CS663: Assignment 4 - Q1

Pranav Sankhe
Kalpesh Krishna
Mohit Madan

Implemented a mini face recognition system using PCA.

Results on ORL Face Dataset

Applying PCA by computing eigenvectors of the covariance matrix

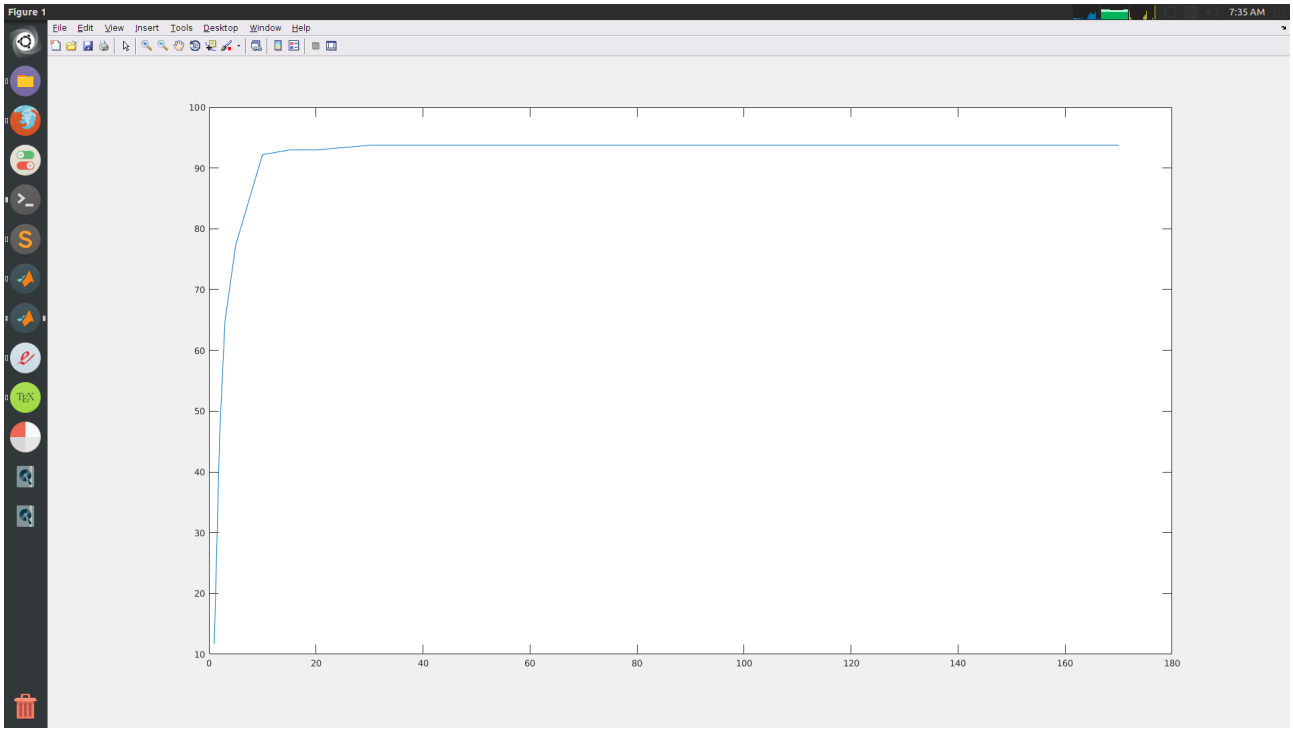

Figure 1: Recognition rate vs k(no. of principal components)

Applying PCA using Singular Value Decomposition (SVD)

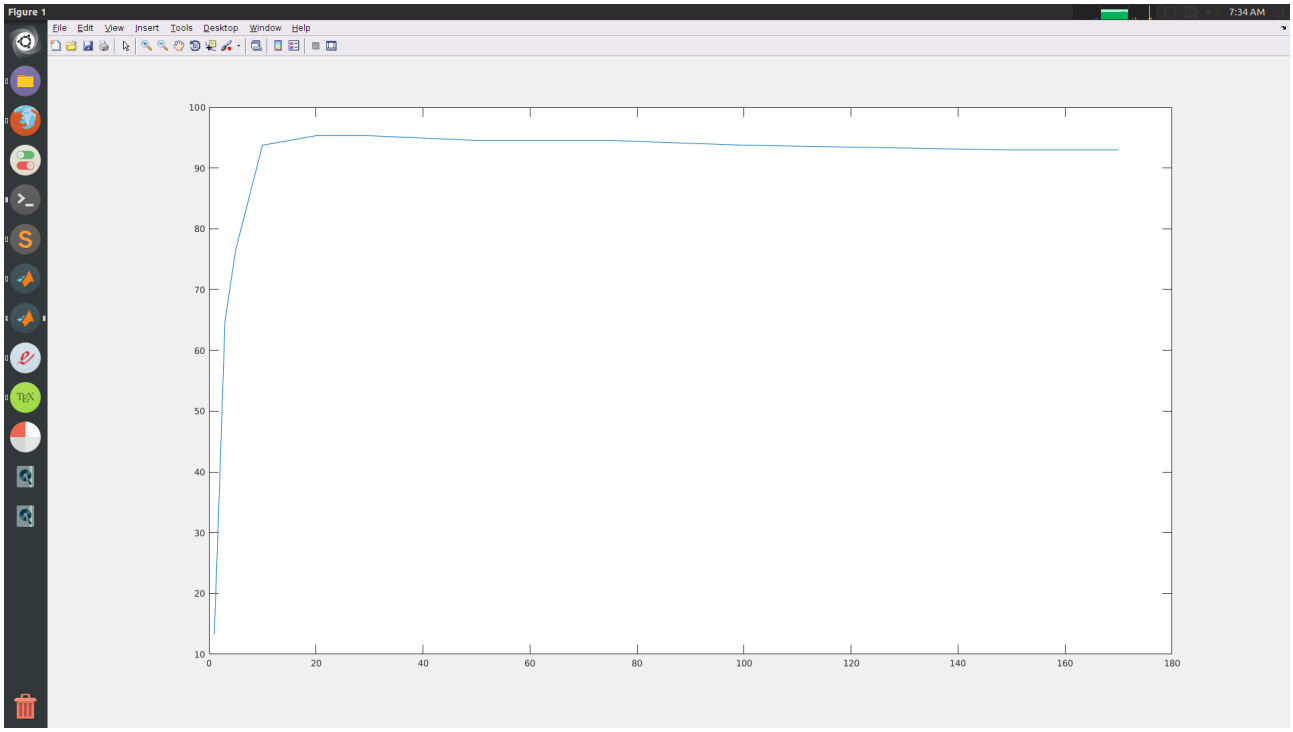

Figure 2: Recognition rate vs k(no. of principal components)

Results on Yale Dataset

Applying PCA using Singular Value Decomposition (SVD) comparing the results if we ignore the first three eigenvectors which correspons to maximum variance in the dataset in order to analyse the effect of ilumination conditions and how can we mitigate these effects. We cam clearly see that by ignoring the first three eigenfaces, the recognition accuracy has increasesd.

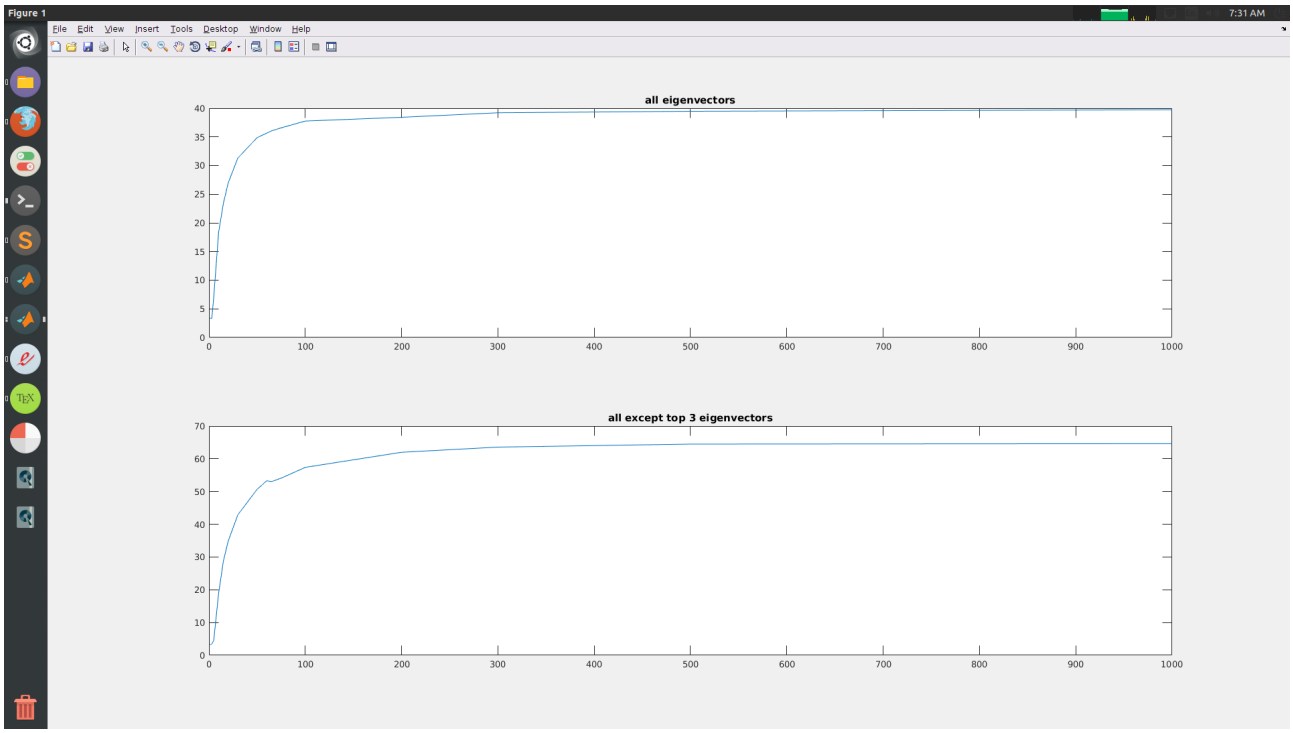

Figure 3: Recognition rate vs k(no. of principal components)

Note: All the datasets directories were in the main folder of the assignement alongside the folders of individual questions.