Assignment-2

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1. Download the dataset: House Price India dataset is downloaded.
2. 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()
```

[ ]:
```
           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                   4                 2.50         3310
4  6762812919  42491                   3                 2.00         2710

   lot_area  number_of_floors  waterfront present  number_of_views \
0      9050               2.0                   0                4
1      4000               1.5                   0                0
2      9480               1.5                   0                0
3     42998               2.0                   0                0
4      4500               1.5                   0                0

   condition of the house  ...  Built Year  Renovation_Year  Postal_Code  \
0                       5  ...        1921                0       122003
1                       5  ...        1909                0       122004
2                       3  ...        1939                0       122004
3                       3  ...        2001                0       122005
4                       4  ...        1929                0       122006

   Lattitude  Longitude  living_area_renov  lot_area_renov  \
0    52.8645   -114.557               2880            5400
1    52.8878   -114.470               2470            4000
```

2	52.8852	-114.468	2940	6600
3	52.9532	-114.321	3350	42847
4	52.9047	-114.485	2060	4500

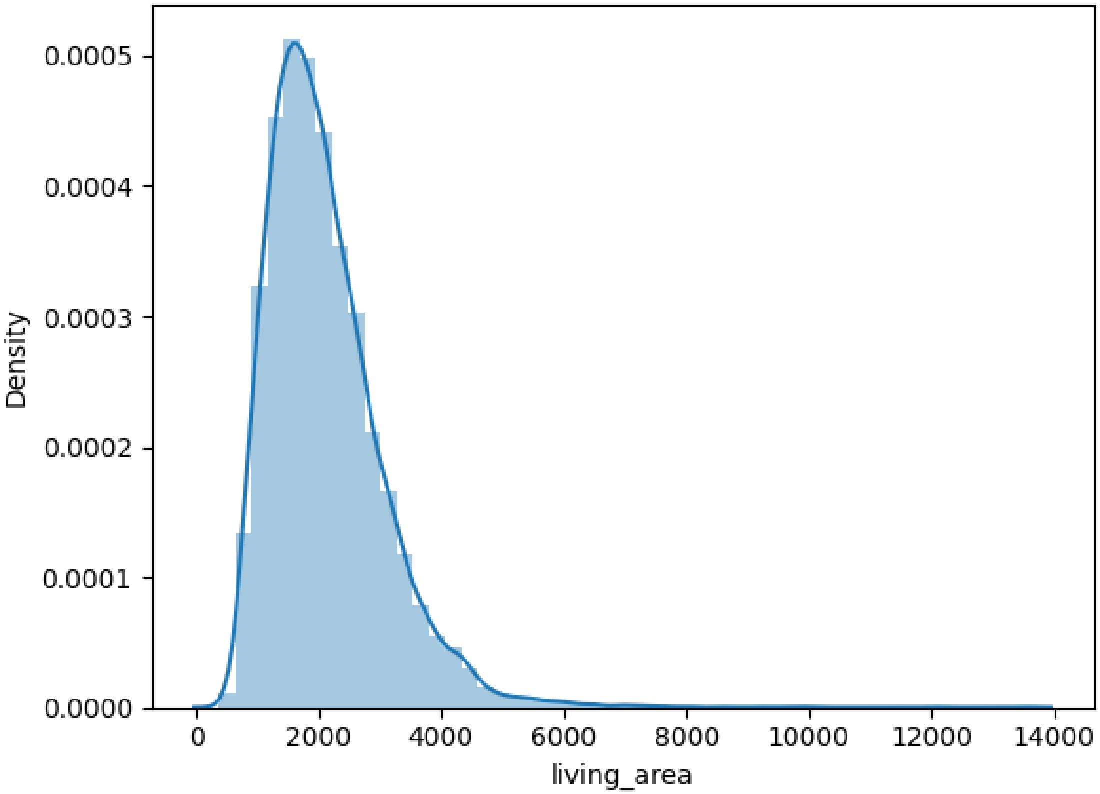
```
   Number_of_schools_nearby  Distance from the airport     Price
0                         2                         58   2380000
1                         2                         51   1400000
2                         1                         53   1200000
3                         3                         76    838000
4                         1                         51    805000

[5 rows x 23 columns]
```

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

[ ]:
```
# Univariate Analysis (Analysis on single feature 'living area')

sns.distplot(df.living_area)
```

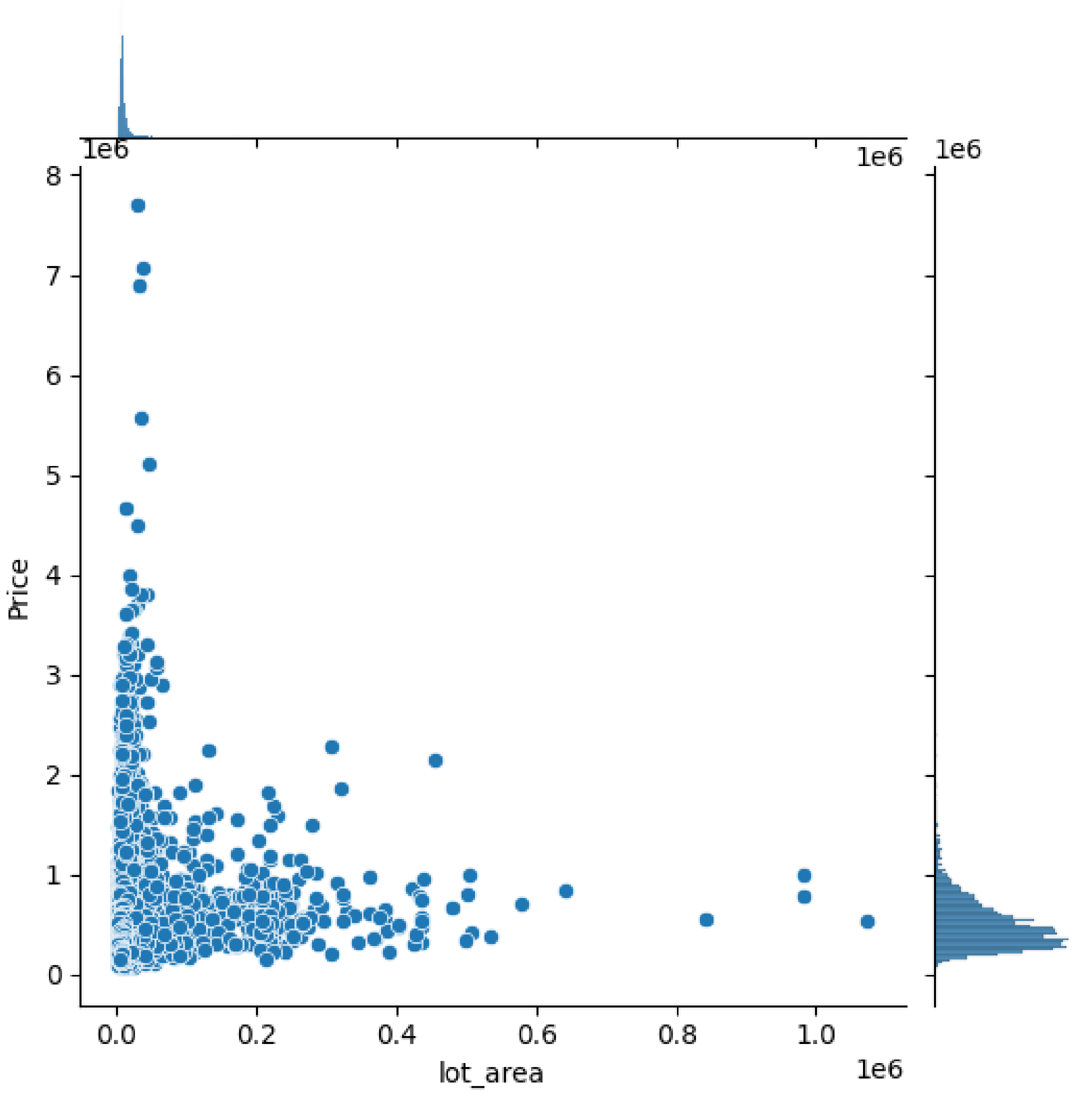
```
<ipython-input-3-99abb2f4025c>:3: UserWarning:

`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'>
```



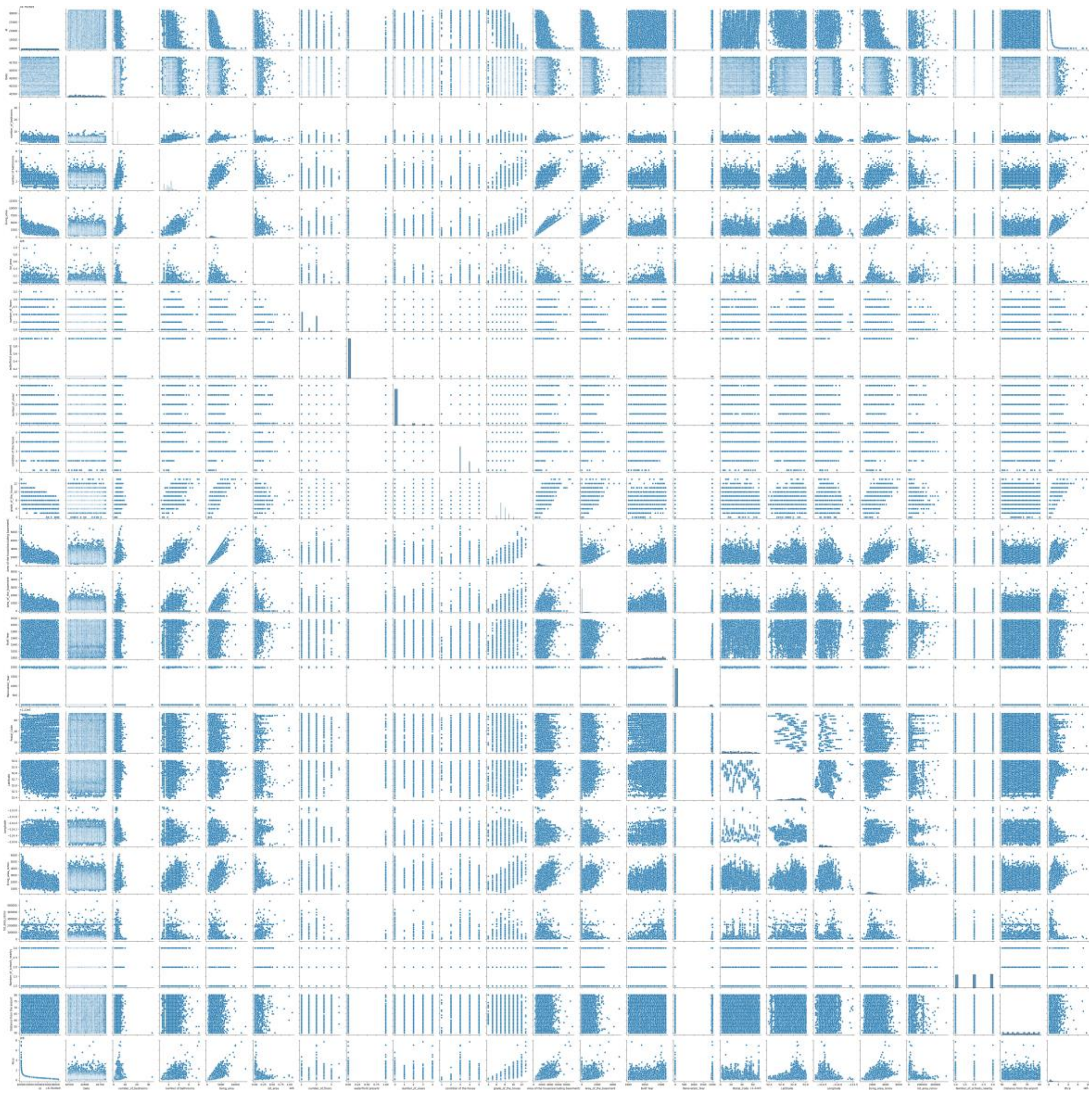
[ ]:
```
# Bivariate Analysis (Comparision between 'lot_area' feature and 'Price')

sns.jointplot(x='lot_area',y='Price',data=df)
```

[ ]:
```
<seaborn.axisgrid.JointGrid at 0x7d7fa56bf370>
```

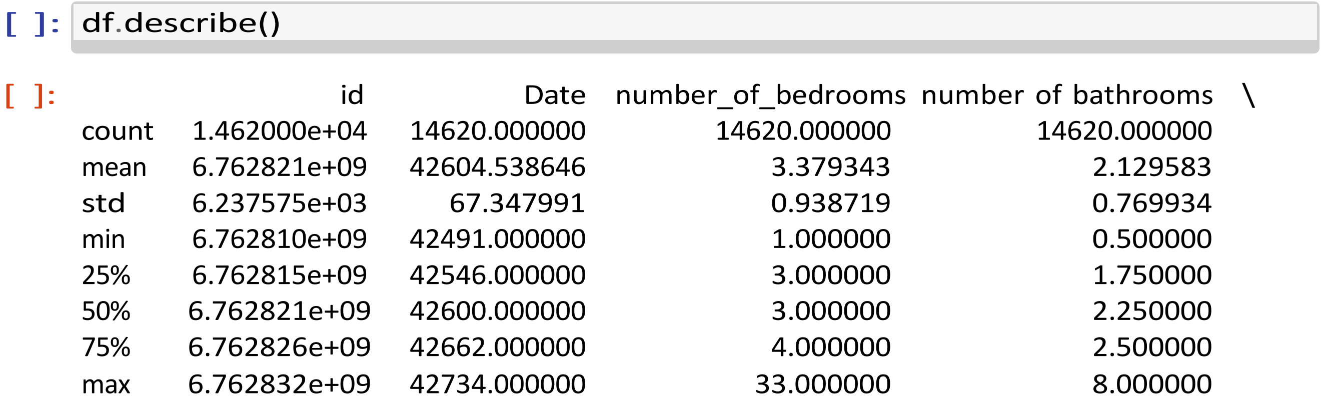


[ ]:
```
# Multivariate analysis

sns.pairplot(df)
```

[ ]:
```
<seaborn.axisgrid.PairGrid at 0x7d7f63721f30>
```



4. Perform descriptive statistics on the dataset.



```
[ ]: df.describe()
```

```
[ ]:                 id          Date  number_of_bedrooms  number of bathrooms  \
     count  1.462000e+04  14620.000000        14620.000000         14620.000000
     mean   6.762821e+09  42604.538646            3.379343             2.129583
     std    6.237575e+03     67.347991            0.938719             0.769934
     min    6.762810e+09  42491.000000            1.000000             0.500000
     25%    6.762815e+09  42546.000000            3.000000             1.750000
     50%    6.762821e+09  42600.000000            3.000000             2.250000
     75%    6.762826e+09  42662.000000            4.000000             2.500000
     max    6.762832e+09  42734.000000           33.000000             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
std      928.275721  3.791962e+04          0.540239            0.087193
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  ...    Built Year  \
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   -113.505000

       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
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
```

```
50%                          65.000000    4.500000e+05
75%                          73.000000    6.450000e+05
max                          80.000000    7.700000e+06

[8 rows x 23 columns]
```

5. 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
     Longitude                                       False
     living_area_renov                               False
     lot_area_renov                                  False
     Number_of_schools_nearby                        False
     Distance from the airport                       False
     Price                                           False
     dtype:  bool
```

Conclusion : In the given dataset there are no null values.