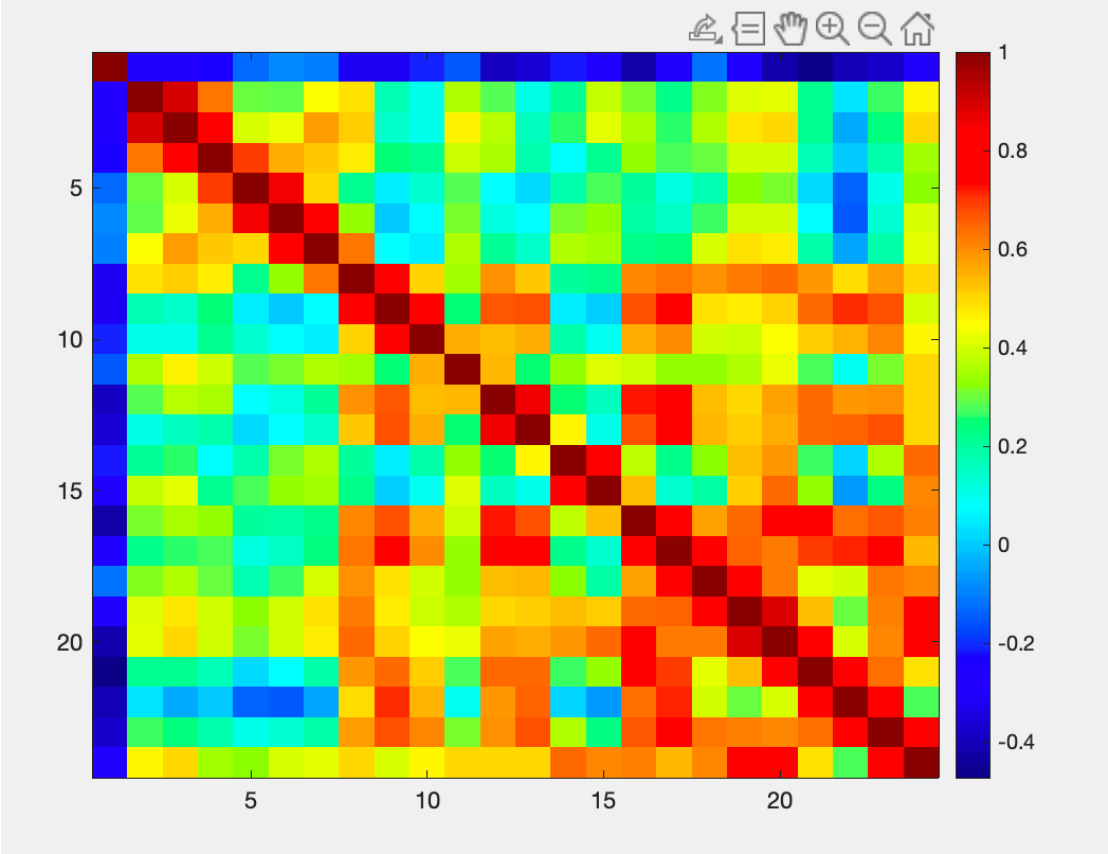
Report_task1. s1817972

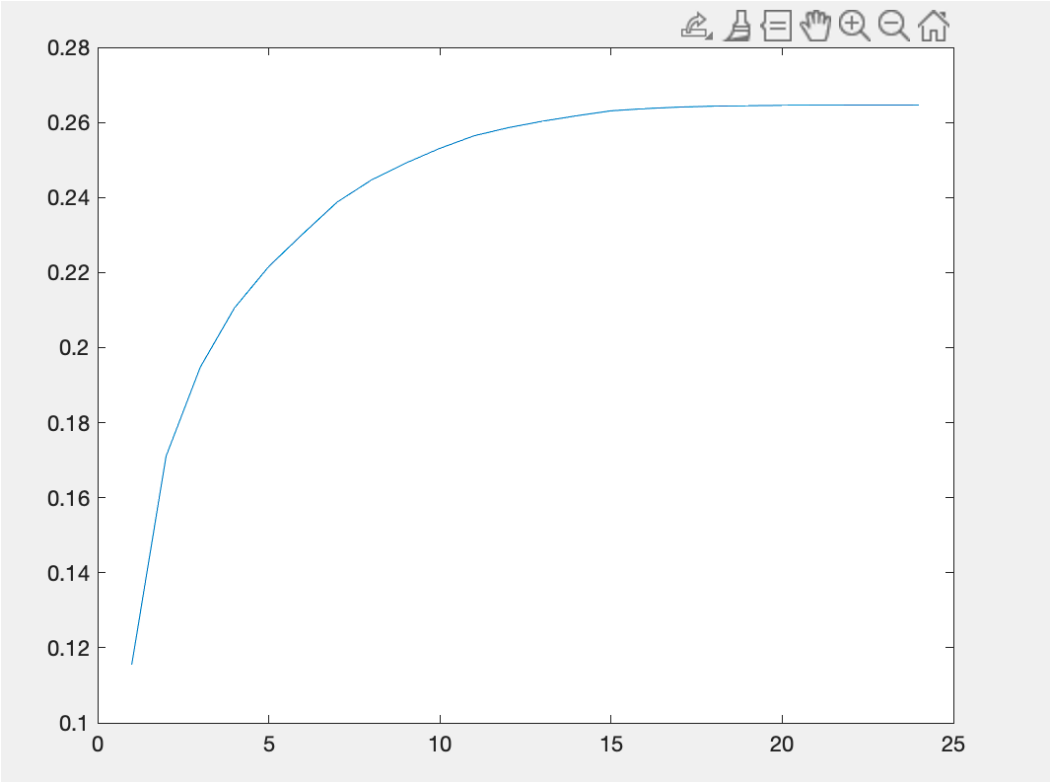
Task1.2



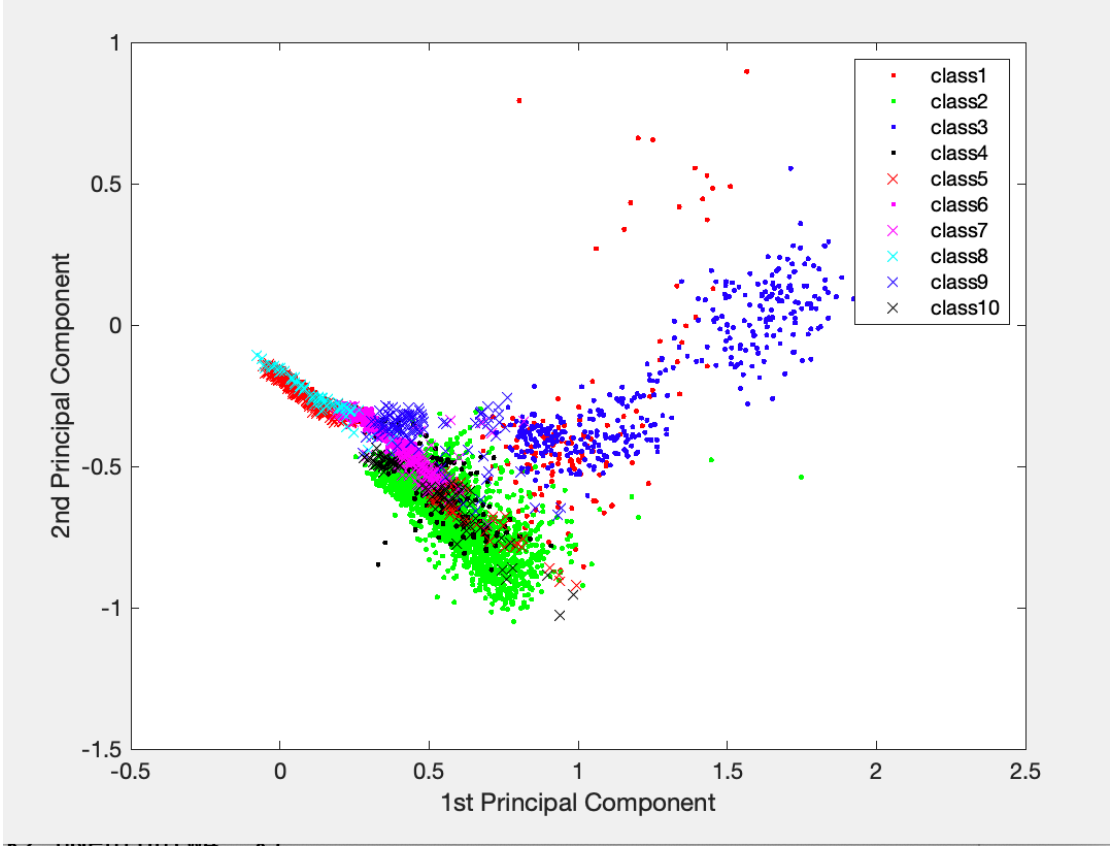
This is the graph of the correlation matrix R. According to this graph, we found that the value of correlation of dataset X is symmetric. The closer to color red, the correlation coefficient is close to 1, which mean positive correlation. On the contrary, the closer to blue, the correlation coefficient is close to -1, which mean negative correlation.

Task1.3

This is the graph of cumulative variance.



This is the graph of all data on 2D-PCA plane.



Task1.4

Covkind1

	1	2	3	4	5	6	7	8	9	10
1	0.0312	2.3041e-...	0	0	0.0434	0	0	0.0059	0	0
2	0	0.5078	4.7170e-...	0	0	0	0	0	0	0
3	0.0012	2.3585e-...	0.0869	0	0	0	0	0	0	0
4	2.3585e-...	0.0129	0	0.0176	0	0.0066	0	0	0	0
5	0	2.3585e-...	0	0	0.0699	0	0	0	0	0
6	0	0	0	0	9.4340e-...	0.1169	0	0	0	0
7	0	0.0012	0	0	2.3585e-...	0	0.0319	0.0033	2.3585e-...	0
8	0	0	0	0	0.0054	0	0	0.0127	0	0
9	0	2.3585e-...	0	0	4.7170e-...	0	0	0	0.0239	2.3585e-...
10	0	0.0092	0	0	0	2.3041e-...	0	0	0	0.0082

This is final confusion matrix of full covariance matrix.

Accuracy = sum(diag(CM)) = 0.9071.

Covkind2

	1	2	3	4	5	6	7	8	9	10
1	0.0174	0.0056	0.0089	4.6626e-...	0.0479	0	0	0	4.6626e-...	0
2	0	0.5076	7.0755e-...	0	0	0	0	0	0	0
3	0.0021	0.0167	0.0690	2.3585e-...	0	0	0	0	2.3041e-...	0
4	9.4340e-...	0.0117	0	0.0195	0	0.0052	0	0	0	0
5	0	0.0103	0	0	0.0596	0	2.3585e-...	0	0	0
6	2.3585e-...	0	0	0	7.0755e-...	0.1169	0	0	0	0
7	2.3585e-...	0.0019	0	2.3585e-...	0.0028	4.6626e-...	0.0298	4.6626e-...	9.4340e-...	0
8	4.7170e-...	0	0	0	0.0174	0	0	2.3585e-...	0	0
9	0.0042	0.0014	0	0	0	7.0211e-...	0	0	0.0183	2.3585e-...
10	0	0.0092	0	0.0014	0	0.0019	2.3585e-...	0	0	0.0049

This is final confusion matrix of diagonal covariance matrix.

Accuracy = sum(diag (CM)) = 0.8432.

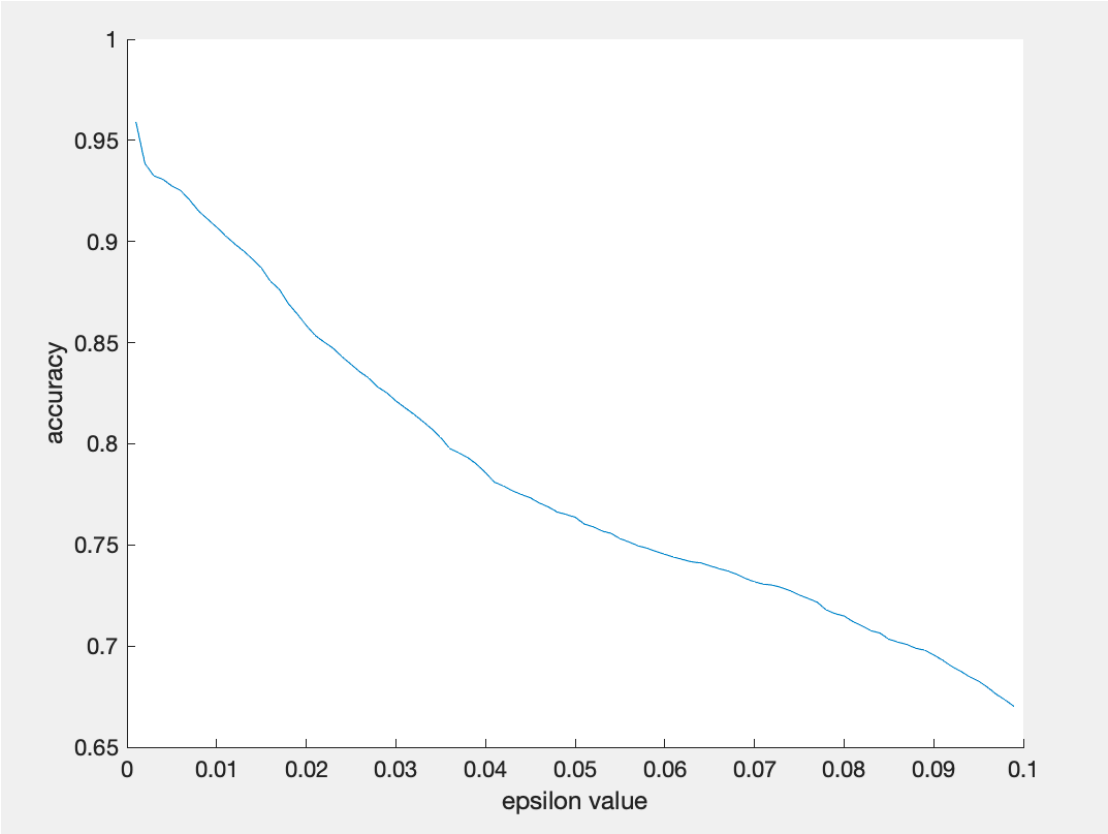
Covkind3

	1	2	3	4	5	6	7	8	9	10
1	0.0397	0.0023	0.0068	0	0.0314	0	0	0	4.6626e-...	0
2	0	0.5078	4.7170e-...	0	0	0	0	0	0	0
3	7.0755e-...	0.0030	0.0840	2.3585e-...	0	0	0	0	2.3041e-...	0
4	0.0019	0.0120	0	0.0188	0	0.0047	0	0	0	0
5	0	0.0089	0	0	0.0610	0	2.3585e-...	0	0	0
6	7.0755e-...	2.3585e-...	0	0	4.7170e-...	0.1164	0	0	0	0
7	0.0019	7.0755e-...	0	4.7170e-...	4.7170e-...	0	0.0310	0.0021	2.3585e-...	0
8	0.0021	0	0	0	0.0110	0	0	0.0049	0	0
9	0.0049	4.7170e-...	0	0	0	0	0	0	0.0188	7.0755e-...
10	0	0.0110	0	4.7170e-...	0	0	2.3585e-...	0	0	0.0059

This is final confusion matrix of shared covariance matrix. The accuracy is 0.8883.

Accuracy = sum(diag (CM)) = 0.8883.

Task1.5



This is the graph between epsilon value in x-axis and accuracy in y-axis. According to the graph, we found that the accuracy will straightly decrease when the number of epsilon value increase and accuracy decrease in a high rate between 0 – 0.-1 of epsilon value.