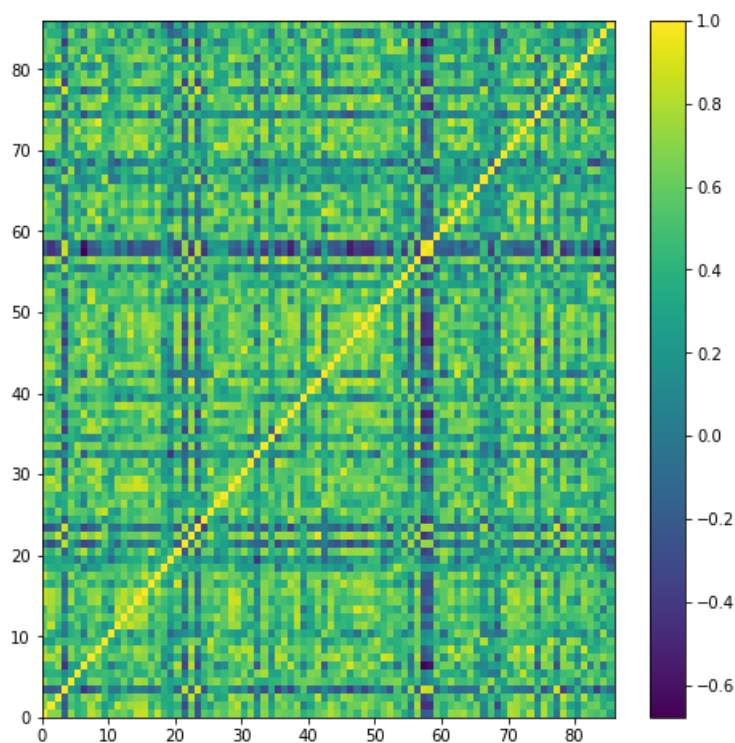


In [35]: runfile('C:/Users/dell/Desktop/whiskey_clustering/whisky.py', wdir='C:/Users/dell/Desktop/whiskey_clustering')
the resultant grouped classified whiskey based on their flavour



In [36]: corr_whisky

Out[36]:

```
0      0      1      2      3      4      5  \
0  1.000000  0.708632  0.697354 -0.147311  0.731902  3.890863e-01
1  0.708632  1.000000  0.503074 -0.228591  0.511834  4.009832e-01
2  0.697354  0.503074  1.000000 -0.140435  0.557020  3.896275e-01
3 -0.147311 -0.228591 -0.140435  1.000000  0.231617  1.231300e-01
4  0.731902  0.511834  0.557020  0.231617  1.000000  2.862513e-01
5  0.389086  0.400983  0.389627  0.123130  0.286251  1.000000e+00
6  0.464312  0.460830  0.730465 -0.430674  0.286065  2.433196e-01
7  0.823842  0.793052  0.647298 -0.216957  0.679366  4.815434e-01
8  0.713395  0.510144  0.846651 -0.009969  0.691939  4.259217e-01
9  0.310460  0.242821  0.502091  0.436534  0.485363  4.791864e-01
10 0.654848  0.396526  0.244535 -0.010331  0.377426  4.414148e-01
11 0.580019  0.857816  0.394962 -0.025788  0.376845  6.010025e-01
12 0.628808  0.662652  0.518328  0.307534  0.650444  4.400862e-01
13 0.498571  0.757616  0.606250 -0.017417  0.349957  5.412081e-01
14 0.841948  0.781722  0.684286  0.039849  0.776419  3.611576e-01
15 0.855422  0.799096  0.697354 -0.005892  0.731902  3.890863e-01
16 0.508278  0.348036  0.515899 -0.145399  0.376964  6.376296e-01
17 0.855422  0.618169  0.500454 -0.005892  0.731902  3.890863e-01
18 0.503003  0.359694  0.342518  0.386580  0.385164  5.460189e-01
19 0.328672  0.304008  0.360039  0.244612  0.255321 -2.714626e-02
20 0.539969  0.399292  0.635100 -0.168054  0.350823  6.061281e-01
21 -0.049088 -0.307148 -0.033426  0.840269  0.263117  1.035288e-17
22 0.623518  0.557342  0.869382 -0.159734  0.636595  5.076300e-01
23 -0.245440 -0.245718 -0.033426  0.888284  0.087706  1.865010e-01
24 0.564135  0.408718  0.424582 -0.246861  0.424397  3.948233e-01
25 0.469917  0.228024  0.698750  0.342391  0.651120  5.647577e-01
26 0.676632  0.579353  0.266750  0.330923  0.699913  3.720806e-01
27 0.559690  0.538772  0.322485  0.400066  0.500000  4.498235e-01
28 0.731902  0.673466  0.820871  0.105281  0.653846  5.316095e-01
29 0.731902  0.835097  0.644970 -0.021056  0.769231  4.089304e-01
..  ...  ...  ...  ...  ...  ...
56 0.697097  0.793052  0.647298 -0.216957  0.452911  6.019293e-01
57 -0.204157 -0.447100 -0.330173  0.873670  0.022798  4.847862e-02
58 -0.176519 -0.441798 -0.168280  0.846044  0.126155  2.011958e-01
59 0.605408  0.557071  0.533500 -0.174170  0.254514  7.441611e-01
60 0.380235  0.356873  0.517838  0.185963  0.509525  3.611576e-01
61 0.728094  0.538405  0.585936 -0.032372  0.739140  3.457820e-01
62 0.713611  0.632919  0.306655 -0.098264  0.470392  4.080007e-01
63 0.772031  0.566352  0.561967 -0.091140  0.475651  2.528609e-01
64 0.560377  0.400722  0.730465 -0.054813  0.543523  6.995439e-01
65 0.686481  0.650109  0.138974 -0.045370  0.364646  3.524537e-01
66 0.077615  0.097129  0.264258  0.721230  0.485363  1.474420e-01
67 0.503003  0.539542  0.440380 -0.105431  0.770329 -3.031014e-17
68 0.085023 -0.319197  0.173688  0.540573  0.303822  0.000000e+00
```

69 0.301372 0.377141 0.498386 0.147393 0.269231 6.951817e-01
70 0.801666 0.780279 0.505455 0.101649 0.636595 2.820167e-01
71 0.765207 0.744793 0.752649 -0.041583 0.607644 4.845437e-01
72 0.495204 0.619705 0.626242 -0.034599 0.505590 8.511256e-01
73 0.827379 0.538405 0.788761 -0.113302 0.709575 4.400862e-01
74 0.156627 0.196005 -0.008204 0.500859 0.301372 2.975366e-01
75 0.797802 0.789418 0.593796 -0.263147 0.662994 1.409815e-01
76 0.463332 0.455573 0.631008 0.032372 0.413919 5.029557e-01
77 -0.021124 0.132175 0.014384 0.898820 0.301941 2.809003e-01
78 0.801060 0.658758 0.857180 -0.347003 0.531610 4.782609e-01
79 0.463332 0.269202 0.631008 -0.016186 0.413919 5.029557e-01
80 0.163033 0.132014 0.280806 0.417436 0.068539 6.376296e-01
81 0.662651 0.467396 0.828621 -0.100172 0.559690 2.975366e-01
82 0.543305 0.607054 0.343536 0.151838 0.693375 5.897678e-01
83 0.504753 0.631655 0.545891 -0.392074 0.424397 5.076300e-01
84 0.572186 0.372342 0.358457 0.145517 0.695182 3.043478e-01
85 0.267222 0.483030 0.303273 -0.101649 0.424397 5.076300e-01

	6	7	8	9	...	76	77 \
0	4.643121e-01	0.823842	0.713395	0.310460	...	0.463332	-0.021124
1	4.608302e-01	0.793052	0.510144	0.242821	...	0.455573	0.132175
2	7.304649e-01	0.647298	0.846651	0.502091	...	0.631008	0.014384
3	-4.306744e-01	-0.216957	-0.009969	0.436534	...	0.032372	0.898820
4	2.860648e-01	0.679366	0.691939	0.485363	...	0.413919	0.301941
5	2.433196e-01	0.481543	0.425922	0.479186	...	0.502956	0.280900
6	1.000000e+00	0.421076	0.704248	0.335212	...	0.681689	-0.252646
7	4.210760e-01	1.000000	0.643268	0.408248	...	0.522233	0.037037
8	7.042477e-01	0.643268	1.000000	0.525226	...	0.699866	0.107211
9	3.352119e-01	0.408248	0.525226	1.000000	...	0.852803	0.612372
10	-2.807173e-02	0.629630	0.393108	0.340207	...	0.348155	0.061728
11	2.802851e-01	0.554700	0.446026	0.169842	...	0.362103	0.277350
12	3.078596e-01	0.522233	0.727860	0.586302	...	0.636364	0.522233
13	5.915607e-01	0.468293	0.572351	0.401478	...	0.635851	0.312195
14	3.970145e-01	0.714286	0.781111	0.262445	...	0.373024	0.206349
15	5.603767e-01	0.697097	0.713395	0.543305	...	0.661903	0.232366
16	6.754470e-01	0.353103	0.567850	0.339791	...	0.605893	-0.050443
17	4.643121e-01	0.697097	0.591099	0.543305	...	0.661903	0.147869
18	-1.060164e-17	0.251976	0.243132	0.462910	...	0.296078	0.461957
19	4.367701e-01	0.075165	0.265930	0.230144	...	0.196267	0.275604
20	8.154101e-01	0.387298	0.664364	0.316228	...	0.573070	-0.086066
21	-3.261640e-01	-0.258199	0.083045	0.553399	...	0.202260	0.717219
22	8.285888e-01	0.676753	0.853923	0.669456	...	0.815591	0.052058
23	-3.261640e-01	-0.172133	0.000000	0.632456	...	0.269680	0.889352
24	5.129359e-01	0.260290	0.552538	0.191273	...	0.407795	-0.190879
25	5.480042e-01	0.453990	0.794990	0.864923	...	0.816638	0.420361
26	4.732485e-02	0.655610	0.512104	0.544862	...	0.538028	0.499512
27	1.430324e-01	0.566139	0.400596	0.554700	...	0.561747	0.603881
28	5.435231e-01	0.566139	0.801193	0.485363	...	0.591312	0.301941
29	4.577037e-01	0.792594	0.691939	0.277350	...	0.413919	0.226455
..
56	5.895063e-01	0.777778	0.643268	0.612372	...	0.783349	0.111111
57	-6.782584e-01	-0.268462	-0.215866	0.205499	...	-0.192775	0.671156
58	-6.098964e-01	-0.185695	-0.059726	0.284287	...	-0.145464	0.639617
59	4.495861e-01	0.655610	0.481980	0.401478	...	0.635851	0.062439
60	6.316139e-01	0.166667	0.643268	0.306186	...	0.391675	0.222222
61	6.377093e-01	0.609272	0.895828	0.426401	...	0.636364	0.058026
62	1.196899e-01	0.838167	0.433676	0.223161	...	0.361593	0.085031
63	6.014168e-01	0.560112	0.765641	0.428746	...	0.694709	0.046676
64	4.893617e-01	0.673722	0.785507	0.644638	...	0.681689	0.084215
65	9.862273e-02	0.585540	0.219718	0.328688	...	0.433200	0.162650
66	1.031421e-01	0.204124	0.328266	0.812500	...	0.533002	0.816497
67	2.864732e-01	0.503953	0.364698	0.231455	...	0.197386	0.041996
68	2.259731e-01	-0.149071	0.403157	0.410792	...	0.350325	0.347833
69	4.004907e-01	0.339683	0.400596	0.554700	...	0.650444	0.377426
70	2.761963e-01	0.780869	0.552538	0.478183	...	0.570914	0.364405
71	6.779192e-01	0.745356	0.863034	0.410792	...	0.583874	0.149071
72	4.073788e-01	0.620174	0.598406	0.455733	...	0.518200	0.206725
73	6.596992e-01	0.754337	0.951817	0.426401	...	0.636364	-0.019342
74	-2.721830e-01	0.190117	0.020383	0.388075	...	0.033095	0.528104
75	6.903591e-01	0.780720	0.690541	0.328688	...	0.586094	-0.032530
76	6.816892e-01	0.522233	0.699866	0.852803	...	1.000000	0.290129
77	-2.526456e-01	0.037037	0.107211	0.612372	...	0.290129	1.000000
78	6.995439e-01	0.722315	0.774403	0.147442	...	0.408651	-0.200643
79	6.816892e-01	0.348155	0.615882	0.772853	...	0.863636	0.116052
80	2.166528e-01	0.050443	0.275813	0.710472	...	0.684922	0.554877
81	7.845274e-01	0.443607	0.876457	0.271653	...	0.529523	-0.021124
82	2.578553e-02	0.612372	0.328266	0.437500	...	0.293151	0.340207
83	5.918492e-01	0.572637	0.351615	0.286910	...	0.407795	-0.156174
84	-6.082991e-02	0.722315	0.503362	0.405465	...	0.251478	0.200643
85	4.340227e-01	0.572637	0.452077	0.573819	...	0.734032	0.190879

	78	79	80	81	82	83 \
0	8.010601e-01	0.463332	0.163033	0.662651	0.543305	5.047526e-01
1	6.587581e-01	0.269202	0.132014	0.467396	0.607054	6.316546e-01
2	8.571804e-01	0.631008	0.280806	0.828621	0.343536	5.458910e-01
3	-3.470028e-01	-0.016186	0.417436	-0.100172	0.151838	-3.920737e-01
4	5.316095e-01	0.413919	0.068539	0.559690	0.693375	4.243967e-01

5 4.782609e-01 0.502956 0.637630 0.297537 0.589768 5.076300e-01
6 6.995439e-01 0.681689 0.216653 0.784527 0.025786 5.918492e-01
7 7.223151e-01 0.348155 0.050443 0.443607 0.612372 5.726371e-01
8 7.744031e-01 0.615882 0.275813 0.876457 0.328266 3.516153e-01
9 1.474420e-01 0.772853 0.710472 0.271653 0.437500 2.869095e-01
10 2.809003e-01 0.290129 0.218588 0.063372 0.476290 1.214685e-01
11 6.010025e-01 0.217262 0.377742 0.474561 0.594445 4.764629e-01
12 4.400862e-01 0.500000 0.500520 0.562618 0.586302 2.446773e-01
13 6.426846e-01 0.489116 0.566934 0.676632 0.401478 5.265725e-01
14 7.739091e-01 0.298419 0.108093 0.733309 0.612372 4.239002e-01
15 6.637355e-01 0.661903 0.393196 0.662651 0.659728 6.235179e-01
16 6.376296e-01 0.684922 0.541985 0.700081 0.247121 5.435768e-01
17 5.264109e-01 0.661903 0.393196 0.518072 0.543305 5.047526e-01
18 2.730095e-01 0.493464 0.629171 0.215573 0.694365 4.131969e-01
19 2.986089e-01 0.314027 0.193369 0.442993 0.092057 3.169459e-01
20 7.460038e-01 0.674200 0.429806 0.785409 0.197642 6.048584e-01
21 -3.730019e-01 0.269680 0.507952 -0.049088 0.158114 -3.629150e-01
22 7.332434e-01 0.815591 0.354507 0.742283 0.478183 7.073171e-01
23 -3.730019e-01 0.134840 0.586098 -0.147264 0.079057 -3.629150e-01
24 5.076300e-01 0.652473 0.307239 0.564135 0.478183 5.609756e-01
25 4.554497e-01 0.816638 0.603053 0.623360 0.401571 3.545066e-01
26 2.706040e-01 0.317925 0.368507 0.284898 0.544862 8.776208e-02
27 3.271443e-01 0.295656 0.548312 0.344425 0.346688 1.060992e-01
28 7.769678e-01 0.591312 0.479773 0.818009 0.589369 5.304959e-01
29 7.769678e-01 0.236525 0.068539 0.688849 0.589369 5.304959e-01
..
56 6.019293e-01 0.696311 0.453990 0.443607 0.612372 6.767530e-01
57 -4.605469e-01 -0.245350 0.264072 -0.331756 -0.041100 -6.289018e-01
58 -3.353264e-01 -0.145464 0.252911 -0.247127 0.113715 -4.930126e-01
59 6.426846e-01 0.489116 0.566934 0.462959 0.315447 4.388104e-01
60 5.417363e-01 0.522233 0.302660 0.760469 0.306186 4.685213e-01
61 6.286946e-01 0.568182 0.184402 0.761189 0.346451 3.262363e-01
62 4.869686e-01 0.076125 0.071692 0.242489 0.357057 1.536648e-01
63 5.562939e-01 0.585018 0.360237 0.665544 0.171499 1.968183e-01
64 6.082991e-01 0.681689 0.369584 0.496334 0.567282 5.129359e-01
65 2.467176e-01 0.356753 0.369207 0.092768 0.507972 3.200610e-01
66 -7.372098e-02 0.373101 0.432461 0.155230 0.250000 -6.370671e-17
67 4.095142e-01 0.296078 -0.171592 0.359288 0.694365 6.493095e-01
68 -1.793172e-17 0.350325 0.338384 0.425115 -0.273861 -3.492151e-01
69 4.498235e-01 0.561747 0.753929 0.473584 0.346688 4.243967e-01
70 5.076300e-01 0.326236 0.307239 0.445370 0.478183 2.682927e-01
71 8.075729e-01 0.467099 0.203030 0.765207 0.410792 4.889012e-01
72 6.719412e-01 0.518200 0.431714 0.495204 0.759555 7.167259e-01
73 8.173030e-01 0.545455 0.184402 0.827379 0.319801 3.534227e-01
74 -1.144372e-01 0.132381 0.182213 -0.228916 0.620920 2.078393e-01
75 6.696620e-01 0.433200 0.014768 0.649374 0.328688 5.029530e-01
76 4.086515e-01 0.863636 0.684922 0.529523 0.293151 4.077954e-01
77 -2.006431e-01 0.116052 0.554877 -0.021124 0.340207 -1.561738e-01
78 1.000000e+00 0.408651 0.091090 0.846835 0.368605 6.204367e-01
79 4.086515e-01 1.000000 0.684922 0.529523 0.373101 5.709136e-01
80 9.108994e-02 0.684922 1.000000 0.239754 0.247121 1.654364e-01
81 8.468349e-01 0.529523 0.239754 1.000000 0.155230 3.859873e-01
82 3.686049e-01 0.373101 0.247121 0.155230 1.000000 6.694555e-01
83 6.204367e-01 0.570914 0.165436 0.385987 0.669456 1.000000e+00
84 3.043478e-01 0.157174 -0.091090 0.114437 0.626628 1.692100e-01
85 2.820167e-01 0.489355 0.354507 0.267222 0.382546 4.146341e-01

84 85
0 5.721858e-01 0.267222
1 3.723415e-01 0.483030
2 3.584573e-01 0.303273
3 1.455173e-01 -0.101649
4 6.951817e-01 0.424397
5 3.043478e-01 0.507630
6 -6.082991e-02 0.434023
7 7.223151e-01 0.572637
8 5.033620e-01 0.452077
9 4.054654e-01 0.573819
10 7.624437e-01 0.190879
11 2.003342e-01 0.389833
12 5.029557e-01 0.407795
13 -3.382550e-02 0.526572
14 5.675333e-01 0.245416
15 4.348612e-01 0.385987
16 -9.108994e-02 0.543577
17 4.348612e-01 0.504753
18 2.730095e-01 -0.059028
19 -1.357313e-01 -0.246514
20 -4.662524e-02 0.362915
21 1.865010e-01 -0.120972
22 3.948233e-01 0.609756
23 9.325048e-02 0.120972
24 1.692100e-01 0.170732
25 4.190137e-01 0.543577
26 6.426846e-01 0.526572
27 2.862513e-01 0.530496
28 3.271443e-01 0.318298

```
29 4.498235e-01 0.530496
.. ...
56 4.815434e-01 0.572637
57 1.696752e-01 -0.251561
58 3.353264e-01 -0.203005
59 1.691275e-01 0.614335
60 0.000000e+00 0.156174
61 5.029557e-01 0.489355
62 6.185817e-01 0.495142
63 3.540052e-01 0.328031
64 6.691290e-01 0.512936
65 3.876991e-01 0.320061
66 2.948839e-01 0.382546
67 4.095142e-01 0.295141
68 -1.793172e-17 0.069843
69 -8.178608e-02 0.636595
70 5.076300e-01 0.463415
71 4.845437e-01 0.349215
72 4.031647e-01 0.561758
73 5.658252e-01 0.462168
74 5.264109e-01 -0.148457
75 3.876991e-01 0.502953
76 2.514778e-01 0.734032
77 2.006431e-01 0.190879
78 3.043478e-01 0.282017
79 1.571737e-01 0.489355
80 -9.108994e-02 0.354507
81 1.144372e-01 0.267222
82 6.266283e-01 0.382546
83 1.692100e-01 0.414634
84 1.000000e+00 0.282017
85 2.820167e-01 1.000000
```

[86 rows x 86 columns]

In [37]: