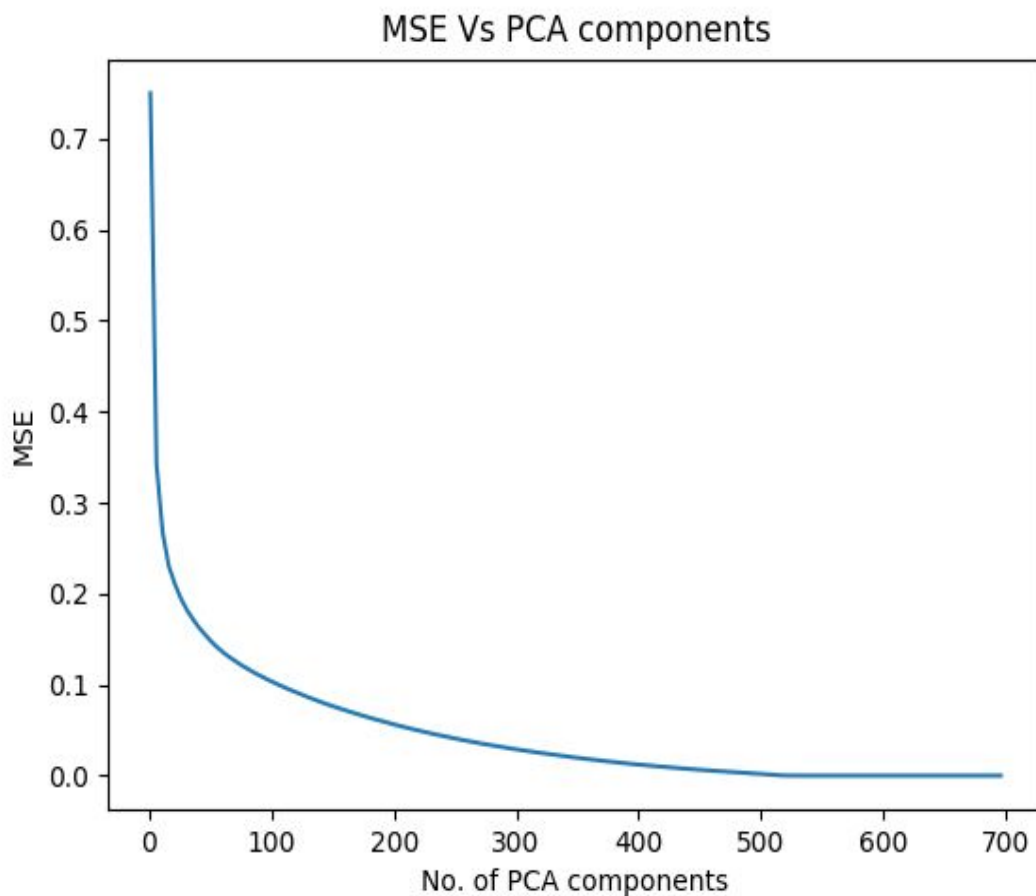


PCA Report

Mohit Sharma(20161031)

Graph between MSE over all train images Vs No. of Principal components

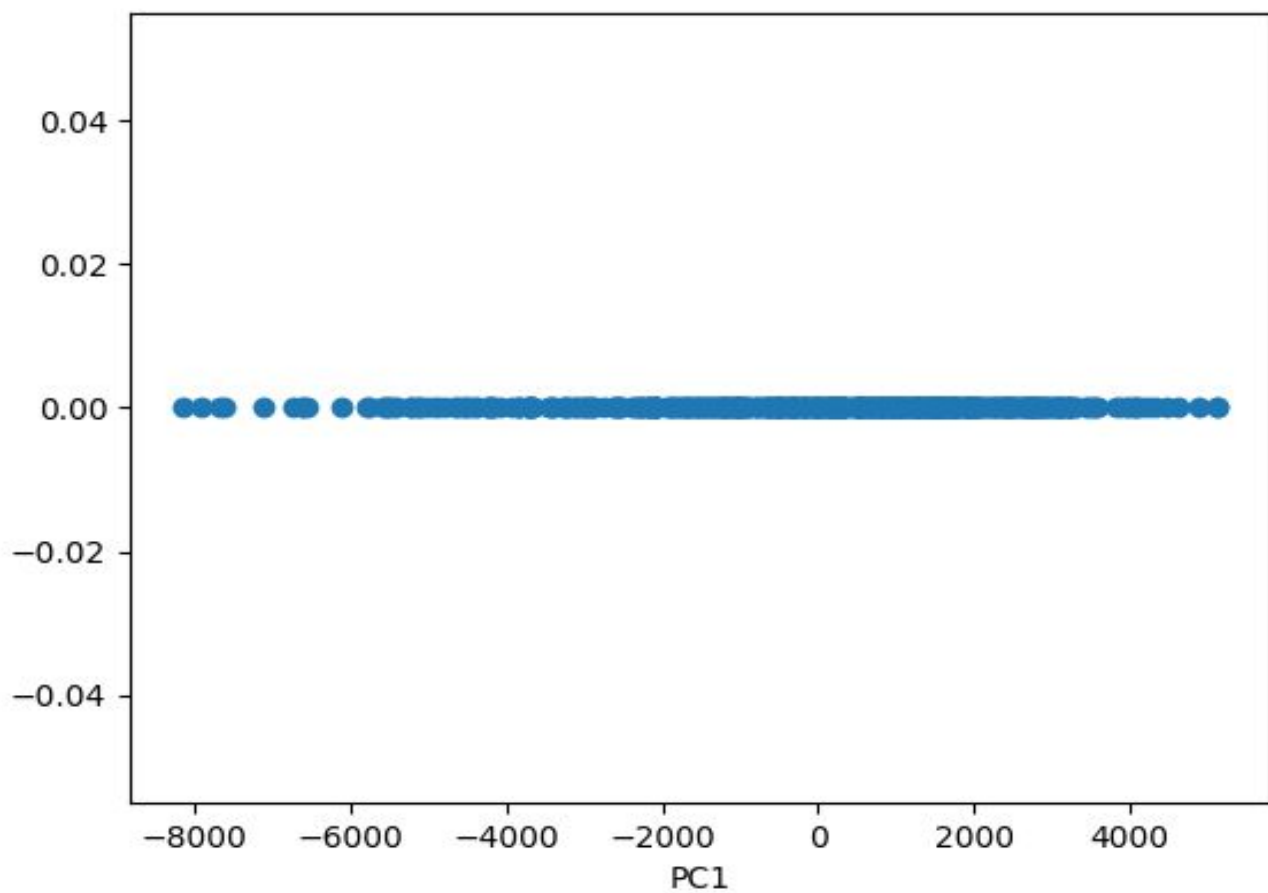


As clear from the above graph, the minimum square error(**MSE**) will decrease as we increase the number of PCA components and will ultimately reach to 0 when there are sufficient component to store whole image information . In the current PCA implementation, no. of PCA components is varied from 1 to 700 with an increment of 5 components per step.

The clustering of images in 1D, 2D and 3D are shown using the following scatterplots:

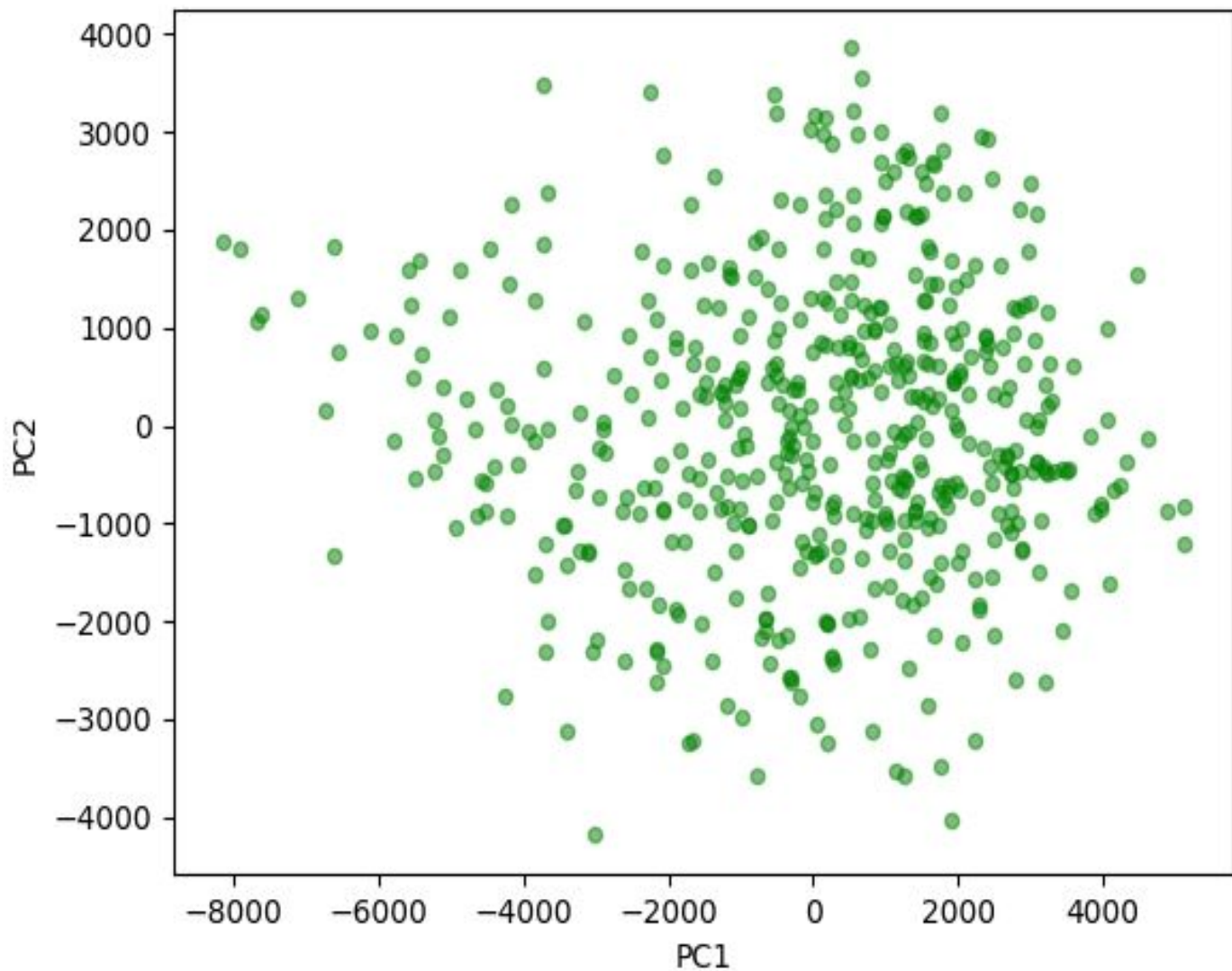
1D Scatterplot(1 PCA component)

Generated by plotting 1st column of Coefficient matrix along PC1 axis



2D Scatterplot(2 PCA components)

Generated by plotting 1st, 2nd column of Coefficient matrix along PC1 and PC2 axis
resepctively



3D Scatterplot(3 PCA components)

Generated by plotting 1st, 2nd, 3rd column of Coefficient matrix along PC1, PC2 and PC3 axis respectively

