```
Python 3.6.6 |Anaconda, Inc.| (default, Jun 28 2018, 11:27:44) [MSC v.1900 64 bit (AMD64)]
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IPython 7.0.1 -- An enhanced Interactive Python.

In [1]: runfile('D:/EEE Year4/Representation-and-Distance-Metrics-Learning/k_nn_main.py',
wdir='D:/EEE Year4/Representation-and-Distance-Metrics-Learning')
[1175, 981, 852, 1441, 468, 576, 286, 1260, 617, 867, 927, 1253, 114, 546, 263, 1172, 5,
908, 1080, 774, 451, 1171, 1109, 67, 439, 1034, 421, 1126, 637, 605, 169, 958, 811, 1079,
718, 1391, 1356, 654, 554, 1129, 680, 1284, 117, 1150, 1296, 734, 1395, 844, 1379, 1278,
501, 1082, 1299, 334, 318, 288, 1396, 729, 855, 285, 478, 906, 943, 803, 538, 210, 821,
1252, 667, 1056, 527, 1196, 891, 940, 658, 724, 1024, 1267, 683, 492, 847, 1163, 231, 771,
393, 1059, 482, 986, 819, 480, 1358, 996, 766, 431, 348, 976, 1211, 311, 539, 4]
-----Baseline Simple NN------
Computing KNN ranklist...

Accuracy for Simple Nearest Neighbour @rank 1 :   47.0000%
Accuracy for Simple Nearest Neighbour @rank 5 :   66.8571%
Accuracy for Simple Nearest Neighbour @rank 10 :   74.9286%
mAP for Simple Nearest Neighbour :   50.6899%
Computation Time: 433.80239057540894 seconds


-----PCA MMC-----
mmc iter: 0, conv = 0.022361, projections = 10000
mmc iter: 1, conv = 0.011180, projections = 10000
mmc iter: 2, conv = 0.005590, projections = 10000
mmc iter: 3, conv = 0.002795, projections = 10000
mmc iter: 4, conv = 0.001398, projections = 10000
mmc iter: 5, conv = 0.000699, projections = 10000
mmc iter: 6, conv = 0.000349, projections = 10000
mmc iter: 7, conv = 0.000175, projections = 10000
mmc iter: 8, conv = 0.000087, projections = 10000
mmc iter: 9, conv = 0.000044, projections = 10000
mmc iter: 10, conv = 0.000022, projections = 10000
mmc iter: 11, conv = 0.000011, projections = 10000
mmc converged at iter 12, conv = 0.000005
Computing KNN ranklist...

Accuracy for Simple Nearest Neighbour @rank 1 :   47.0000%
Accuracy for Simple Nearest Neighbour @rank 5 :   67.1429%
Accuracy for Simple Nearest Neighbour @rank 10 :   74.9286%
mAP for Simple Nearest Neighbour :   50.7267%
Computation Time: 108.66005825996399 seconds


-----MMC diagonal-----
mmc iter: 0, conv = 0.078272
mmc iter: 1, conv = 0.000000
Computing KNN ranklist...

Accuracy for Simple Nearest Neighbour @rank 1 :   46.7143%
Accuracy for Simple Nearest Neighbour @rank 5 :   67.0000%
Accuracy for Simple Nearest Neighbour @rank 10 :   74.9286%
mAP for Simple Nearest Neighbour :   50.5357%
Computation Time: 435.09690165519714 seconds
```

```
-----PCA_MMC diagonal-----
mmc iter: 0, conv = 0.176305
mmc iter: 1, conv = 0.003142
mmc iter: 2, conv = 0.000000
Computing KNN ranklist...

Accuracy for Simple Nearest Neighbour @rank 1 :   46.4286%
Accuracy for Simple Nearest Neighbour @rank 5 :   67.0000%
Accuracy for Simple Nearest Neighbour @rank 10 :   74.7857%
mAP for Simple Nearest Neighbour :   50.1318%
Computation Time: 106.79551005363464 seconds
```

In [**2**]: