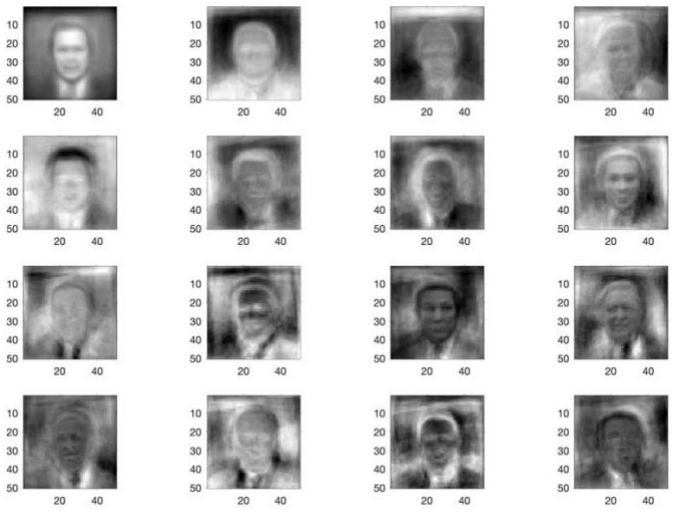
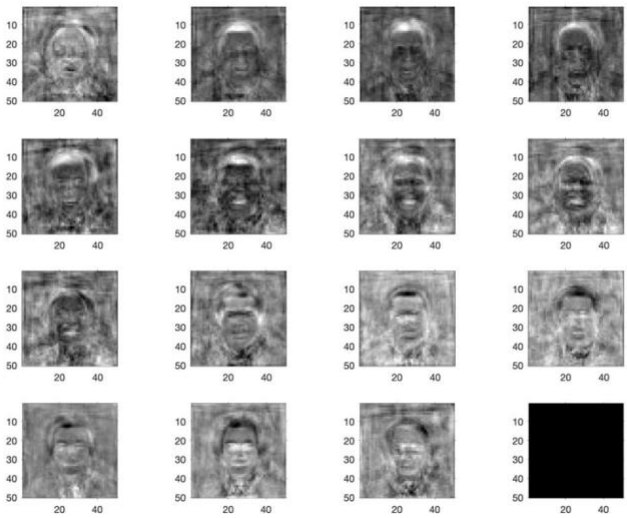
a. Using the training data, compute the PCA of the data and make a 4×4 plot showing the 16 principal components of largest variance.
b. Compute the PCA projections of the test images and use the Gaussian classifier above to classify them. Compute the average probability of classification error for each face class and the average error across all classes.
c. Compute the PCA projections of the test images and use the Gaussian classifier above to classify them. Compute the average probability of classification error for each face class and the average error across all classes.

a.



b.



c. PCA error rate

Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Overall
0.16	0.1	0.2	0.06	0.04	0.08	0.1067

Q5.d LDA error rate

Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Overall
0.18	0.06	0	0.04	0	0.08	0.06

Q5.e PCA+LDA error rate k = 30

Person 1	Person 2	Person 3	Person 4	Person 5	Person 6	Overall
0.22	0.16	0.14	0.04	0.04	0.08	0.06