CS215 Assignment-2

210050115 Patil Vipul Sudhir

210050119 Hari Prakash Reddy

1 Dimensional reduction

1.1 Function to convert 784 to 84 dimensions

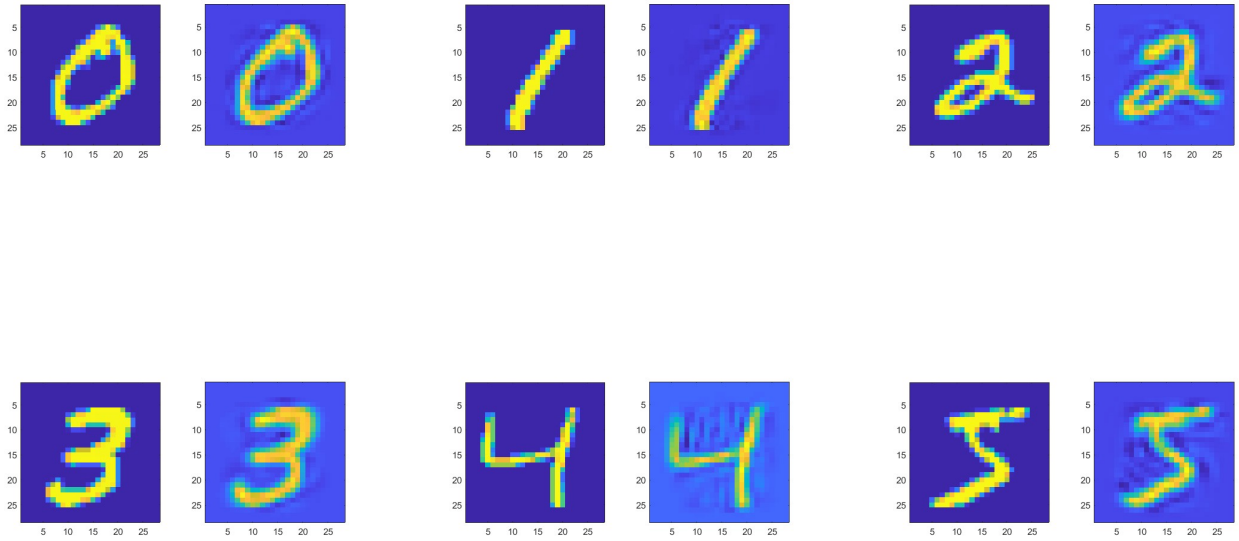
Instructions to run the code:
Run the q5a.m, with the argument which should give the information of the image(image number) to be converted from 784 dimensions to 84 dimensions.

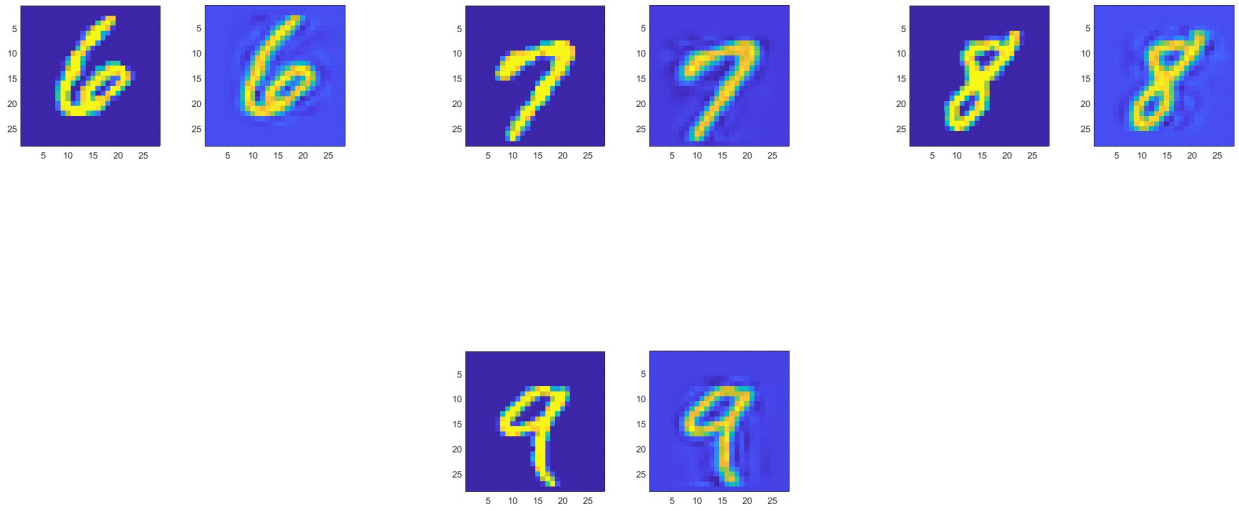
1.2 Algorithm for construction image back from 84 dimensions

Algorithm 1: Algorithm for regenerating/reconstructing the image using those 84 coordinates

function Q5
//M is the 84*1 matrix to be restructured
F=(Q(:,1:84,digit)); // Taking 84 eigenvectors with highest eigenvalues
Y=F*M + mean(:,digit); //Adding mean to the recalculated part to reconstruct the image
I=reshape(Y,[],28);//This reshapes the reconstructed matrix into 28*28
Image(I); //For plotting the image
end

1.3 Images





Instructions to run the code:

Run the q5b.m, it gives 10 figures each consisting of 2 images- original and the reconstructed image of each digit.