IE406 LAB ASSIGNMENT 6

Given a set of face images use PCA to obtain dimensionality reduction. Use the following steps :

1. Load the Data matrix faceimages.mat given to you. There are 400 face images of size 112×92.
2. Mean subtract the data and use it to obtain sample covariance matrix.
3. Find the eigenvectors and eigenvalues of the covariance matrix.
4. Use the eigen vectors as rows of the transformation matrix A.
5. Then obtain 10304 \* 10304 low dimensional representation of X: Y = A X.
6. Now, reconstruct back any of the image by taking 50, 100, and 400 features of Y.
7. Calculate reconstruction error(l1 norm) for all the three cases.