

(a)

```
Column1    5  
Column2    3  
Column3    7  
dtype: int64
```

(b)

Initial DataFrame :

	Column1	Column2	Column3
0	0.206542	0.957388	0.164256
1	NaN	0.527179	0.437289
2	0.435709	0.475326	0.753155
3	0.579316	0.449069	0.166107
4	NaN	0.345847	0.646031
5	0.952419	0.446663	0.719429
6	0.173915	0.996299	0.279102
7	0.673672	0.649077	0.277595
8	0.125571	0.885423	NaN
9	0.860079	0.312154	0.778716
10	0.003111	0.338269	0.343918
11	NaN	0.455510	0.885311
12	0.109970	0.883504	NaN
13	0.742065	0.173124	0.543896
14	0.091339	0.507639	0.311441
15	0.458575	0.705536	0.420852
16	0.607492	0.304065	0.895298
17	0.340957	NaN	0.117871
18	NaN	0.127617	0.854751
19	0.637248	0.367892	0.209220
20	0.157693	0.119132	0.688375
21	NaN	NaN	0.241687
22	0.177055	0.939257	0.327456
23	0.246718	NaN	0.436676
24	0.626160	0.323841	0.566374
25	0.622489	0.601993	0.720788
26	0.556301	0.489303	0.203851
27	0.864680	0.318762	0.354246
28	0.051560	0.771360	0.415833

29	0.574225	0.501671	0.910013
30	0.308234	0.941476	0.630193
31	0.266791	0.129699	0.530686
32	0.661697	0.660261	0.754022
33	0.563713	0.504863	NaN
34	0.745228	0.556970	0.573319
35	0.438679	0.765642	0.430709
36	0.734426	0.632480	0.965809
37	0.856445	0.109967	0.573727
38	0.678179	0.276686	0.792420
39	0.800548	0.131778	NaN
40	0.150003	0.480219	NaN
41	0.100583	0.590821	0.100919
42	0.427136	0.462853	0.445471
43	0.937769	0.288410	0.102569
44	0.862129	0.960103	0.153950
45	0.094587	0.950881	0.831598
46	0.688446	0.998148	0.903672
47	0.179583	0.700796	0.496307
48	0.442497	0.506937	NaN
49	0.474193	0.271278	NaN

DataFrame after Dropping Column with Null Values > 5 :

	Column1	Column2
0	0.206542	0.957388
1	NaN	0.527179
2	0.435709	0.475326
3	0.579316	0.449069
4	NaN	0.345847
5	0.952419	0.446663
6	0.173915	0.996299
7	0.673672	0.649077
8	0.125571	0.885423
9	0.860079	0.312154
10	0.003111	0.338269
11	NaN	0.455510
12	0.109970	0.883504
13	0.742065	0.173124
14	0.091339	0.507639
15	0.458575	0.705536
16	0.607492	0.304065
17	0.340957	NaN
18	NaN	0.127617

19	0.637248	0.367892
20	0.157693	0.119132
21	NaN	NaN
22	0.177055	0.939257
23	0.246718	NaN
24	0.626160	0.323841
25	0.622489	0.601993
26	0.556301	0.489303
27	0.864680	0.318762
28	0.051560	0.771360
29	0.574225	0.501671
30	0.308234	0.941476
31	0.266791	0.129699
32	0.661697	0.660261
33	0.563713	0.504863
34	0.745228	0.556970
35	0.438679	0.765642
36	0.734426	0.632480
37	0.856445	0.109967
38	0.678179	0.276686
39	0.800548	0.131778
40	0.150003	0.480219
41	0.100583	0.590821
42	0.427136	0.462853
43	0.937769	0.288410
44	0.862129	0.960103
45	0.094587	0.950881
46	0.688446	0.998148
47	0.179583	0.700796
48	0.442497	0.506937
49	0.474193	0.271278

(c)

Row Label with Max Sum : 44

DataFrame after Dropping The Same :

	Column1	Column2
0	0.206542	0.957388
1	NaN	0.527179
2	0.435709	0.475326
3	0.579316	0.449069
4	NaN	0.345847
5	0.952419	0.446663
6	0.173915	0.996299
7	0.673672	0.649077
8	0.125571	0.885423
9	0.860079	0.312154
10	0.003111	0.338269
11	NaN	0.455510
12	0.109970	0.883504
13	0.742065	0.173124
14	0.091339	0.507639
15	0.458575	0.705536
16	0.607492	0.304065
17	0.340957	NaN
18	NaN	0.127617
19	0.637248	0.367892
20	0.157693	0.119132
21	NaN	NaN
22	0.177055	0.939257
23	0.246718	NaN
24	0.626160	0.323841
25	0.622489	0.601993
26	0.556301	0.489303
27	0.864680	0.318762
28	0.051560	0.771360
29	0.574225	0.501671
30	0.308234	0.941476
31	0.266791	0.129699
32	0.661697	0.660261
33	0.563713	0.504863
34	0.745228	0.556970
35	0.438679	0.765642
36	0.734426	0.632480
37	0.856445	0.109967

38	0.678179	0.276686
39	0.800548	0.131778
40	0.150003	0.480219
41	0.100583	0.590821
42	0.427136	0.462853
43	0.937769	0.288410
45	0.094587	0.950881
46	0.688446	0.998148
47	0.179583	0.700796
48	0.442497	0.506937
49	0.474193	0.271278

(d)

DataFrame with Sorted Values :

	Column1	Column2	Column3
10	0.003111	0.338269	0.343918
28	0.051560	0.771360	0.415833
14	0.091339	0.507639	0.311441
45	0.094587	0.950881	0.831598
41	0.100583	0.590821	0.100919
12	0.109970	0.883504	NaN
8	0.125571	0.885423	NaN
40	0.150003	0.480219	NaN
20	0.157693	0.119132	0.688375
6	0.173915	0.996299	0.279102
22	0.177055	0.939257	0.327456
47	0.179583	0.700796	0.496307
0	0.206542	0.957388	0.164256
23	0.246718	NaN	0.436676
31	0.266791	0.129699	0.530686
30	0.308234	0.941476	0.630193
17	0.340957	NaN	0.117871
42	0.427136	0.462853	0.445471
2	0.435709	0.475326	0.753155
35	0.438679	0.765642	0.430709
48	0.442497	0.506937	NaN
15	0.458575	0.705536	0.420852
49	0.474193	0.271278	NaN
26	0.556301	0.489303	0.203851
33	0.563713	0.504863	NaN

29	0.574225	0.501671	0.910013
3	0.579316	0.449069	0.166107
16	0.607492	0.304065	0.895298
25	0.622489	0.601993	0.720788
24	0.626160	0.323841	0.566374
19	0.637248	0.367892	0.209220
32	0.661697	0.660261	0.754022
7	0.673672	0.649077	0.277595
38	0.678179	0.276686	0.792420
46	0.688446	0.998148	0.903672
36	0.734426	0.632480	0.965809
13	0.742065	0.173124	0.543896
34	0.745228	0.556970	0.573319
39	0.800548	0.131778	NaN
37	0.856445	0.109967	0.573727
9	0.860079	0.312154	0.778716
44	0.862129	0.960103	0.153950
27	0.864680	0.318762	0.354246
43	0.937769	0.288410	0.102569
5	0.952419	0.446663	0.719429
1	NaN	0.527179	0.437289
4	NaN	0.345847	0.646031
11	NaN	0.455510	0.885311
18	NaN	0.127617	0.854751
21	NaN	NaN	0.241687

(e)

DataFrame After Dropping Duplicates :

	Column1	Column2	Column3
10	0.003111	0.338269	0.343918
28	0.051560	0.771360	0.415833
14	0.091339	0.507639	0.311441
45	0.094587	0.950881	0.831598
41	0.100583	0.590821	0.100919
12	0.109970	0.883504	NaN
8	0.125571	0.885423	NaN
40	0.150003	0.480219	NaN
20	0.157693	0.119132	0.688375

6	0.173915	0.996299	0.279102
22	0.177055	0.939257	0.327456
47	0.179583	0.700796	0.496307
0	0.206542	0.957388	0.164256
23	0.246718	NaN	0.436676
31	0.266791	0.129699	0.530686
30	0.308234	0.941476	0.630193
17	0.340957	NaN	0.117871
42	0.427136	0.462853	0.445471
2	0.435709	0.475326	0.753155
35	0.438679	0.765642	0.430709
48	0.442497	0.506937	NaN
15	0.458575	0.705536	0.420852
49	0.474193	0.271278	NaN
26	0.556301	0.489303	0.203851
33	0.563713	0.504863	NaN
29	0.574225	0.501671	0.910013
3	0.579316	0.449069	0.166107
16	0.607492	0.304065	0.895298
25	0.622489	0.601993	0.720788
24	0.626160	0.323841	0.566374
19	0.637248	0.367892	0.209220
32	0.661697	0.660261	0.754022
7	0.673672	0.649077	0.277595
38	0.678179	0.276686	0.792420
46	0.688446	0.998148	0.903672
36	0.734426	0.632480	0.965809
13	0.742065	0.173124	0.543896
34	0.745228	0.556970	0.573319
39	0.800548	0.131778	NaN
37	0.856445	0.109967	0.573727
9	0.860079	0.312154	0.778716
44	0.862129	0.960103	0.153950
27	0.864680	0.318762	0.354246
43	0.937769	0.288410	0.102569
5	0.952419	0.446663	0.719429
1	NaN	0.527179	0.437289

(f)

Correlation b/w 1st & 2nd Columns : -0.3804129439644155
 Covariance b/w 2nd & 3rd Columns : -0.007194208908874898