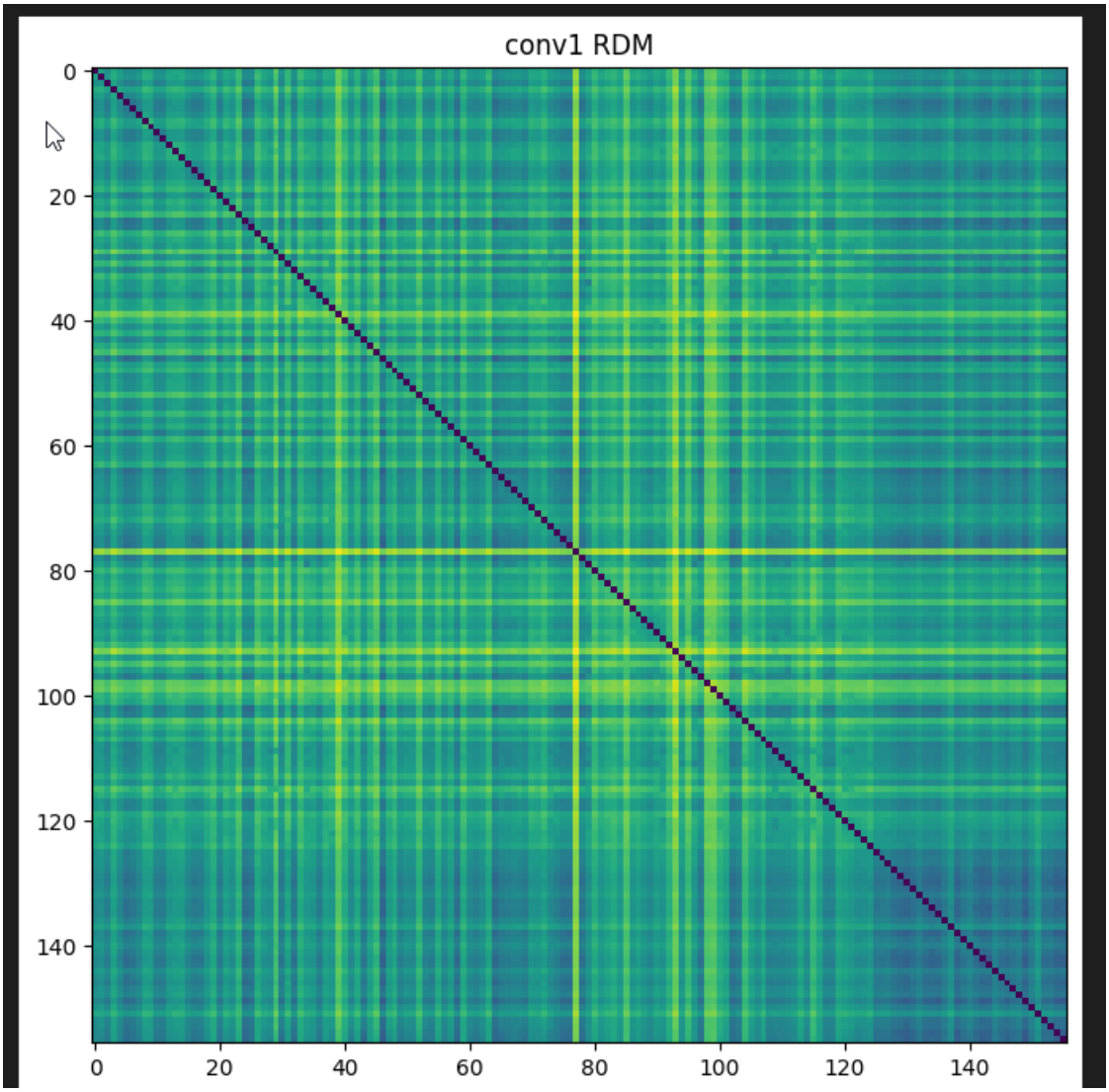
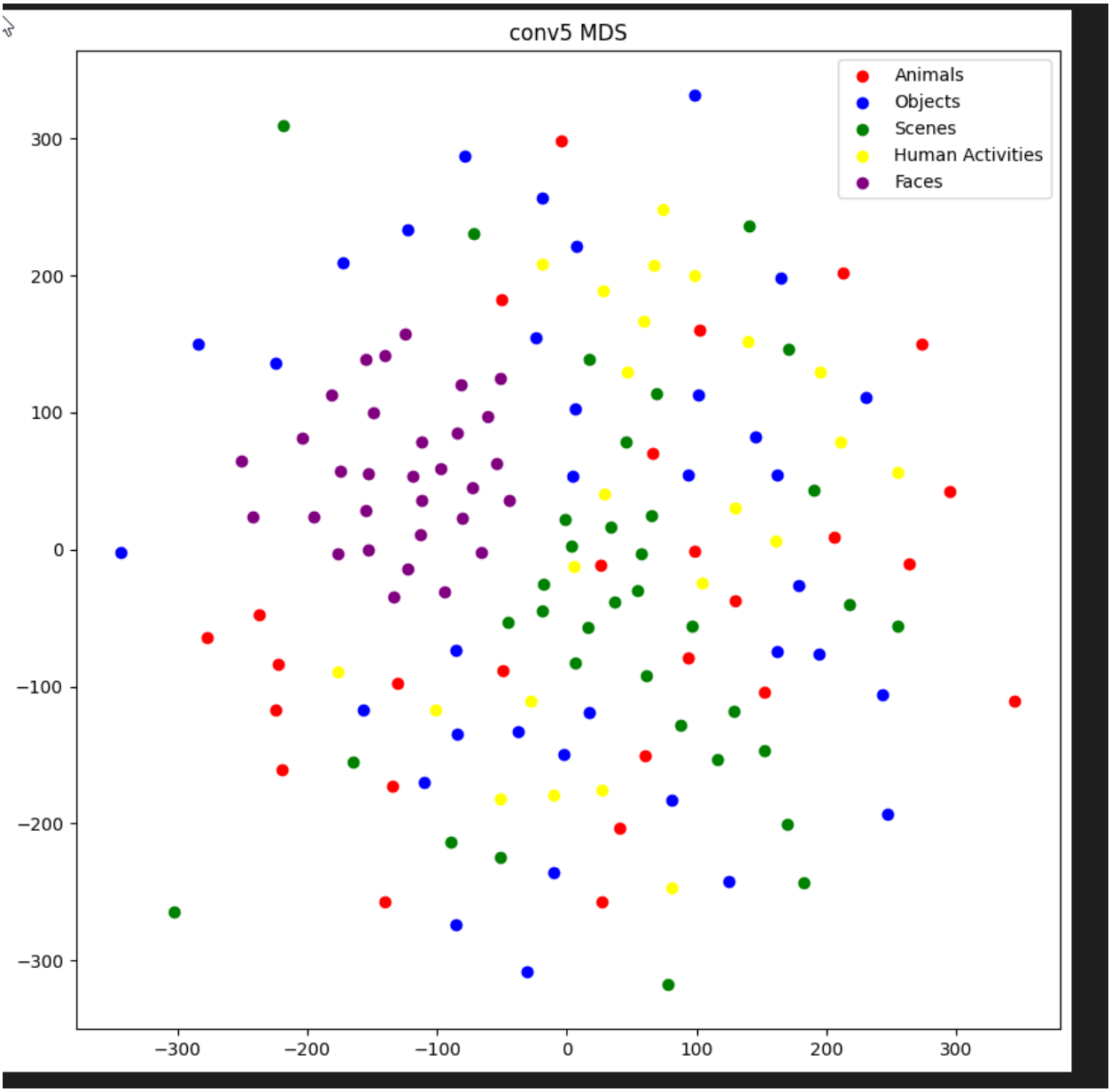
Assignment 4 report

I ran all of the images through the pre-trained model of alex net and use hooks to determine each activation vector from features and classifier. Then I define my RDM for each layer looping through each activation vector and find the Euclidean distance and store it as a dictionary. Then I plotted RDM of each layer and their MDS visualization.



The RDM each layer roughly looks the same in human eyes but note that the bottom right squares(where the faces are) have darker shade meaning they are very similar(darker shade means more similar and vice versa). The line runs down the diagonal is from image compare to itself which has the Euclidean distance of 0.



A sample plot of conv5 MDS look at the 5 different groups of object and the top 3(animals, object and scene) are very spread out while yellow cluster a bit tighter but still not very similar. The best results here is with faces where all of the faces are cluster within a blob and you can see the clustering of the purple dots from conv1-conv5 and it is more significant within the fc6 and fc7 layer. Alex net seems to be very good at classifying faces thus the clustering of dots.

PS: Please check out the ipynb file to look at all of the graphs, they are pretty similar so no point putting on this document.