal Code
       Renovation Year
                                             Lattitude
                                                            Longitude
                          14620.000000
count
          14620.000000
                                         14620.000000
                                                         14620.000000
                         122033.062244
                                             52.792848
              90.924008
                                                          -114.404007
mean
            416.216661
                              19.082418
                                              0.137522
                                                             0.141326
std
                                             52.385900
               0.000000
                         122003.000000
                                                          -114.709000
min
                         122017.000000
                                             52.707600
                                                          -114.519000
25%
               0.000000
50%
               0.000000
                         122032.000000
                                             52.806400
                                                          -114.421000
               0.000000
                         122048.000000
                                             52.908900
                                                          -114.315000
75%
           2015.000000
                         122072.000000
                                             53.007600
                                                          -113.505000
max
       living area renov lot area renov
                                            Number of schools nearby \
```

```
14620.000000
                             14620.000000
                                                        14620.000000
count
mean
             1996.702257
                             12753.500068
                                                            2.012244
std
              691.093366
                             26058.414467
                                                            0.817284
              460.000000
                               651,000000
                                                            1.000000
min
25%
             1490.000000
                              5097.750000
                                                            1.000000
50%
             1850.000000
                              7620,000000
                                                            2,000000
75%
             2380.000000
                             10125.000000
                                                            3.000000
             6110.000000
                            560617.000000
                                                            3,000000
max
       Distance from the airport
                                          Price
                    14620.000000
                                  1.462000e+04
count
                       64.950958
                                  5.389322e+05
mean
std
                        8.936008
                                  3.675324e+05
                       50.000000
                                  7.800000e+04
min
25%
                       57.000000
                                  3.200000e+05
50%
                       65.000000
                                  4.500000e+05
75%
                       73.000000 6.450000e+05
                       80.000000 7.700000e+06
max
[8 rows x 23 columns]
```

1. Handle the Missing values.

```
df.isnull().any() #Checking is there any null values in our dataset
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
                                          False
Longitude
living area renov
                                          False
                                          False
lot area renov
Number of schools nearby
                                          False
Distance from the airport
                                          False
Price
                                          False
dtype: bool
```