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Assignment - 2

1. Download the dataset: House Price India dataset is downloaded.

```
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
```

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
```

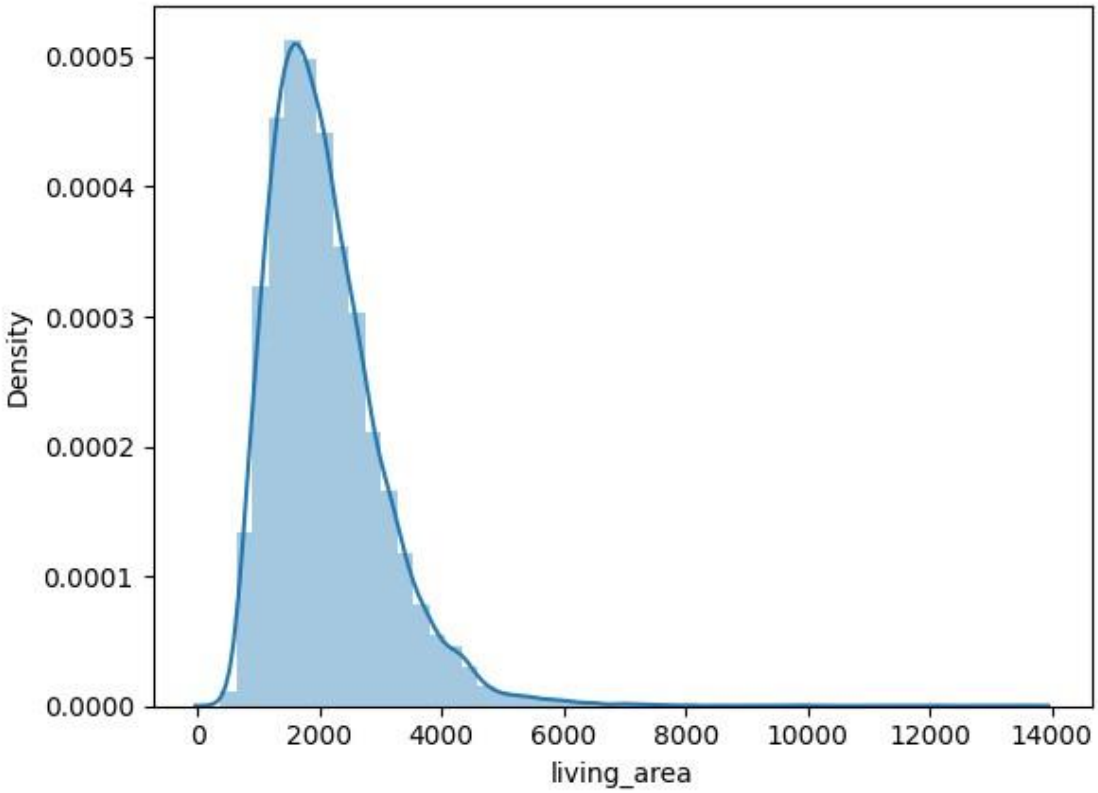
```
2     9480  1.5   0     0
3     42998 2.0   0     0 4   4500  1.5   0     0

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 \
   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)
```

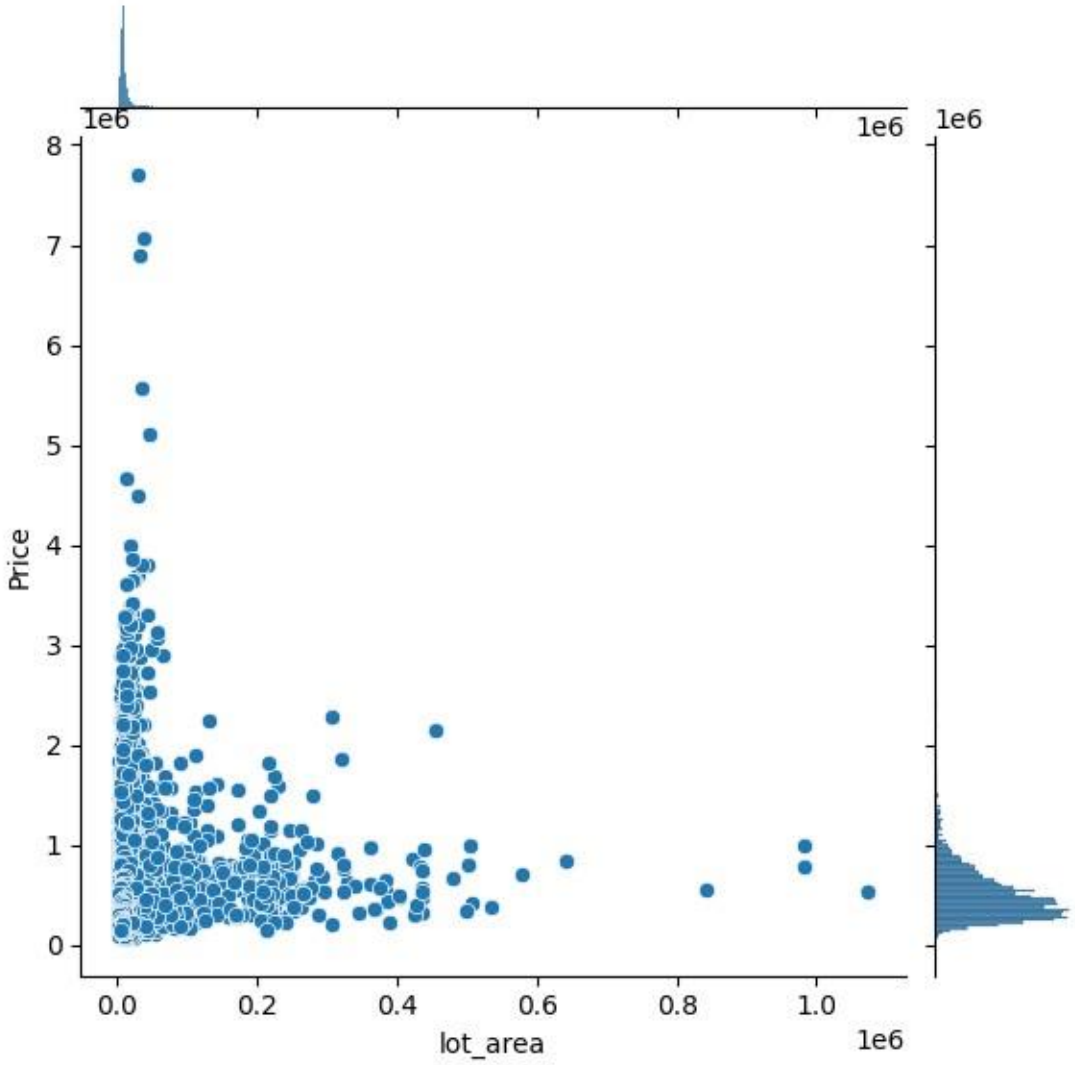
```
<ipython-input-3-99abb2f4025c>:3: UserWarning:

`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'>



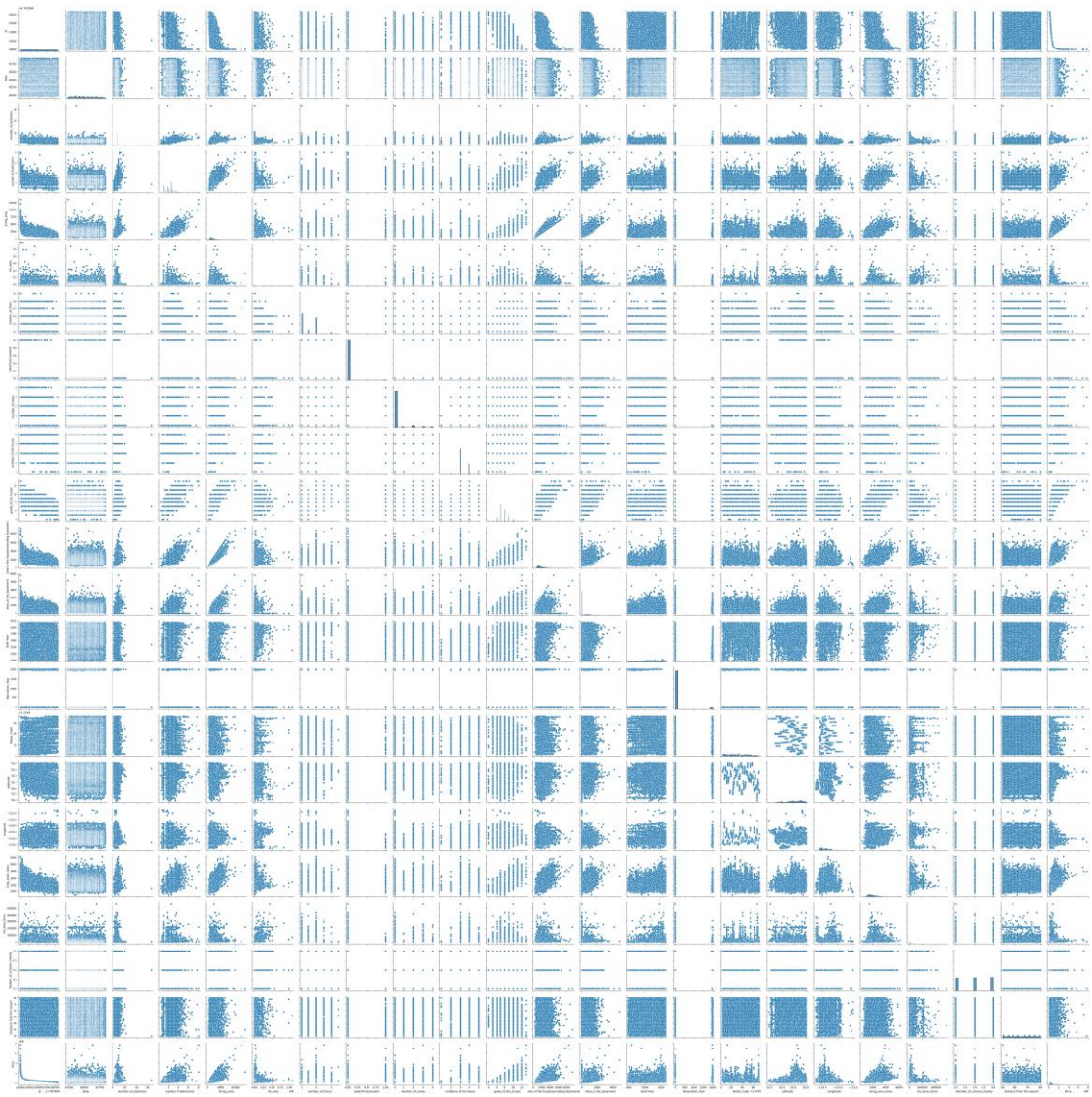
[ ]:
```
# Bivariate Analysis (Comparision between 'lot_area' feature and
'Price') sns.jointplot(x='lot_area',y='Price',data=df)
```

[ ]: <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   14620.00000014620.000000 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.