# Handling Null values

### August 17, 2024

```
[1]: import pandas as pd
    C:\Users\Vikas\anaconda3\lib\site-packages\pandas\core\arrays\masked.py:60:
    UserWarning: Pandas requires version '1.3.6' or newer of 'bottleneck' (version
    '1.3.5' currently installed).
      from pandas.core import (
[2]: ## import the dataset
     data = pd.read_csv("Bengaluru_House_Data.csv")
[3]: data.head()
[3]:
                   area_type
                               availability
                                                              location
                                                                              size \
     0
        Super built-up Area
                                      19-Dec Electronic City Phase II
                                                                             2 BHK
                                                      Chikka Tirupathi
     1
                  Plot
                        Area Ready To Move
                                                                        4 Bedroom
     2
              Built-up
                       Area
                              Ready To Move
                                                           Uttarahalli
                                                                             3 BHK
                                                    Lingadheeranahalli
     3 Super built-up Area
                              Ready To Move
                                                                             3 ВНК
     4 Super built-up Area
                              Ready To Move
                                                              Kothanur
                                                                             2 BHK
        society total_sqft
                            bath
                                  balcony
                                             price
     0
       Coomee
                      1056
                             2.0
                                       1.0
                                             39.07
     1
       Theanmp
                      2600
                             5.0
                                       3.0
                                            120.00
                      1440
     2
            NaN
                             2.0
                                       3.0
                                             62.00
     3
        Soiewre
                      1521
                             3.0
                                       1.0
                                             95.00
     4
            NaN
                      1200
                             2.0
                                       1.0
                                             51.00
    data.shape
[5]: (13320, 9)
    data.isnull().sum()
                        0
[6]: area_type
     availability
                        0
     location
                        1
     size
                       16
     society
                     5502
     total_sqft
                        0
    bath
                       73
```

```
609
balcony
                     0
price
```

dtype: int64

```
[7]: data.isnull().sum().sum()
```

[7]: 6201

### 0.1 Filling null values

```
[8]: df = data.fillna(value = 0)
[9]: df
[9]:
                                                                    location
                        area_type
                                    availability
     0
            Super built-up Area
                                           19-Dec
                                                   Electronic City Phase II
                      Plot Area
     1
                                   Ready To Move
                                                            Chikka Tirupathi
     2
                                                                 Uttarahalli
                  Built-up
                             Area
                                   Ready To Move
     3
            Super built-up Area
                                   Ready To Move
                                                          Lingadheeranahalli
     4
            Super built-up Area
                                   Ready To Move
                                                                    Kothanur
                                   Ready To Move
                                                                  Whitefield
     13315
                  Built-up Area
     13316
            Super built-up Area
                                   Ready To Move
                                                               Richards Town
     13317
                  Built-up Area
                                   Ready To Move
                                                      Raja Rajeshwari Nagar
     13318
            Super built-up Area
                                           18-Jun
                                                             Padmanabhanagar
     13319
            Super built-up Area Ready To Move
                                                                Doddathoguru
                  size
                        society total_sqft
                                             bath
                                                   balcony
                                                              price
     0
                2 BHK
                        Coomee
                                       1056
                                              2.0
                                                        1.0
                                                              39.07
     1
            4 Bedroom
                        Theanmp
                                       2600
                                              5.0
                                                        3.0
                                                             120.00
     2
                3 ВНК
                                       1440
                                              2.0
                                                       3.0
                                                              62.00
                              0
                3 ВНК
     3
                        Soiewre
                                       1521
                                              3.0
                                                        1.0
                                                              95.00
     4
                2 BHK
                                       1200
                                              2.0
                                                        1.0
                                                              51.00
     13315
            5 Bedroom
                        ArsiaEx
                                       3453
                                              4.0
                                                       0.0
                                                             231.00
     13316
                4 BHK
                                       3600
                                              5.0
                                                       0.0
                                                             400.00
                              0
     13317
                2 BHK
                        Mahla T
                                       1141
                                              2.0
                                                        1.0
                                                              60.00
     13318
                4 BHK
                        SollyCl
                                       4689
                                              4.0
                                                        1.0
                                                           488.00
     13319
                1 BHK
                              0
                                        550
                                              1.0
                                                        1.0
                                                              17.00
```

[13320 rows x 9 columns]

```
[10]: df.isnull().sum().sum()
```

[10]: 0

```
[11]: ## Now want to fill the null value previous value
df1 =data.fillna(method = 'pad')
df1
```

C:\Users\Vikas\AppData\Local\Temp\ipykernel\_17760\955742772.py:2: FutureWarning: DataFrame.fillna with 'method' is deprecated and will raise in a future version. Use obj.ffill() or obj.bfill() instead.

df1 =data.fillna(method = 'pad')

[11]:		are	area_type		availability		location		
	0	Super built-up	Area	1	9-Dec	Electron	ic City Phase 1	Ί	
	1	Plot	Area	Ready To	Move	(	Chikka Tirupath	hi	
	2	Built-up	Area	Ready To	Move		Uttarahall	.i	
	3	Super built-up	Area	Ready To	Move	Lir	ngadheeranahall	.i	
	4	Super built-up	Area	Ready To	Move		Kothanu	ır	
	•••	_		•••		***			
	13315	Built-up	Area	Ready To	Move		Whitefiel	.d	
	13316	Super built-up	Area	•			Richards Tow	m	
	13317	Built-up	Area	Ready To		Raja I	Rajeshwari Naga	ır	
	13318	Super built-up	Area	1	8-Jun	Padmanabhanagar			
	13319	Super built-up	Area	Ready To	Move		Doddathogur	·u	
		_		•			_		
		size soc	iety to	tal_sqft	bath	balcony	price		
	0	2 BHK Coo	nee	1056	2.0	1.0	39.07		
	1	4 Bedroom The	anmp	2600	5.0	3.0	120.00		
	2	3 BHK The	anmp	1440	2.0	3.0	62.00		
	3	3 BHK Soi	ewre	1521	3.0	1.0	95.00		
	4	2 BHK Soi	ewre	1200	2.0	1.0	51.00		
	•••		••		•••	•••			
	13315	5 Bedroom Ars	iaEx	3453	4.0	0.0	231.00		
	13316	4 BHK Ars	iaEx	3600	5.0	0.0	400.00		
	13317	2 BHK Mah	la T	1141	2.0	1.0	60.00		
	13318	4 BHK Sol	lyCl	4689	4.0	1.0	488.00		
	13319		lyCl	550	1.0	1.0	17.00		
			•						

[13320 rows x 9 columns]

### [13]: df1.isnull().sum()

```
[13]: area_type
                      0
      availability
                      0
      location
                      0
      size
      society
                      0
      total_sqft
                      0
     bath
                      0
     balcony
                      0
     price
                      0
```

dtype: int64

```
[14]: ## Now want to fill the null value upcomming value
      data.head()
[14]:
                                                               location
                    area_type
                                availability
                                                                               size
         Super built-up Area
                                       19-Dec
                                               Electronic City Phase II
                                                                              2 BHK
      1
                   Plot Area
                               Ready To Move
                                                       Chikka Tirupathi
                                                                          4 Bedroom
      2
                                                                              3 ВНК
               Built-up
                        Area
                               Ready To Move
                                                            Uttarahalli
                               Ready To Move
      3 Super built-up Area
                                                     Lingadheeranahalli
                                                                              3 BHK
         Super built-up Area
                               Ready To Move
                                                               Kothanur
                                                                              2 BHK
         society total_sqft bath balcony
                                              price
      0
         Coomee
                       1056
                              2.0
                                        1.0
                                              39.07
                       2600
                              5.0
                                             120.00
      1
         Theanmp
                                        3.0
      2
                              2.0
                                              62.00
             NaN
                       1440
                                        3.0
      3
         Soiewre
                       1521
                              3.0
                                        1.0
                                              95.00
             NaN
                       1200
                              2.0
                                        1.0
                                              51.00
[15]: df2=data.fillna(method = 'bfill')
      df2
     C:\Users\Vikas\AppData\Local\Temp\ipykernel_17760\3819208495.py:1:
     FutureWarning: DataFrame.fillna with 'method' is deprecated and will raise in a
     future version. Use obj.ffill() or obj.bfill() instead.
       df2=data.fillna(method = 'bfill')
[15]:
                                                                   location \
                        area_type
                                     availability
      0
                                                   Electronic City Phase II
             Super built-up Area
                                           19-Dec
      1
                       Plot Area Ready To Move
                                                           Chikka Tirupathi
      2
                   Built-up Area Ready To Move
                                                                Uttarahalli
      3
             Super built-up Area
                                   Ready To Move
                                                         Lingadheeranahalli
      4
             Super built-up Area
                                   Ready To Move
                                                                   Kothanur
      13315
                   Built-up Area
                                   Ready To Move
                                                                 Whitefield
      13316
             Super built-up Area
                                   Ready To Move
                                                              Richards Town
      13317
                   Built-up Area
                                   Ready To Move
                                                      Raja Rajeshwari Nagar
      13318
             Super built-up Area
                                           18-Jun
                                                            Padmanabhanagar
      13319
             Super built-up Area Ready To Move
                                                               Doddathoguru
                        society total_sqft
                  size
                                             bath
                                                   balcony
                                                             price
      0
                 2 BHK
                                              2.0
                                                             39.07
                        Coomee
                                       1056
                                                       1.0
                                              5.0
                                                       3.0
      1
             4 Bedroom
                        Theanmp
                                       2600
                                                            120.00
      2
                 3 BHK
                        Soiewre
                                       1440
                                              2.0
                                                       3.0
                                                             62.00
      3
                 3 BHK
                        Soiewre
                                       1521
                                              3.0
                                                             95.00
                                                       1.0
                                                             51.00
      4
                 2 BHK
                        DuenaTa
                                       1200
                                              2.0
                                                       1.0
                                              4.0
                                                       0.0
                                                            231.00
      13315 5 Bedroom ArsiaEx
                                       3453
```

```
5.0
13316
           4 BHK
                  Mahla T
                                  3600
                                                  1.0 400.00
           2 BHK
                  Mahla T
                                         2.0
                                                  1.0
                                                         60.00
13317
                                  1141
13318
           4 BHK
                   SollyCl
                                  4689
                                         4.0
                                                  1.0 488.00
           1 BHK
                                                         17.00
13319
                       NaN
                                  550
                                         1.0
                                                  1.0
[13320 rows x 9 columns]
```

[16]: ## fill the null values with column wise previous value
df3 = data.fillna(method = 'pad',axis=1)
df3

C:\Users\Vikas\AppData\Local\Temp\ipykernel\_17760\3996429455.py:2: FutureWarning: DataFrame.fillna with 'method' is deprecated and will raise in a future version. Use obj.ffill() or obj.bfill() instead.

df3 = data.fillna(method = 'pad',axis=1)

```
「16]:
                       area_type
                                    availability
                                                                  location \
      0
             Super built-up Area
                                          19-Dec
                                                 Electronic City Phase II
      1
                      Plot Area Ready To Move
                                                          Chikka Tirupathi
      2
                  Built-up Area
                                  Ready To Move
                                                               Uttarahalli
      3
             Super built-up Area
                                  Ready To Move
                                                        Lingadheeranahalli
      4
             Super built-up Area
                                  Ready To Move
                                                                  Kothanur
      13315
                  Built-up Area Ready To Move
                                                                Whitefield
            Super built-up Area
      13316
                                  Ready To Move
                                                             Richards Town
                                                     Raja Rajeshwari Nagar
      13317
                  Built-up Area Ready To Move
      13318
             Super built-up Area
                                          18-Jun
                                                           Padmanabhanagar
            Super built-up Area Ready To Move
                                                              Doddathoguru
      13319
                  size
                       society total_sqft bath balcony price
                 2 BHK
      0
                       Coomee
                                      1056
                                           2.0
                                                    1.0 39.07
      1
             4 Bedroom
                       Theanmp
                                      2600 5.0
                                                    3.0 120.0
      2
                3 BHK
                          3 BHK
                                      1440
                                           2.0
                                                    3.0
                                                         62.0
                       Soiewre
      3
                 3 BHK
                                           3.0
                                                    1.0
                                                          95.0
                                      1521
      4
                2 BHK
                          2 BHK
                                      1200 2.0
                                                    1.0
                                                          51.0
      13315
            5 Bedroom
                       ArsiaEx
                                      3453 4.0
                                                    0.0 231.0
                          4 BHK
                                      3600 5.0
                                                    5.0 400.0
      13316
                4 BHK
                2 BHK
                       Mahla T
                                      1141
                                            2.0
                                                    1.0
                                                          60.0
      13317
      13318
                4 BHK
                       SollyCl
                                      4689
                                           4.0
                                                    1.0 488.0
      13319
                1 BHK
                          1 BHK
                                       550
                                           1.0
                                                    1.0
                                                          17.0
```

[13320 rows x 9 columns]

```
[17]: ## fill the null values with column wise next value
df4 = data.fillna(method = 'bfill',axis=1)
df4
```

C:\Users\Vikas\AppData\Local\Temp\ipykernel\_17760\932812257.py:2: FutureWarning: DataFrame.fillna with 'method' is deprecated and will raise in a future version. Use obj.ffill() or obj.bfill() instead.

df4 = data.fillna(method = 'bfill',axis=1)

```
[17]:
                         area_type
                                      availability
                                                                     location
                                                    Electronic City Phase II
      0
             Super built-up Area
                                            19-Dec
      1
                        Plot Area Ready To Move
                                                             Chikka Tirupathi
      2
                   Built-up Area
                                    Ready To Move
                                                                  Uttarahalli
      3
             Super built-up
                              Area
                                    Ready To Move
                                                           Lingadheeranahalli
      4
             Super built-up Area
                                    Ready To Move
                                                                     Kothanur
      13315
                   Built-up Area
                                    Ready To Move
                                                                   Whitefield
      13316
             Super built-up
                              Area
                                    Ready To Move
                                                                Richards Town
      13317
                   Built-up
                              Area
                                    Ready To Move
                                                        Raja Rajeshwari Nagar
      13318
             Super built-up
                                            18-Jun
                                                              Padmanabhanagar
                              Area
             Super built-up Area Ready To Move
                                                                 Doddathoguru
      13319
                   size
                         society total_sqft bath balcony
      0
                  2 BHK
                         Coomee
                                              2.0
                                                      1.0
                                                            39.07
                                        1056
      1
             4 Bedroom
                         Theanmp
                                        2600
                                              5.0
                                                      3.0
                                                            120.0
      2
                  3 BHK
                                              2.0
                                                             62.0
                            1440
                                        1440
                                                      3.0
      3
                 3 BHK
                         Soiewre
                                        1521
                                              3.0
                                                      1.0
                                                             95.0
      4
                 2 BHK
                            1200
                                        1200 2.0
                                                      1.0
                                                             51.0
                                              4.0
                                                      0.0
                                                            231.0
      13315
             5 Bedroom
                                        3453
                         ArsiaEx
      13316
                 4 BHK
                            3600
                                        3600
                                              5.0
                                                    400.0
                                                           400.0
                                                      1.0
                 2 BHK
                         Mahla T
                                              2.0
                                                             60.0
      13317
                                        1141
                                                           488.0
      13318
                 4 BHK
                         SollyCl
                                        4689
                                              4.0
                                                      1.0
      13319
                 1 BHK
                             550
                                         550
                                              1.0
                                                      1.0
                                                             17.0
```

[13320 rows x 9 columns]

```
[18]: ## filling the different value in null different coloumns

df6 = data.fillna({'society':'abcd','balcony':'defg'})

df6
```

```
[18]:
                        area_type
                                    availability
                                                                   location
                                          19-Dec Electronic City Phase II
      0
             Super built-up Area
      1
                       Plot Area Ready To Move
                                                           Chikka Tirupathi
      2
                   Built-up Area
                                   Ready To Move
                                                                Uttarahalli
      3
             Super built-up Area
                                   Ready To Move
                                                         Lingadheeranahalli
      4
             Super built-up Area
                                   Ready To Move
                                                                   Kothanur
      13315
                   Built-up Area
                                   Ready To Move
                                                                 Whitefield
      13316
             Super built-up
                             Area
                                   Ready To Move
                                                              Richards Town
      13317
                   Built-up Area
                                   Ready To Move
                                                      Raja Rajeshwari Nagar
      13318
             Super built-up
                             Area
                                          18-Jun
                                                            Padmanabhanagar
```

```
society total_sqft
           size
                                     bath balcony
                                                    price
                                                    39.07
0
          2 BHK
                 Coomee
                                1056
                                       2.0
                                               1.0
      4 Bedroom
1
                 Theanmp
                                2600
                                      5.0
                                               3.0 120.00
2
          3 ВНК
                     abcd
                                1440
                                      2.0
                                               3.0
                                                    62.00
          3 BHK Soiewre
                                       3.0
                                               1.0
                                                    95.00
3
                                1521
4
          2 BHK
                     abcd
                                1200
                                       2.0
                                               1.0
                                                     51.00
13315 5 Bedroom ArsiaEx
                                3453
                                       4.0
                                               0.0 231.00
                                              defg 400.00
          4 BHK
                                       5.0
13316
                     abcd
                                3600
13317
          2 BHK Mahla T
                                1141
                                       2.0
                                               1.0
                                                    60.00
          4 BHK
                 SollyCl
                                               1.0 488.00
13318
                                4689
                                       4.0
13319
          1 BHK
                                550
                                       1.0
                                               1.0
                                                     17.00
                     abcd
```

[13320 rows x 9 columns]

```
[20]: ## filling null values mean of a coloumns ## min ,max

df7 = data.fillna(value=data['balcony'].max())

df7
```

	ar	ea_type	availability		location		
0	Super built-u	p Area	1	9-Dec	Electron	ic City Phase	e II
1	Plo	t Area	Ready To	Move		Chikka Tirupa	athi
2	Built-u	p Area	Ready To	Move		Uttaraha	alli
3	Super built-u	p Area	Ready To	Move	Li	ngadheeranaha	alli
4	Super built-u	p Area	Ready To	Move		Kotha	anur
•••		•••	•••			•••	
13315	Built-u	p Area	Ready To	Move		Whitefi	ield
13316	Super built-u	p Area	Ready To	Move		Richards 7	Γown
13317	Built-u	p Area	Ready To	Move	Raja	Rajeshwari Na	agar
13318	Super built-u	p Area	1	8-Jun		Padmanabhana	agar
13319	Super built-u	p Area	Ready To	Move	Doddathogu		guru
	size so	ciety to	tal_sqft	bath	balcony	price	
0	2 BHK Co	omee	1056	2.0	1.0	39.07	
1	4 Bedroom Th	eanmp	2600	5.0	3.0	120.00	
2	3 ВНК	3.0	1440	2.0	3.0	62.00	
3	3 BHK So	iewre	1521	3.0	1.0	95.00	
4	2 BHK	3.0	1200	2.0	1.0	51.00	
•••				•••			
13315	5 Bedroom Ar	siaEx	3453	4.0	0.0	231.00	
13316	4 BHK	3.0	3600	5.0	3.0	400.00	
13317	2 BHK Ma	hla T	1141	2.0	1.0	60.00	
13318	4 BHK So	llyCl	4689	4.0	1.0	488.00	
13319	1 BHK	3.0	550	1.0	1.0	17.00	
	1 2 3 4 13315 13316 13317 13318 13315 13315 13316 13317 13318	0 Super built-up 1 Ploc 2 Built-up 3 Super built-up 4 Super built-up 13315 Built-up 13316 Super built-up 13317 Built-up 13318 Super built-up 13319 Super built-up 13318 Super	O         Super built-up Area           1         Plot Area           2         Built-up Area           3         Super built-up Area           4         Super built-up Area               13315         Built-up Area           13317         Built-up Area           13318         Super built-up Area           13319         Super built-up Area           13319         Super built-up Area           0         2 BHK Coomee           1         4 Bedroom Theanmp           2         3 BHK Soiewre           4         2 BHK 3.0               13315         5 Bedroom ArsiaEx           13316         4 BHK 3.0           13317         2 BHK Mahla T           13318         4 BHK SollyCl	0         Super built-up Area         1           1         Plot Area Ready To           2         Built-up Area Ready To           3         Super built-up Area Ready To           4         Super built-up Area Ready To           13315         Built-up Area Ready To           13317         Built-up Area Ready To           13318         Super built-up Area Ready To           13319         Super built-up Area Ready To           13319         Super built-up Area Ready To           13319         Super built-up Area Ready To           2         BHK Coomee 1056           1         4 Bedroom Theanmp 2600           2         3 BHK 3.0 1440           3         3 BHK Soiewre 1521           4         2 BHK 3.0 1200               13315         5 Bedroom ArsiaEx 3453           13316         4 BHK 3.0 3600           13317         2 BHK Mahla T 1141           13318         4 BHK SollyCl 4689	1       Plot       Area       Ready To Move         2       Built-up       Area       Ready To Move         3       Super built-up       Area       Ready To Move         4       Super built-up       Area       Ready To Move         13315       Built-up       Area       Ready To Move         13317       Built-up       Area       Ready To Move         13318       Super built-up       Area       Ready To Move         13319       Super built-up       Area       Ready To Move         13310       A BHK       Coomee       1056       2.0         1       4 Bedroom       Theamp       2600       5.0         2       3 BHK       3.0       1440       2.0         3       3 BHK       3.0       1200       2.0                13315       5 Bedroom       <	0         Super         built-up         Area         19-Dec         Electron           1         Plot         Area         Ready         To         Move           2         Built-up         Area         Ready         To         Move           3         Super         built-up         Area         Ready         To         Move           4         Super         built-up         Area         Ready         To         Move           13316         Super         built-up         Area         Ready         To         Move           13317         Built-up         Area         Ready         To         Move         Raja           13318         Super         built-up         Area         Ready         To         Move         Raja           13319         Super         built-up         Area         Ready         To         Move         Raja           0         2         BHK         Coomee         1056         2.0         1.0           1         4         Bedroom         Theanmp         2600         5.0         3.0           2         3         BHK         3.0         1440         2.0         3.0	O         Super built-up         Area         19-Dec         Electronic City Phase           1         Plot         Area         Ready To Move         Chikka Tirupa           2         Built-up         Area         Ready To Move         Lingadheeranaba           3         Super built-up         Area         Ready To Move         Kotha           4         Super built-up         Area         Ready To Move         Whitefi           13315         Built-up         Area         Ready To Move         Raja Rajeshwari Na           13317         Built-up         Area         Ready To Move         Raja Rajeshwari Na           13318         Super built-up         Area         Ready To Move         Raja Rajeshwari Na           13319         Super built-up         Area         Ready To Move         Raja Rajeshwari Na           13319         Super built-up         Area         Ready To Move         Doddathog           0         2 BHK         Coomee         1056         2.0         1.0         39.07           1         4 Bedroom         Theamp         2600         5.0         3.0         120.00           2         3 BHK         3.0         1440         2.0         3.0         62.00

### 1 dropna()

```
[21]: df8 = data.dropna()
      df8
[21]:
                                                                   location \
                        area_type
                                     availability
             Super built-up Area
                                                   Electronic City Phase II
                                           19-Dec
      1
                       Plot Area
                                   Ready To Move
                                                           Chikka Tirupathi
      3
             Super built-up Area
                                   Ready To Move
                                                         Lingadheeranahalli
      5
             Super built-up Area
                                   Ready To Move
                                                                 Whitefield
      11
                       Plot Area
                                   Ready To Move
                                                                 Whitefield
      13313
             Super built-up Area
                                   Ready To Move
                                                                 Uttarahalli
      13314
             Super built-up Area
                                   Ready To Move
                                                          Green Glen Layout
      13315
                   Built-up Area
                                    Ready To Move
                                                                 Whitefield
      13317
                   Built-up Area
                                    Ready To Move
                                                      Raja Rajeshwari Nagar
      13318
             Super built-up Area
                                           18-Jun
                                                            Padmanabhanagar
                                             bath
                  size
                        society total_sqft
                                                   balcony
                                                             price
      0
                 2 BHK
                        Coomee
                                       1056
                                              2.0
                                                       1.0
                                                             39.07
      1
             4 Bedroom
                        Theanmp
                                       2600
                                              5.0
                                                       3.0
                                                            120.00
      3
                                                       1.0
                                                             95.00
                 3 BHK
                        Soiewre
                                       1521
                                              3.0
                 2 BHK
      5
                        DuenaTa
                                       1170
                                              2.0
                                                       1.0
                                                             38.00
                                                       3.0
                                                            295.00
      11
             4 Bedroom
                        Prrry M
                                       2785
                                              5.0
                        Aklia R
      13313
                 3 BHK
                                       1345
                                              2.0
                                                       1.0
                                                             57.00
      13314
                 3 BHK
                                              3.0
                                                       3.0 112.00
                        SoosePr
                                       1715
      13315
            5 Bedroom
                        ArsiaEx
                                       3453
                                              4.0
                                                       0.0 231.00
      13317
                 2 BHK
                        Mahla T
                                       1141
                                              2.0
                                                       1.0
                                                             60.00
                                              4.0
      13318
                 4 BHK
                        SollyCl
                                       4689
                                                       1.0
                                                           488.00
      [7496 rows x 9 columns]
[22]: df9 = data.dropna(how='any')
      df9
[22]:
                                     availability
                                                                   location
                        area_type
      0
             Super built-up Area
                                                   Electronic City Phase II
                                           19-Dec
      1
                       Plot Area
                                   Ready To Move
                                                           Chikka Tirupathi
      3
             Super built-up Area
                                   Ready To Move
                                                         Lingadheeranahalli
      5
             Super built-up Area
                                   Ready To Move
                                                                 Whitefield
      11
                       Plot Area Ready To Move
                                                                 Whitefield
      13313 Super built-up Area Ready To Move
                                                                Uttarahalli
```

```
13314
      Super built-up Area Ready To Move
                                                   Green Glen Layout
13315
                            Ready To Move
                                                          Whitefield
            Built-up Area
13317
            Built-up Area
                            Ready To Move
                                               Raja Rajeshwari Nagar
13318
      Super built-up Area
                                    18-Jun
                                                     Padmanabhanagar
                 society total_sqft bath
           size
                                           balcony
                                                      price
0
          2 BHK
                 Coomee
                                1056
                                       2.0
                                                1.0
                                                      39.07
1
      4 Bedroom
                 Theanmp
                                2600
                                       5.0
                                                3.0
                                                    120.00
3
           3 BHK
                 Soiewre
                                1521
                                       3.0
                                                1.0
                                                      95.00
5
          2 BHK
                 DuenaTa
                                1170
                                       2.0
                                                1.0
                                                      38.00
                                                    295.00
11
      4 Bedroom
                 Prrry M
                                2785
                                       5.0
                                                3.0
                                                1.0
                                                      57.00
13313
          3 BHK
                 Aklia R
                                1345
                                       2.0
          3 BHK
                                       3.0
                                                3.0 112.00
13314
                 SoosePr
                                1715
13315 5 Bedroom
                 ArsiaEx
                                3453
                                       4.0
                                                0.0 231.00
                 Mahla T
          2 BHK
                                       2.0
                                                      60.00
13317
                                1141
                                                1.0
13318
          4 BHK
                 SollyCl
                                4689
                                       4.0
                                                1.0 488.00
```

[7496 rows x 9 columns]

# 2 repalce()

```
[23]: import numpy as np
df10 = data.replace(to_replace=np.nan, value=87698)
df10
```

[23]:			availability			location					
	0	Super buil	t-up	Area		19-	-Dec	Electron	ic City	Phase II	
	1	_	Plot	Area	Ready	To 1	Move		Chikka T	irupathi	
	2	Buil	t-up	Area	Ready	To 1	Move		Utt	arahalli	
	3	Super buil	t-up	Area	Ready	To 1	Move	Li	ngadheer	anahalli	
	4	Super buil	t-up	Area	Ready	To 1	Move			Kothanur	
	•••										
	13315	Buil	t-up	Area	Ready	To 1	Move		Wh	itefield	
	13316	Super buil	t-up	Area	Ready	To 1	Move		Richa	rds Town	
	13317	Buil	t-up	Area	Ready	To 1	Move	Raja	Rajeshwa	ri Nagar	
	13318	Super buil	t-up	Area	18-J		-Jun	Padmanabhanaga			
	13319	Super buil	lt-up Area		Ready To Move		Doddathoguru				
	size society to		tal_sqf	ft l	oath	balcony	price				
	0	2 BHK Coome		е	105	56	2.0	1.0	39.07		
	1	4 Bedroom	Thean	mp	260	00	5.0	3.0	120.00		
	2	3 ВНК	876	98	144	10	2.0	3.0	62.00		
	3	3 ВНК	Soiew	re	152	21	3.0	1.0	95.00		
	4	2 BHK	876	98	120	00	2.0	1.0	51.00		
	•••		•••	•••	•••	•		•••			

```
4.0
                                                 0.0 231.00
13315 5 Bedroom
                  ArsiaEx
                                 3453
13316
           4 BHK
                    87698
                                 3600
                                        5.0
                                             87698.0
                                                      400.00
           2 BHK
                                                       60.00
13317
                  Mahla T
                                 1141
                                        2.0
                                                 1.0
13318
           4 BHK
                  SollyCl
                                 4689
                                        4.0
                                                 1.0
                                                      488.00
13319
           1 BHK
                    87698
                                  550
                                        1.0
                                                 1.0
                                                       17.00
```

[13320 rows x 9 columns]

```
[24]: df11 = data.replace(to_replace=3.0, value=5.0)
df11
```

[24]:	]: area_t		rpe a	availability			lo	cation	\	
	0	Super buil	t-up Ar	rea	19	9-Dec	Electron	ic City Ph	ase II	
	1		Plot Ar	ea Re	ady To	Move		Chikka Tir	upathi	
	2	Buil	t-up Ar	ea Re	ady To	Move		Uttar	ahalli	
	3	Super buil	t-up Ar	ea Re	ady To	Move	Li	ngadheeran	ahalli	
	4	Super buil	t-up Ar	ea Re	ady To	Move		Ко	thanur	
	•••		•••		•••			•••		
	13315	Buil	t-up Ar	ea Re	eady To	Move		Whit	efield	
	13316	Super buil	t-up Ar	ea Re	eady To	Move		Richard	s Town	
	13317	Buil	t-up Ar	ea Re	eady To	Move	Raja	Rajeshwari	Nagar	
	13318	Super buil	t-up Ar	rea	18	3-Jun	Padmanabhanaga			
	13319	Super buil	t-up Ar	ea Re	ady To	Move		Doddat	hoguru	
		size	society to		_sqft	bath	balcony	price		
	0	2 BHK	Coomee		1056	2.0	1.0	39.07		
	1	4 Bedroom	Theanmp	)	2600	5.0	5.0	120.00		
	2	3 ВНК	NaN	Ī	1440	2.0	5.0	62.00		
	3	3 ВНК	Soiewre	)	1521	5.0	1.0	95.00		
	4	2 BHK	NaN	Ī	1200	2.0	1.0	51.00		
	•••	•••	•••	•••	•••	•••	•••			
	13315	5 Bedroom	ArsiaEx	:	3453	4.0	0.0	231.00		
	13316	4 BHK	NaN	Ī	3600	5.0	NaN	400.00		
	13317	2 BHK	Mahla T		1141	2.0	1.0	60.00		
	13318	4 BHK	SollyCl	-	4689	4.0	1.0	488.00		
	13319	1 BHK	NaN	Ī	550	1.0	1.0	17.00		

[13320 rows x 9 columns]

## 3 interpolate()

1~## value is missing 5 automatimically fill the value 2 3 4 nan 6 7 8

```
[25]: data['balcony']=data['balcony'].interpolate(method='linear')
data
```

```
[25]:
                                     availability
                                                                    location \
                        area_type
             Super built-up Area
                                           19-Dec Electronic City Phase II
      0
      1
                       Plot Area Ready To Move
                                                           Chikka Tirupathi
      2
                   Built-up Area
                                    Ready To Move
                                                                 Uttarahalli
             Super built-up Area
      3
                                    Ready To Move
                                                         Lingadheeranahalli
                                    Ready To Move
      4
             Super built-up Area
                                                                    Kothanur
                   Built-up Area Ready To Move
      13315
                                                                  Whitefield
      13316
             Super built-up Area
                                    Ready To Move
                                                               Richards Town
                   Built-up
      13317
                             Area
                                    Ready To Move
                                                      Raja Rajeshwari Nagar
      13318
             Super built-up Area
                                                             Padmanabhanagar
                                           18-Jun
      13319
             Super built-up Area Ready To Move
                                                                Doddathoguru
                        society total_sqft
                                             bath
                                                   balcony
                                                              price
      0
                 2 BHK
                        Coomee
                                       1056
                                              2.0
                                                        1.0
                                                              39.07
      1
             4 Bedroom
                        Theanmp
                                       2600
                                              5.0
                                                        3.0
                                                            120.00
      2
                 3 BHK
                            NaN
                                       1440
                                              2.0
                                                        3.0
                                                              62.00
                                                              95.00
      3
                 3 BHK
                        Soiewre
                                       1521
                                              3.0
                                                        1.0
      4
                 2 BHK
                            NaN
                                       1200
                                              2.0
                                                        1.0
                                                              51.00
                                                        0.0
                                                            231.00
      13315
             5 Bedroom
                        ArsiaEx
                                       3453
                                              4.0
      13316
                 4 BHK
                                       3600
                                              5.0
                                                        0.5
                                                            400.00
                             NaN
                                                       1.0
                                                              60.00
      13317
                 2 BHK Mahla T
                                       1141
                                              2.0
                        SollyCl
      13318
                 4 BHK
                                       4689
                                                       1.0
                                                           488.00
                                              4.0
      13319
                 1 BHK
                            NaN
                                        550
                                              1.0
                                                        1.0
                                                              17.00
```

[]:

[13320 rows x 9 columns]

11