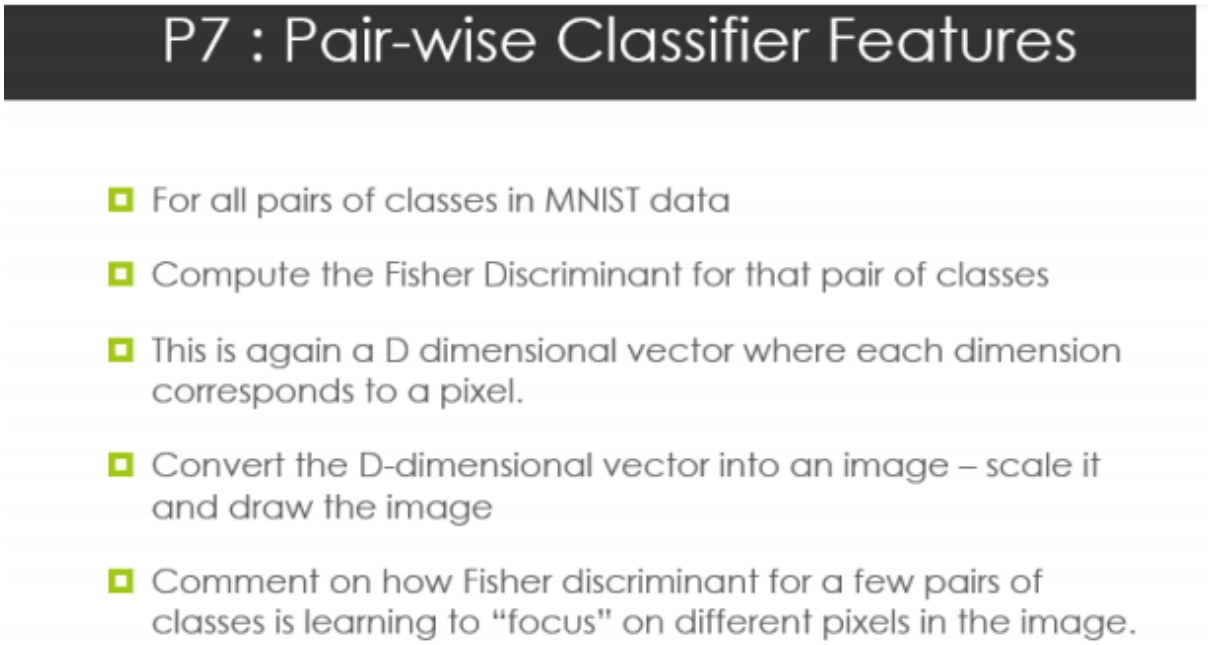
FAQ's DMG2 Assignment

Q7.



You start this question with 45 Pairs of Dataset, and each task you need to do 45 Times.

Each image is 28 pixels in height and 28 pixels in width, for a total of 784 pixels in total. Each pixel has a single pixel-value associated with it, indicating the lightness or darkness of that pixel, with higher numbers meaning darker. This pixel-value is an integer between 0 and 255, inclusive

Here every Pixel corresponds to one dimension.

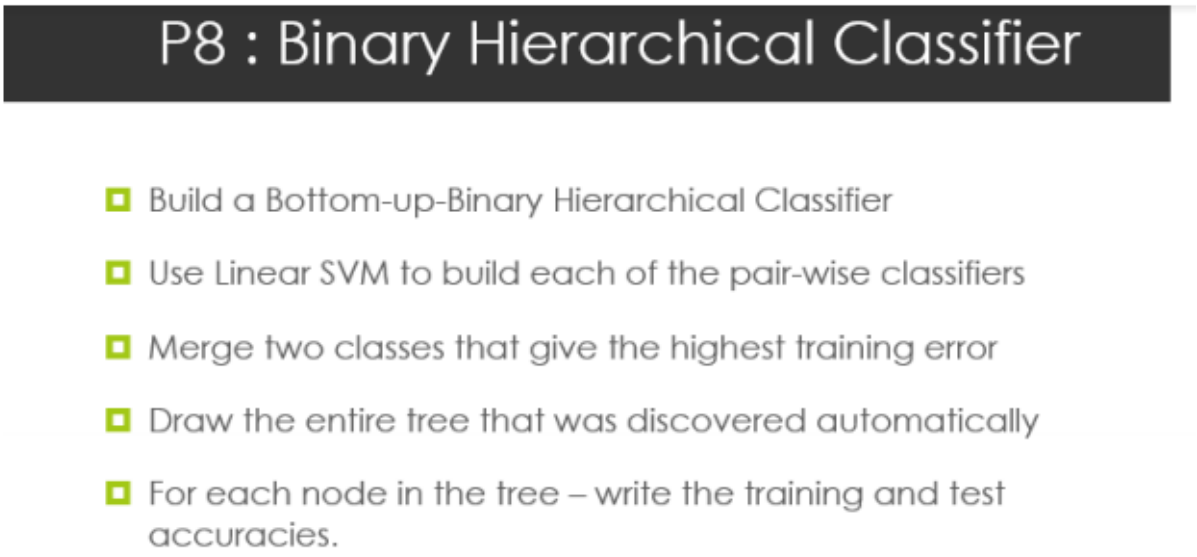
For pair 1.

Step1: First you remove all the pixels (Dimensions), where the sum of variance of both the classes is equal to 0. Because as per the formula for Fisher discriminant, if the sum of variance of both classes are equal then it will bring error to system.

Step2: Then the Data will come down by fewer Dimension from 784. Then you run a fisher Discriminant analysis on the given data. After running the model then you bring back those pixels that were taken in first step.

Step3: When you run the model you will have the D -Dimensional vector, which you need to project as a single image. Ones you project that image you will find the areas where it is blured and where it is dark. You need to comment on the part where the dimensions are least separable.

Q8.



So in this question you start with 45 pairs of dataset.

Step1: You build an SVM model, on each pair. One with least accuracy which means highest training error will get merged.

Suppose 1 and 7 has the maximum training error amongst all the pairs, so it will get merged, then all the pairs containing these two classes like (1vs2, 1v3,… ,7vs9) will disappear, and a new class will be formed that will be 1_7 the merged class.

Then all the pairs barring the class 1 and 7 will remain including new pairs with the merged class.

1_7 vs 2, 1_7 vs 3, ……. 1_7 vs 6, 1_7vs8, 1_7 vs9.

Now again amongst the remaining pair whosoever has the maximum training error, will get merged and the process will continue until we get the final merged class.

You need to build a tree of this process.