```
#preprocessing the dataset
import pandas as pd
# Load the dataset into a pandas dataframe
df = pd.read csv('/content/drive/MyDrive/House Price India.csv')
#check basic information
print(df.head())
print(df.info())
           id
                Date number of bedrooms number of bathrooms living
area \
0 6762810145
               42491
                                                          2.50
3650
1 6762810635 42491
                                        4
                                                          2.50
2920
                                        5
2 6762810998 42491
                                                          2.75
2910
  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
                                                                   4
1
       4000
                           1.5
                                                 0
                                                                   0
2
                           1.5
                                                 0
                                                                   0
       9480
3
      42998
                           2.0
                                                 0
                                                                   0
4
       4500
                           1.5
                                                 0
                                                                   0
                                 Built Year Renovation Year
   condition of the house
                          . . .
                                                               Postal
Code \
                        5
                                       1921
                                                            0
122003
                        5
                                       1909
                                                            0
1
122004
                        3
                                       1939
                                                            0
122004
                        3
                                                            0
                                       2001
122005
                                                            0
                                       1929
122006
   Lattitude Longitude living_area_renov
                                             lot area renov \
     52.8645
               -114.557
                                       2880
0
                                                       5400
1
     52.8878
               -114.470
                                       2470
                                                       4000
2
     52.8852
               -114.468
                                       2940
                                                       6600
3
               -114.321
     52.9532
                                       3350
                                                      42847
     52.9047
               -114.485
                                                       4500
                                       2060
   Number of schools nearby Distance from the airport
                                                            Price
0
                                                         2380000
```

```
51
                                                        1400000
1
                          2
2
                          1
                                                    53
                                                       1200000
3
                          3
                                                    76
                                                         838000
4
                          1
                                                    51
                                                         805000
[5 rows x 23 columns]
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 14620 entries, 0 to 14619
Data columns (total 23 columns):
 #
     Column
                                            Non-Null Count
                                                            Dtype
- - -
     -----
 0
     id
                                            14620 non-null
                                                            int64
 1
     Date
                                            14620 non-null int64
 2
     number of bedrooms
                                            14620 non-null int64
 3
     number of bathrooms
                                            14620 non-null float64
 4
                                            14620 non-null int64
     living area
 5
                                            14620 non-null int64
     lot area
 6
     number of floors
                                            14620 non-null float64
 7
     waterfront present
                                            14620 non-null
                                                            int64
 8
     number of views
                                            14620 non-null
                                                            int64
 9
     condition of the house
                                            14620 non-null int64
 10 grade of the house
                                            14620 non-null int64
 11 Area of the house(excluding basement)
                                            14620 non-null int64
 12 Area of the basement
                                            14620 non-null
                                                            int64
 13 Built Year
                                            14620 non-null int64
 14 Renovation Year
                                            14620 non-null int64
                                            14620 non-null int64
 15 Postal Code
                                            14620 non-null float64
 16 Lattitude
                                            14620 non-null float64
 17 Longitude
 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
     Price
                                                            int64
dtypes: float64(4), int64(19)
memory usage: 2.6 MB
None
#drop the 'date' column
df = pd.read csv('/content/drive/MyDrive/House Price India.csv')
df.drop('Date', axis=1, inplace=True)
#convert the 'number of bedrooms' column to integer data type
df['number of bedrooms'] = df['number of bedrooms'].astype(int)
display(df)
               id number of bedrooms number of bathrooms living
area
       6762810145
                                    5
                                                      2.50
3650
1
       6762810635
                                    4
                                                      2.50
```

2920 2	676281099	8		5		2.75	
2910 3	676281260	5		4		2.50	
3310 4 2710	676281291	9		3		2.00	
14615 1556	676283025	0		2		1.50	
14616	676283033	9		3		2.00	
1680 14617	676283061	8		2		1.00	
1070 14618	676283070	9		4		1.00	
1030 14619 900	676283146	3		3		1.00	
	lot area	number of	floors	waterfront	present	number o	f views
0	9050		2.0		Θ		4
1	4000		1.5		0		0
2	9480		1.5		Θ		0
3	42998		2.0		Θ		0
4	4500		1.5		0		0
14615	20000		1.0		Θ		0
14616	7000		1.5		Θ		0
14617	6120		1.0		0		0
14618	6621		1.0		0		0
14619	4770		1.0		0		0
0 1 2	condition	of the ho	ouse gra 5 5 3	de of the h	nouse 10 8	. 1 . 1	ear \ 921 909 939

3 4		3 4		9	2001 1929
14615 14616 14617 14618 14619		 4 4 3 4 3	•	7 7 6 6	1957 1968 1962 1955 1969
livina	Renovation Year _area_renov \	Postal Code	Lattitude	Longitude	
0 2880	0	122003	52.8645	-114.557	
1	0	122004	52.8878	-114.470	
2470 2	0	122004	52.8852	-114.468	
2940 3	0	122005	52.9532	-114.321	
3350 4 2060	0	122006	52.9047	-114.485	
14615 2250	Θ	122066	52.6191	-114.472	
14616 1540	Θ	122072	52.5075	-114.393	
14617	0	122056	52.7289	-114.507	
1130 14618	0	122042	52.7157	-114.411	
1420 14619 900	2009	122018	52.5338	-114.552	
airpor	lot_area_renov	Number of sch	nools nearby	Distance	from the
0	5400		2		
58 1	4000		2		
51 2	6600		1		
53 3	42847		3		
76 4	4500		1		
51 					
14615 76	17286		3		

```
3
14616
                  7480
59
14617
                  6120
                                                2
64
                                                3
14618
                  6631
54
14619
                  3480
                                                2
55
         Price
0
       2380000
1
       1400000
2
       1200000
3
        838000
4
        805000
14615
        221700
14616
        219200
        209000
14617
14618
        205000
14619
        146000
[14620 rows x 22 columns]
#check for missing values
df = pd.read csv('/content/drive/MyDrive/House Price India.csv')
print(df.isna().sum())
print(df)
id
                                           0
Date
                                           0
number of bedrooms
                                           0
number of bathrooms
                                           0
living area
                                           0
lot area
                                           0
number of floors
                                           0
waterfront present
                                           0
number of views
                                           0
condition of the house
                                           0
grade of the house
Area of the house(excluding basement)
                                           0
Area of the basement
                                           0
Built Year
                                           0
Renovation Year
                                           0
Postal Code
                                           0
Lattitude
                                           0
Longitude
                                           0
living area renov
                                           0
lot area renov
                                           0
Number of schools nearby
                                           0
```

```
Distance from the airport
                                              0
Price
                                              0
dtype: int64
                id
                      Date
                            number of bedrooms
                                                   number of bathrooms
0
        6762810145
                     42491
                                                                    2.50
                                                4
                                                                    2.50
1
        6762810635
                     42491
2
                                                5
                                                                    2.75
       6762810998
                     42491
                                                4
3
        6762812605
                     42491
                                                                    2.50
4
       6762812919
                     42491
                                                3
                                                                    2.00
                       . . .
                                                                     . . .
14615
       6762830250
                     42734
                                                2
                                                                    1.50
                                                3
14616
       6762830339
                     42734
                                                                    2.00
                                                2
       6762830618
                     42734
                                                                    1.00
14617
       6762830709
                                                4
14618
                     42734
                                                                    1.00
                                                3
14619
       6762831463
                     42734
                                                                    1.00
       living area
                                 number of floors waterfront present
                     lot area
0
               3650
                          9050
                                                2.0
                                                                        0
                                                                        0
1
               2920
                          4000
                                                1.5
2
               2910
                          9480
                                                1.5
                                                                        0
3
                                                2.0
                                                                        0
               3310
                         42998
4
                                                                        0
               2710
                          4500
                                                1.5
                . . .
                            . . .
                                                . . .
               1556
                                                                        0
14615
                         20000
                                                1.0
14616
               1680
                          7000
                                                1.5
                                                                        0
14617
               1070
                          6120
                                                                        0
                                                1.0
                                                                        0
14618
               1030
                          6621
                                                1.0
                                                                        0
14619
                900
                          4770
                                                1.0
       number of views
                          condition of the house
                                                           Built Year
0
                       4
                                                  5
                                                                  1921
                                                  5
1
                       0
                                                                  1909
                                                      . . .
                                                  3
2
                       0
                                                                  1939
3
                       0
                                                  3
                                                                  2001
4
                       0
                                                                  1929
                                                  4
14615
                       0
                                                  4
                                                                  1957
14616
                       0
                                                  4
                                                                  1968
                       0
                                                  3
                                                                  1962
14617
                       0
                                                                  1955
14618
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
                       0
2
                                122004
                                           52.8852
                                                      -114.468
2940
```

3	(1220	005 52.9	532 -	114.321		
3350 4	(1220	006 52.9	047 -	114.485		
2060							
 14615	() 1220	066 52.6	191 -	114.472		
2250 14616	() 1220	972 52.5	075 -	114.393		
1540 14617	() 1220	956 52.7 <i>2</i>	289 -	114.507		
1130 14618	() 1220	942 52.7	157 -	114.411		
1420 14619 900	2009) 1220	018 52.5	338 -	114.552		
airpor	lot_area_renov t \	Number of	schools nea	arby D	istance	from	the
0 58	5400			2			
1 51	4000			2			
2	6600			1			
53 3	42847			3			
76 4	4500			1			
51 							
14615	17286			3			
76 14616	7480			3			
59 14617	6120			2			
64 14618	6631			3			
54 14619 55	3480			2			
0 1 2 3 4 	Price 2380000 1400000 1200000 838000 805000 221700						

```
14616
         219200
14617
         209000
14618
         205000
14619
         146000
[14620 rows x 23 columns]
#drop the row with missing values
df = pd.read csv('/content/drive/MyDrive/House Price India.csv')
df.dropna(inplace=True)
display(df)
                             number of bedrooms
                                                   number of bathrooms
                 id
                      Date
0
        6762810145
                     42491
1
                     42491
                                                4
                                                                     2.50
        6762810635
                                                5
2
                                                                     2.75
       6762810998
                     42491
                                                4
3
       6762812605
                     42491
                                                                     2.50
4
                                                3
       6762812919
                     42491
                                                                     2.00
       6762830250
                                                2
                                                                     1.50
14615
                     42734
                                                3
                                                                     2.00
14616
       6762830339
                     42734
                                                2
14617
       6762830618
                     42734
                                                                     1.00
                                                4
14618
       6762830709
                     42734
                                                                     1.00
14619
       6762831463
                     42734
                                                3
                                                                     1.00
        living area
                      lot area
                                 number of floors
                                                      waterfront present
0
               3650
                           9050
                                                2.0
               2920
                           4000
                                                1.5
                                                                         0
1
2
               2910
                           9480
                                                1.5
                                                                         0
3
               3310
                         42998
                                                2.0
                                                                         0
4
                                                                         0
               2710
                           4500
                                                1.5
                                                . . .
14615
               1556
                         20000
                                                1.0
                                                                         0
                                                                         0
14616
               1680
                           7000
                                                1.5
14617
               1070
                           6120
                                                1.0
                                                                         0
14618
               1030
                           6621
                                                1.0
                                                                         0
14619
                900
                           4770
                                                1.0
                                                                         0
        number of views
                           condition of the house
                                                           Built Year
                                                                         \
                                                      . . .
0
                                                  5
                                                                  1921
                                                      . . .
1
                       0
                                                  5
                                                                  1909
                                                      . . .
2
                       0
                                                  3
                                                                  1939
3
                                                  3
                       0
                                                                  2001
                                                      . . .
4
                       0
                                                  4
                                                                  1929
                                                                   . . .
14615
                       0
                                                  4
                                                                  1957
                       0
                                                                  1968
14616
                                                  4
                                                  3
                       0
                                                                  1962
14617
                                                  4
14618
                       0
                                                                  1955
                                                      . . .
14619
                       0
                                                  3
                                                                  1969
                                                      . . .
```

		Postal Code	Lattitude	Longitude	
living_area	_renov \	122003	52.8645	-114.557	
2880 1	0	122004	52.8878	-114.470	
2470 2	0	122004	52.8852	-114.468	
2940 3	0	122005	52.9532	-114.321	
3350 4	0	122006	52.9047	-114.485	
2060					
 14615	0	122066	52.6191	-114.472	
2250 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	2009	122018	52.5338	-114.552	
900					
	area_renov	Number of sch	ools nearby	Distance from t	he
airport \ 0	area_renov 5400	Number of sch	ools nearby 2	Distance from t	he
airport \ 0 58 1	_	Number of sch		Distance from t	he
airport \ 0 58 1 51 2	5400	Number of sch	2	Distance from t	he
airport \ 0 58 1 51 2 53	5400 4000	Number of sch	2	Distance from t	he
airport \ 0 58 1 51 2 53 3 76	5400 4000 6600	Number of sch	2 2 1	Distance from t	he
airport \ 0 58 1 51 2 53 3 76	5400 4000 6600 42847	Number of sch	2 2 1 3	Distance from t	he
airport \ 0 58 1 51 2 53 3 76 4 51 14615	5400 4000 6600 42847 4500	Number of sch	2 2 1 3	Distance from t	he
airport \ 0 58 1 51 2 53 3 76 4 51 14615 76 14616	5400 4000 6600 42847 4500	Number of sch	2 1 3 1	Distance from t	he
airport \ 0 58 1 51 2 53 3 76 4 51 14615 76 14616 59 14617	5400 4000 6600 42847 4500 	Number of sch	2 1 3 1	Distance from t	he
airport \ 0 58 1 51 2 53 3 76 4 51 14615 76 14616 59 14617 64 14618	5400 4000 6600 42847 4500 17286 7480	Number of sch	2 1 3 1 3	Distance from t	he
airport \ 0 58 1 51 2 53 3 76 4 51 14615 76 14616 59 14617 64	5400 4000 6600 42847 4500 17286 7480 6120	Number of sch	2 1 3 1 3 3	Distance from t	he

```
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]
#impute missing values with mean
df = pd.read_csv('/content/drive/MyDrive/House Price India.csv')
df.fillna(df.mean(), inplace=True)
#impute missing values with the median
df.fillna(df.median(), inplace=True)
display(df)
                            number of bedrooms
                                                  number of bathrooms
                     Date
                id
0
       6762810145
                    42491
                                               5
                                                                   2.50
1
       6762810635
                    42491
                                               4
                                                                   2.50
                                               5
2
       6762810998
                    42491
                                                                   2.75
3
                                               4
                                                                   2.50
       6762812605
                    42491
                                               3
4
       6762812919
                    42491
                                                                   2.00
                                                                    . . .
                                               2
       6762830250
                    42734
14615
                                                                   1.50
                                               3
14616
       6762830339
                    42734
                                                                   2.00
       6762830618
                    42734
                                               2
                                                                   1.00
14617
                                               4
14618
       6762830709
                    42734
                                                                   1.00
                                               3
14619
       6762831463
                     42734
                                                                   1.00
                                number of floors
       living area
                     lot area
                                                    waterfront present
0
               3650
                          9050
                                               2.0
                                                                       0
1
               2920
                          4000
                                               1.5
                                                                       0
2
                                               1.5
                                                                       0
               2910
                          9480
3
                                                                       0
               3310
                         42998
                                               2.0
4
                                                                       0
               2710
                          4500
                                               1.5
                                               . . .
                                                                     . . .
14615
               1556
                         20000
                                               1.0
                                                                       0
                          7000
               1680
                                               1.5
                                                                       0
14616
14617
               1070
                          6120
                                               1.0
                                                                       0
               1030
                                                                       0
14618
                          6621
                                               1.0
                900
                                                                       0
14619
                          4770
                                               1.0
```

condition of the house

. . .

Built Year \

number of views

0 1 2 3 4 14615 14616 14617 14618 14619	4 0 0 0 0 0 0 0		5 5 3 4 4 4 3 4 3		1921 1909 1939 2001 1929 1957 1968 1962 1955 1969
living_ 0	Renovation Year _area_renov \ 0	Postal Code	Lattitude 52.8645	Longitude -114.557	
2880 1	0	122004	52.8878	-114.470	
2470					
2 2940	0	122004	52.8852	-114.468	
3 3350	0	122005	52.9532	-114.321	
4 2060	0	122006	52.9047	-114.485	
14615 2250	0	122066	52.6191	-114.472	
14616	Θ	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	52.5338	-114.552	
airport	lot_area_renov t \	Number of sch	ools nearby	Distance	from the
0	5400		2		
58 1	4000		2		
51 2	6600		1		
53 3	42847		3		
76 4 51	4500		1		

```
14615
                 17286
                                                  3
76
14616
                  7480
                                                  3
59
14617
                  6120
                                                  2
64
                                                  3
14618
                  6631
54
                                                  2
14619
                  3480
55
         Price
0
       2380000
1
       1400000
2
       1200000
3
        838000
4
        805000
. . .
14615
        221700
        219200
14616
14617
        209000
14618
        205000
14619
        146000
[14620 rows x 23 columns]
#convert categorial variable into numerical variables using one-hot
encodina
df = pd.get dummies(df, columns=['waterfront present', 'Built Year',
'Postal Code'])
display(df)
                     Date
                            number of bedrooms
                                                  number of bathrooms
                id
0
       6762810145
                    42491
                                              5
                                                                  2.50
                                              4
1
       6762810635
                    42491
                                                                  2.50
                                              5
2
       6762810998
                    42491
                                                                  2.75
3
                                              4
                                                                  2.50
       6762812605
                    42491
                                              3
4
       6762812919
                    42491
                                                                  2.00
. . .
                       . . .
                                             . . .
                                                                   . . .
14615
      6762830250
                    42734
                                              2
                                                                  1.50
                                              3
14616
       6762830339
                    42734
                                                                  2.00
                                              2
14617
       6762830618
                    42734
                                                                  1.00
                                              4
14618
       6762830709
                    42734
                                                                  1.00
14619
       6762831463
                    42734
                                              3
                                                                  1.00
       living area lot area number of floors
                                                    number of views
0
               3650
                          9050
                                              2.0
                                                                   4
                          4000
                                               1.5
1
               2920
                                                                   0
2
               2910
                          9480
                                              1.5
                                                                   0
```

. . .

```
0
                3310
                          42998
                                                2.0
4
                2710
                           4500
                                                1.5
                                                                      0
14615
                1556
                          20000
                                                1.0
                                                                      0
                                                1.5
                                                                      0
14616
                1680
                           7000
                           6120
14617
                1070
                                                 1.0
                                                                      0
14618
                1030
                           6621
                                                 1.0
                                                                      0
                 900
                           4770
                                                1.0
14619
        condition of the house grade of the house
                                                               Postal
Code_122063 \
                               5
                                                     10
0
1
                               5
                                                      8
0
2
                               3
                                                      8
0
3
                               3
                                                      9
0
4
                                                      8
0
. . .
14615
                                                      7
                               4
14616
                               4
                                                      7
14617
                               3
                                                      6
14618
                               4
                                                      6
14619
                               3
                                                      6
       Postal Code_122064 Postal Code_122065 Postal Code_122066
0
                           0
                                                 0
                                                                        0
1
                           0
                                                                        0
2
                           0
                                                 0
                                                                        0
3
                           0
                                                 0
                                                                        0
4
                                                                        0
                           0
                                                 0
14615
                           0
                                                 0
                                                                        1
                                                                        0
                           0
                                                 0
14616
                           0
                                                 0
                                                                        0
14617
                                                 0
                                                                        0
14618
                           0
14619
                           0
                                                                        0
                              Postal Code_122068 Postal Code_122069
       Postal Code_122067
0
                                                 0
1
                           0
                                                                        0
```

```
2
                          0
                                                0
                                                                      0
3
                          0
                                                0
                                                                      0
4
                          0
                                                0
                                                                      0
14615
                          0
                                                0
                                                                      0
14616
                          0
                                                0
                                                                      0
                                                0
                                                                      0
                          0
14617
                          0
                                                0
                                                                      0
14618
14619
                          0
                                                0
                                                                      0
                             Postal Code 122071
                                                   Postal Code 122072
       Postal Code 122070
0
1
                          0
                                                0
                                                                      0
2
                          0
                                                0
                                                                      0
3
                          0
                                                0
                                                                      0
4
                          0
                                                0
                                                                      0
. . .
14615
                          0
                                                0
                                                                      0
14616
                          0
                                                0
                                                                      1
                          0
                                                0
                                                                      0
14617
                          0
                                                0
                                                                      0
14618
                                                0
                                                                      0
14619
                          0
[14620 rows x 208 columns]
#split the dataset into training and testing sets
from sklearn.model selection import train test split
df = pd.read csv('/content/drive/MyDrive/House Price India.csv')
X = df.drop('Price', axis=1)
y = df['Price']
X_train, X_test, y_train, y_test = train_test_split(X, y,
test size=0.2, random state=42)
display(df)
                id
                     Date
                            number of bedrooms
                                                  number of bathrooms
0
       6762810145
                    42491
                                               5
                                                                   2.50
                                               4
1
       6762810635
                    42491
                                                                   2.50
2
                                               5
                                                                   2.75
       6762810998
                    42491
3
                                               4
       6762812605
                    42491
                                                                   2.50
4
       6762812919
                    42491
                                               3
                                                                   2.00
                                               2
14615
       6762830250
                    42734
                                                                   1.50
                                               3
14616
       6762830339
                    42734
                                                                   2.00
                                               2
14617
       6762830618
                    42734
                                                                   1.00
                    42734
                                               4
14618
       6762830709
                                                                   1.00
                                               3
14619
       6762831463
                    42734
                                                                   1.00
                     lot area number of floors waterfront present
       living area
0
               3650
                          9050
                                               2.0
                                                                       0
1
               2920
                          4000
                                               1.5
                                                                       0
```

2 3 4	291 331 271	0	9480 42998 4500			1.5 2.0 1.5				0 0 0
14615 14616 14617 14618 14619	155 168 107 103 90	6 0 0 0	20000 7000 6120 6621 4770			1.0 1.5 1.0 1.0				0 0 0 0
0 1 2 3 4 14615 14616 14617 14618 14619	number of	views 4 0 0 0 0 0 0	condi	tion of	the ho	suse 5 5 3 4 4 4 3 4 3		Built	Year 1921 1909 1939 2001 1929 1957 1968 1962 1955 1969	\
livina	Renovation area_renov		Posta	l Code	Lattit	ude	Long	itude		
0 2880	_a1 ea_1 e110 v	0		122003	52.8	645	- 11	4.557		
1 2470		0		122004	52.8	878	- 11	4.470		
2 2 2940		0		122004	52.8	852	- 11	4.468		
3 3350		0		122005	52.9	532	- 11	4.321		
4 2060		0		122006	52.9	047	- 11	4.485		
14615 2250		0		122066	52.6	191	- 11	4.472		
14616 1540		0		122072	52.5	075	- 11	4.393		
14617 1130		0		122056	52.7	289	- 11	4.507		
14618 1420		0		122042	52.7	157	- 11	4.411		
1420 14619 900		2009		122018	52.5	338	- 11	4.552		

lot_area_renov Number of schools nearby Distance from the
airport \

```
2
0
                  5400
58
                                                2
1
                  4000
51
                                                1
2
                  6600
53
3
                42847
                                                3
76
4
                  4500
                                                1
51
. . .
                   . . .
                                               . . .
                                                3
14615
                17286
76
                  7480
                                                3
14616
59
                                                2
14617
                  6120
64
14618
                                                3
                  6631
54
14619
                  3480
                                                2
55
         Price
0
       2380000
1
       1400000
2
       1200000
3
        838000
4
        805000
        221700
14615
14616
        219200
14617
        209000
14618
        205000
14619
        146000
[14620 rows x 23 columns]
#building the ANN model
from keras.models import Sequential
from keras.layers import Dense
df = pd.read_csv('/content/drive/MyDrive/House Price India.csv')
#define the model architecture
model = Sequential()
model.add(Dense(64, input dim=X train.shape[1], activation='relu'))
model.add(Dense(32, activation='relu'))
model.add(Dense(1, activation='linear'))
#compile the model
model.compile(loss='mean squared error', optimizer='adam',
metrics=['mean squared error'])
```

```
#train the model
model.fit(X train, y train, epochs=50, batch size=32)
display(df)
Epoch 1/50
200632132698112.0000 - mean squared error: 200632132698112.0000
Epoch 2/50
192855572480.0000 - mean squared error: 192855572480.0000
Epoch 3/50
337801805824.0000 - mean squared error: 337801805824.0000
Epoch 4/50
2269407608832.0000 - mean squared error: 2269407608832.0000
Epoch 5/50
30485159870464.0000 - mean squared error: 30485159870464.0000
Epoch 6/50
13260391710720.0000 - mean squared error: 13260391710720.0000
Epoch 7/50
20270043627520.0000 - mean squared error: 20270043627520.0000
Epoch 8/50
20007740243968.0000 - mean squared error: 20007740243968.0000
Epoch 9/50
22758824083456.0000 - mean squared error: 22758824083456.0000
Epoch 10/50
18359703830528.0000 - mean squared error: 18359703830528.0000
Epoch 11/50
19714839412736.0000 - mean squared error: 19714839412736.0000
Epoch 12/50
19308413452288.0000 - mean squared error: 19308413452288.0000
Epoch 13/50
18749774102528.0000 - mean squared error: 18749774102528.0000
Epoch 14/50
18597451661312.0000 - mean squared error: 18597451661312.0000
Epoch 15/50
19730008113152.0000 - mean squared error: 19730008113152.0000
Epoch 16/50
```

```
17491349733376.0000 - mean squared error: 17491349733376.0000
Epoch 17/50
17773098958848.0000 - mean_squared_error: 17773098958848.0000
Epoch 18/50
16122558545920.0000 - mean squared error: 16122558545920.0000
Epoch 19/50
19060121141248.0000 - mean squared error: 19060121141248.0000
Epoch 20/50
235399439974400.0000 - mean squared error: 235399439974400.0000
Epoch 21/50
214273982464.0000 - mean squared error: 214273982464.0000
Epoch 22/50
278393257984.0000 - mean squared error: 278393257984.0000
Epoch 23/50
414115856384.0000 - mean squared error: 414115856384.0000
Epoch 24/50
931880304640.0000 - mean squared error: 931880304640.0000
Epoch 25/50
15196713123840.0000 - mean squared error: 15196713123840.0000
Epoch 26/50
17709668499456.0000 - mean squared error: 17709668499456.0000
Epoch 27/50
16694032465920.0000 - mean squared error: 16694032465920.0000
Epoch 28/50
15147645009920.0000 - mean squared error: 15147645009920.0000
Epoch 29/50
15231653773312.0000 - mean squared error: 15231653773312.0000
Epoch 30/50
15058609373184.0000 - mean squared error: 15058609373184.0000
Epoch 31/50
14874152271872.0000 - mean squared error: 14874152271872.0000
Epoch 32/50
15957810479104.0000 - mean squared error: 15957810479104.0000
```

```
Epoch 33/50
14542455177216.0000 - mean squared error: 14542455177216.0000
Epoch 34/50
14233113722880.0000 - mean_squared_error: 14233113722880.0000
Epoch 35/50
14346975444992.0000 - mean squared error: 14346975444992.0000
Epoch 36/50
14532047011840.0000 - mean_squared_error: 14532047011840.0000
Epoch 37/50
14912918126592.0000 - mean squared error: 14912918126592.0000
Epoch 38/50
12931882287104.0000 - mean_squared_error: 12931882287104.0000
Epoch 39/50
14798681014272.0000 - mean squared error: 14798681014272.0000
Epoch 40/50
11656067284992.0000 - mean squared error: 11656067284992.0000
Epoch 41/50
13240746639360.0000 - mean_squared_error: 13240746639360.0000
Epoch 42/50
17319711473664.0000 - mean_squared_error: 17319711473664.0000
Epoch 43/50
9401361498112.0000 - mean squared error: 9401361498112.0000
Epoch 44/50
12246226829312.0000 - mean squared error: 12246226829312.0000
Epoch 45/50
12621315047424.0000 - mean squared error: 12621315047424.0000
Epoch 46/50
11537283547136.0000 - mean squared error: 11537283547136.0000
Epoch 47/50
13200380657664.0000 - mean_squared_error: 13200380657664.0000
Epoch 48/50
11707709652992.0000 - mean squared error: 11707709652992.0000
Epoch 49/50
```

```
13745899175936.0000 - mean squared error: 13745899175936.0000
Epoch 50/50
8161715027968.0000 - mean_squared_error: 8161715027968.0000
                    Date number of bedrooms
                                              number of bathrooms \
               id
0
                   42491
       6762810145
                                           5
                                                             2.50
                                           4
1
       6762810635
                   42491
                                                             2.50
                                           5
2
                  42491
                                                             2.75
       6762810998
3
                                           4
       6762812605
                   42491
                                                             2.50
4
       6762812919
                   42491
                                           3
                                                             2.00
                   . . .
                                                              . . .
. . .
              . . .
14615 6762830250
                   42734
                                           2
                                                             1.50
      6762830339
                  42734
                                           3
                                                             2.00
14616
                                           2
14617
      6762830618
                   42734
                                                             1.00
      6762830709
                  42734
                                           4
14618
                                                             1.00
                                           3
14619
      6762831463
                   42734
                                                             1.00
       living area lot area number of floors waterfront present
0
              3650
                        9050
                                           2.0
                                                                 0
1
              2920
                        4000
                                           1.5
                                                                 0
2
              2910
                        9480
                                           1.5
                                                                 0
3
                                           2.0
                                                                 0
              3310
                       42998
              2710
4
                        4500
                                           1.5
                                                                 0
              . . .
                         . . .
                                           . . .
              1556
                       20000
                                           1.0
                                                                 0
14615
                                                                 0
14616
              1680
                        7000
                                           1.5
                                                                 0
14617
              1070
                        6120
                                           1.0
14618
              1030
                        6621
                                           1.0
                                                                 0
                        4770
               900
                                                                 0
14619
                                           1.0
       number of views
                       condition of the house
                                                     Built Year
                                                . . .
0
                     4
                                             5
                                                           1921
                                                . . .
1
                     0
                                                           1909
                                                . . .
2
                                             3
                     0
                                                           1939
3
                     0
                                                           2001
4
                     0
                                                           1929
                                                            . . .
14615
                                                           1957
                     0
                                             4
14616
                     0
                                                           1968
                                             3
14617
                     0
                                                           1962
                                                           1955
                     0
14618
14619
                                                           1969
       Renovation Year Postal Code Lattitude Longitude
living area_renov
                             122003
                                       52.8645 -114.557
2880
                                       52.8878 -114.470
1
                     0
                             122004
```

2 2940		9 122	904 52	.8852	-114.468	
3 3350		9 122	905 52	.9532	-114.321	
4		0 122	906 52	.9047	-114.485	
2060 						
14615		0 122	966 52	.6191	-114.472	
2250 14616		9 122	972 52	.5075	-114.393	
1540 14617		9 122	956 52	.7289	-114.507	
1130 14618		9 122	942 52	.7157	-114.411	
1420 14619	200	9 122	918 52	.5338	-114.552	
900					.	
airpor	lot_area_renov	Number of	schools r	-	Distance fr	om the
0 58	5400			2		
1 51	4000			2		
2 53	6600			1		
3 76	42847			3		
4 51	4500			1		
14615	17286			3		
76 14616	7480			3		
59 14617	6120			2		
64 14618	6631			3		
54 14619 55	3480			2		
0 1 2 3 4	Price 2380000 1400000 1200000 838000 805000					

```
14615
        221700
14616
        219200
14617
        209000
14618
        205000
14619
        146000
[14620 rows x 23 columns]
#testing the model
df = pd.read csv('/content/drive/MyDrive/House Price India.csv')
#evaluate the model on the test set
test_loss, test_acc = model.evaluate(X_test, y_test)
#print the test accuracy
print('Test Accuracy:', test_acc)
display(df)
92/92 [======== ] - Os 3ms/step - loss:
7946286661632.0000 - mean squared error: 7946286661632.0000
Test Accuracy: 7946286661632.0
               id
                     Date
                           number of bedrooms
                                                number of bathrooms
0
       6762810145
                    42491
                                             5
                                                                2.50
1
                    42491
                                             4
       6762810635
                                                                2.50
                                             5
2
       6762810998
                    42491
                                                                2.75
3
                                             4
       6762812605
                    42491
                                                                2.50
                                             3
4
       6762812919
                    42491
                                                                2.00
                                           . . .
                      . . .
                                                                 . . .
                                             2
14615
      6762830250
                    42734
                                                                1.50
                                             3
14616
       6762830339
                    42734
                                                                2.00
                                             2
14617
       6762830618
                    42734
                                                                1.00
14618
      6762830709
                    42734
                                             4
                                                                1.00
                                             3
14619
       6762831463
                    42734
                                                                1.00
       living area lot area number of floors waterfront present
0
              3650
                         9050
                                             2.0
1
              2920
                         4000
                                             1.5
                                                                    0
2
                                                                    0
              2910
                                             1.5
                         9480
3
              3310
                        42998
                                             2.0
                                                                    0
4
                         4500
                                             1.5
                                                                    0
              2710
                                             . . .
. . .
              1556
                        20000
                                             1.0
                                                                    0
14615
                         7000
                                                                    0
14616
               1680
                                             1.5
               1070
                         6120
                                             1.0
                                                                    0
14617
                                                                    0
14618
              1030
                         6621
                                             1.0
14619
               900
                         4770
                                             1.0
                                                                    0
       number of views
                         condition of the house
                                                        Built Year
0
                      4
                                               5
                                                              1921
                                                   . . .
                      0
                                               5
1
                                                              1909
```

. . .

2 3 4 14615 14616 14617 14618 14619		0 0 0 0 0 0		3 4 4 4 3 4 3		1939 2001 1929 1957 1968 1962 1955 1969
livina	Renovation area_renov	Year \	Postal Code	Lattitude	Longitude	
0 2880	_41	` 0	122003	52.8645	-114.557	
1 2470		0	122004	52.8878	-114.470	
2 2940		0	122004	52.8852	-114.468	
3 3350		0	122005	52.9532	-114.321	
4 2060		0	122006	52.9047	-114.485	
14615 2250		0	122066	52.6191	-114.472	
14616 1540		0	122072	52.5075	-114.393	
14617 1130		0	122056	52.7289	-114.507	
14618 1420		0	122042	52.7157	-114.411	
14619 900		2009	122018	52.5338	-114.552	
airport		enov	Number of sc	hools nearby	Distance	from the
0 58		400		2		
1 51	4	1000		2		
2 53	6	600		1		
3 76	42	2847		3	}	
4 51	4	1500		1		
14615	17	286		3	}	

76				
14616 59		7480		3
14617		6120		2
64 14618		6631		3
54 14619 55		3480		2
0 1 2 3 4 14615 14616 14617 14618	Price 2380000 1400000 1200000 838000 805000 221700 219200 209000 205000			
14619	146000			

[14620 rows x 23 columns]