In [1]:
```
import numpy as np
```

In [2]:
```
a=np.random.randint(-10,100,(50))
```

In [3]:
```
a
```

Out[3]:
```
array([ 42,   9,  21,  16,   6,  25,  42,  46,  36,  80,   5,   8,  -7,
        45,  38,  89, -10,  59,   6,  13,  46,  74,  37,  15,  15,  -3,
        83,  17,  12,  17,  57,  45,  69,   5,  92,  76,   9,  29,  90,
        74,  28,  47,  84,  32,  -7,   2,  44,  59,  55,  38])
```

In [5]:
```
import pandas as pd
```

In [6]:
```
a.mean()
```

Out[6]:
```
36.2
```

In [8]:
```
a.max()
```

Out[8]:
```
92
```

In [9]:
```
a.min()
```

Out[9]:
```
-10
```

In [11]:
```
b=pd.DataFrame(a)
```

In [12]:
```
b
```

Out[12]:

	0
0	42
1	9
2	21
3	16
4	6
5	25
6	42
7	46
8	36
9	80
10	5
11	8
12	-7
13	45
14	38
15	89
16	-10
17	59

	0
19	13
20	46
21	74
22	37
23	15
24	15
25	-3
26	83
27	17
28	12
29	17
30	57
31	45
32	69
33	5
34	92
35	76
36	9
37	29
38	90
39	74
40	28
41	47
42	84
43	32
44	-7
45	2
46	44
47	59
48	55
49	38

In [14]:
```
b.describe()
```

Out[14]:

	0
count	50.000000
mean	36.200000
std	29.071341
min	-10.000000
25%	12.250000

	0
50%	36.500000
75%	56.500000
max	92.000000

In [24]:
```
IQR=56.50-12.25
```

In [25]:
```
IQR
```

Out[25]:
```
44.25
```

In [29]:
```
UL=56.50+1.5*(IQR)
```

In [30]:
```
UL
```

Out[30]:
```
122.875
```

In [31]:
```
LL=12.25-1.5*(IQR)
```

In [32]:
```
LL
```

Out[32]:
```
-54.125
```

In [34]:
```
a1=np.random.randint(-100,200,(50))
```

In [35]:
```
a1
```

Out[35]:
```
array([145, -22,  37,   7, -57, -36, 107, 149, -94,  80, 189, 119, -85,
       -52,  98, 178, 108, -64, -90, -48, 111,   2,  62, -96, 114,  79,
       179, 138,  84, -27,  11, -27,   2, 188,  28,  34,  53, 174, 141,
       -91,   7, 105,   0,  54, 196, 137, -81,  78, 169, 165])
```

In [45]:
```
a2=pd.DataFrame(a1,columns=["O"])
```

In [46]:
```
a2
```

Out[46]:

	O
0	145
1	-22
2	37
3	7
4	-57
5	-36
6	107
7	149
8	-94
9	80
10	189
11	119
12	85

	0
13	-52
14	98
15	178
16	108
17	-64
18	-90
19	-48
20	111
21	2
22	62
23	-96
24	114
25	79
26	179
27	138
28	84
29	-27
30	11
31	-27
32	2
33	188
34	28
35	34
36	53
37	174
38	141
39	-91
40	7
41	105
42	0
43	54
44	196
45	137
46	-81
47	78
48	169
49	165

In [48]:
```
a2["0"][a2["0"]>122] = np.nan
```

In [49]:
```
a2["O"][a2["O"]<-54]=np.nan
```

In [50]:
```
a2
```

Out[50]:

	O
0	NaN
1	-22.0
2	37.0
3	7.0
4	NaN
5	-36.0
6	107.0
7	NaN
8	NaN
9	80.0
10	NaN
11	119.0
12	NaN
13	-52.0
14	98.0
15	NaN
16	108.0
17	NaN
18	NaN
19	-48.0
20	111.0
21	2.0
22	62.0
23	NaN
24	114.0
25	79.0
26	NaN
27	NaN
28	84.0
29	-27.0
30	11.0
31	-27.0
32	2.0
33	NaN
34	28.0
35	34.0

	O
37	NaN
38	NaN
39	NaN
40	7.0
41	105.0
42	0.0
43	54.0
44	NaN
45	NaN
46	NaN
47	78.0
48	NaN
49	NaN

In [2]:
```
import pandas as pd
```

In [3]:
```
import numpy as np
```

In [41]:
```
df=pd.read_csv("HYD_TEMP.csv")
```

In [42]:
```
df
```

Out[42]:

	DATE	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
0	20-March-2021	35	777	34	0
1	21-March-2021	1111	34	38	-2
2	22-March-2021	35	37	31	-4
3	23-March-2021	34	31	39	-5
4	24-March-2021	30	38	37	30
5	25-March-2021	0	31	444	1
6	26-March-2021	34	111	38	-7
7	27-March-2021	32	38	34	35
8	28-March-2021	666	31	222	-1
9	29-March-2021	34	37	38	0
10	30-March-2021	38	65	34	-2

In [43]:
```
df.describe()
```

Out[43]:

	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
count	11.000000	11.000000	11.000000	11.000000
mean	186.272727	111.818182	89.909091	4.090909
std	361.315677	221.901698	130.058029	14.286039
min	0.000000	31.000000	31.000000	-7.000000

	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
25%	33.000000	32.500000	34.000000	-3.000000
50%	34.000000	37.000000	38.000000	-1.000000
75%	36.500000	51.500000	38.500000	0.500000
max	1111.000000	777.000000	444.000000	35.000000

In [57]:
```
iqr=36.50-33.31
```

In [58]:
```
iqr
```

Out[58]: 3.1899999999999977

In [59]:
```
ul=36.50+1.5*(3.18)
```

In [60]:
```
ul
```

Out[60]: 41.27

In [61]:
```
ll=33.31-1.5*(3.18)
```

In [62]:
```
ll
```

Out[62]: 28.540000000000003

In [63]:
```
df["HYDERABAD"][df["HYDERABAD"]>41.27] =np.nan
```

In [64]:
```
df["HYDERABAD"][df["HYDERABAD"]<28.50] =np.nan
```

In [65]:
```
df
```

Out[65]:

	DATE	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
0	20-March-2021	35.0	777	34	0
1	21-March-2021	NaN	34	38	-2
2	22-March-2021	35.0	37	31	-4
3	23-March-2021	34.0	31	39	-5
4	24-March-2021	30.0	38	37	30
5	25-March-2021	NaN	31	444	1
6	26-March-2021	34.0	111	38	-7
7	27-March-2021	32.0	38	34	35
8	28-March-2021	NaN	31	222	-1
9	29-March-2021	34.0	37	38	0
10	30-March-2021	38.0	65	34	-2

In [119…
```
iqrw=51.50-32.50
```

In [120…
```
iqrw
```

Out[120… 19.0

In [121…
```
ulw=51.50+1.5*(19.0)
```

In [122…
```
ulw
```

Out[122…
```
80.0
```

In [123…
```
llw=32.50-1.5*(19.0)
```

In [124…
```
llw
```

Out[124…
```
4.0
```

In [125…
```
df["WARANGAL"][df["WARANGAL"]>80.0]=np.nan
```

```
<ipython-input-125-636b4964b505>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gu
ide/indexing.html#returning-a-view-versus-a-copy
  df["WARANGAL"][df["WARANGAL"]>80.0]=np.nan
```

In [126…
```
df["WARANGAL"][df["WARANGAL"]<4.0]=np.nan
```

```
<ipython-input-126-1245f17eef97>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gu
ide/indexing.html#returning-a-view-versus-a-copy
  df["WARANGAL"][df["WARANGAL"]<4.0]=np.nan
```

In [127…
```
df
```

Out[127…

	DATE	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
0	20-March-2021	35.0	NaN	34.0	0
1	21-March-2021	NaN	34.0	38.0	-2
2	22-March-2021	35.0	37.0	31.0	-4
3	23-March-2021	34.0	31.0	39.0	-5
4	24-March-2021	30.0	38.0	37.0	30
5	25-March-2021	NaN	31.0	NaN	1
6	26-March-2021	34.0	NaN	38.0	-7
7	27-March-2021	32.0	38.0	34.0	35
8	28-March-2021	NaN	31.0	NaN	-1
9	29-March-2021	34.0	37.0	38.0	0
10	30-March-2021	38.0	65.0	34.0	-2

In [103…
```
iqrc=38.50-34.0
```

In [104…
```
iqrc
```

Out[104…
```
4.5
```

In [105…
```
ulc=38.50+1.5*(4.5)
```

In [106…
```
ulc
```

Out[106… 45.25

In [107…
```
llc=34.0-1.5*(4.5)
```

In [108…
```
llc
```

Out[108… 27.25

In [110…
```
df["CHENNAI"][df["CHENNAI"]>45.25]=np.nan
```

```
<ipython-input-110-6bd2ecc09958>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gu
ide/indexing.html#returning-a-view-versus-a-copy
  df["CHENNAI"][df["CHENNAI"]>45.25]=np.nan
```

In [128…
```
df
```

Out[128…

	DATE	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
0	20-March-2021	35.0	NaN	34.0	0
1	21-March-2021	NaN	34.0	38.0	-2
2	22-March-2021	35.0	37.0	31.0	-4
3	23-March-2021	34.0	31.0	39.0	-5
4	24-March-2021	30.0	38.0	37.0	30
5	25-March-2021	NaN	31.0	NaN	1
6	26-March-2021	34.0	NaN	38.0	-7
7	27-March-2021	32.0	38.0	34.0	35
8	28-March-2021	NaN	31.0	NaN	-1
9	29-March-2021	34.0	37.0	38.0	0
10	30-March-2021	38.0	65.0	34.0	-2

In [133…
```
iqrk=0.50-(-3.0)
```

In [134…
```
iqrk
```

Out[134… 3.5

In [135…
```
ulk=0.50+1.5*(3.5)
```

In [136…
```
ulk
```

Out[136… 5.75

In [137…
```
llk=-3.0-1.5*(3.5)
```

In [138…
```
llk
```

Out[138… -8.25

In [139…
```
df["KASHMIR"][df["KASHMIR"]>5.75]=np.nan
```

```
<ipython-input-139-810b48ec6f3f>:1: SettingWithCopyWarning:
```

```
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gu
ide/indexing.html#returning-a-view-versus-a-copy
  df["KASHMIR"][df["KASHMIR"]>5.75]=np.nan
```

In [140…
```
df["KASHMIR"][df["KASHMIR"]<-8.25]=np.nan
```

In [141…
```
df
```

Out[141…

	DATE	HYDERABAD	WARANGAL	CHENNAI	KASHMIR
0	20-March-2021	35.0	NaN	34.0	0.0
1	21-March-2021	NaN	34.0	38.0	-2.0
2	22-March-2021	35.0	37.0	31.0	-4.0
3	23-March-2021	34.0	31.0	39.0	-5.0
4	24-March-2021	30.0	38.0	37.0	NaN
5	25-March-2021	NaN	31.0	NaN	1.0
6	26-March-2021	34.0	NaN	38.0	-7.0
7	27-March-2021	32.0	38.0	34.0	NaN
8	28-March-2021	NaN	31.0	NaN	-1.0
9	29-March-2021	34.0	37.0	38.0	0.0
10	30-March-2021	38.0	65.0	34.0	-2.0

In [4]:
```
temp=pd.read_csv("P1_TEMP.csv")
```

In [5]:
```
temp
```

Out[5]:

	DATE	TEMP
0	01 Jan 2021	34.0
1	02 Jan 2021	-1.0
2	03 Jan 2021	35.0
3	07 Jan 2021	9999.0
4	08 Jan 2021	-4.0
5	09 Jan 2021	34.0
6	10 Jan 2021	NaN
7	11 Jan 2021	333.0
8	12 Jan 2021	32.0
9	16 Jan 2021	36.0
10	17 Jan 2021	NaN
11	18 Jan 2021	3333.0
12	19 Jan 2021	36.0
13	20 Jan 2021	32.0
14	21 Jan 2021	39.0

In [6]:
```
temp.describe()
```

Out[6]:

	TEMP
count	13.000000
mean	1072.153846
std	2832.340223
min	-4.000000
25%	32.000000
50%	35.000000
75%	39.000000
max	9999.000000

In [7]:
```
iqrt=39.0-32.0
```

In [8]:
```
iqrt
```

Out[8]:
```
7.0
```

In [9]:
```
ult=39.0+1.5*(7.0)
```

In [10]:
```
ult
```

Out[10]:
```
49.5
```

In [11]:
```
llt=32.0-1.5*(7.0)
```

In [12]:
```
llt
```

Out[12]:
```
21.5
```

In [13]:
```
temp["TEMP"][temp["TEMP"]>49.5]=np.nan
```

```
<ipython-input-13-146192627169>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gu
ide/indexing.html#returning-a-view-versus-a-copy
  temp["TEMP"][temp["TEMP"]>49.5]=np.nan
```

In [14]:
```
temp["TEMP"][temp["TEMP"]<21.5]=np.nan
```

```
<ipython-input-14-864fd8407a5e>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_gu
ide/indexing.html#returning-a-view-versus-a-copy
  temp["TEMP"][temp["TEMP"]<21.5]=np.nan
```

In [15]:
```
temp
```

Out[15]:

	DATE	TEMP
0	01 Jan 2021	34.0
1	02 Jan 2021	NaN
2	03 Jan 2021	35.0
3	07 Jan 2021	NaN

	DATE	TEMP
4	08 Jan 2021	NaN
5	09 Jan 2021	34.0
6	10 Jan 2021	NaN
7	11 Jan 2021	NaN
8	12 Jan 2021	32.0
9	16 Jan 2021	36.0
10	17 Jan 2021	NaN
11	18 Jan 2021	NaN
12	19 Jan 2021	36.0
13	20 Jan 2021	32.0
14	21 Jan 2021	39.0

In [1]:
```
import pandas as pd
```

In [2]:
```
import numpy as np
```

In [3]:
```
l1=[45,43,42,39,1993,42,53,47,987,43,54,32]
```

In [7]:
```
a=pd.DataFrame(l1,columns=["A"])
```

In [8]:
```
a
```

Out[8]:

	A
0	45
1	43
2	42
3	39
4	1993
5	42
6	53
7	47
8	987
9	43
10	54
11	32

In [9]:
```
a.describe()
```

Out[9]:

	A
count	12.000000
mean	285.000000
std	602.362621

	A
25%	42.000000
50%	44.000000
75%	53.250000
max	1993.000000

In [28]:
```
iqr=53.25-42.0
```

In [29]:
```
iqr
```

Out[29]:
```
11.25
```

In [16]:
```
ul=53.25+1.5*(iqr)
```

In [17]:
```
ul
```

Out[17]:
```
70.125
```

In [18]:
```
ll=42.0-1.5*(iqr)
```

In [19]:
```
ll
```

Out[19]:
```
25.125
```

In [21]:
```
a["A"][a["A"]>70.125]=np.nan
```

In [22]:
```
a["A"][a["A"]<25.125]=np.nan
```

In [23]:
```
a
```

Out[23]:

	A
0	45.0
1	43.0
2	42.0
3	39.0
4	NaN
5	42.0
6	53.0
7	47.0
8	NaN
9	43.0
10	54.0
11	32.0

In [30]:
```
a.interpolate(method="nearest")
```

Out[30]:

	A
0	45.0

	A
1	43.0
2	42.0
3	39.0
4	39.0
5	42.0
6	53.0
7	47.0
8	47.0
9	43.0
10	54.0
11	32.0

In [ ]: