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07.11.2020

DASC521 HW#1

First I've tried implementing the homework using Python. Even though I was able to generate the random data and confusion matrix successfully, I've failed drawing discriminant lines by evaluating the score function of every point on a mesh grid. However, I knew that my approach to the problem was correct. So I think that, since I don't know Python very well, the problem had something to do with the syntax. Then I decided to transfer my work over to MATLAB which I am more familiar with.

After generating multivariate random normal numbers, I have used the functions I wrote to find the estimate means, estimate covariances and prior probabilities of each data class. Then, for each point in a mesh grid (x_1 - x_2 plane), I evaluated the posterior probabilities of that point being in a class. That point belongs to the class with the highest posterior probability. After, that I have determined and circled the mislabeled data points by comparing their predicted class with their actual class. I have implemented my functions using the formulas from the chapter 5 of the textbook. Code can be tested for different random points by changing the seed at the top of the .m file. I have commented my codes to make it more readable.

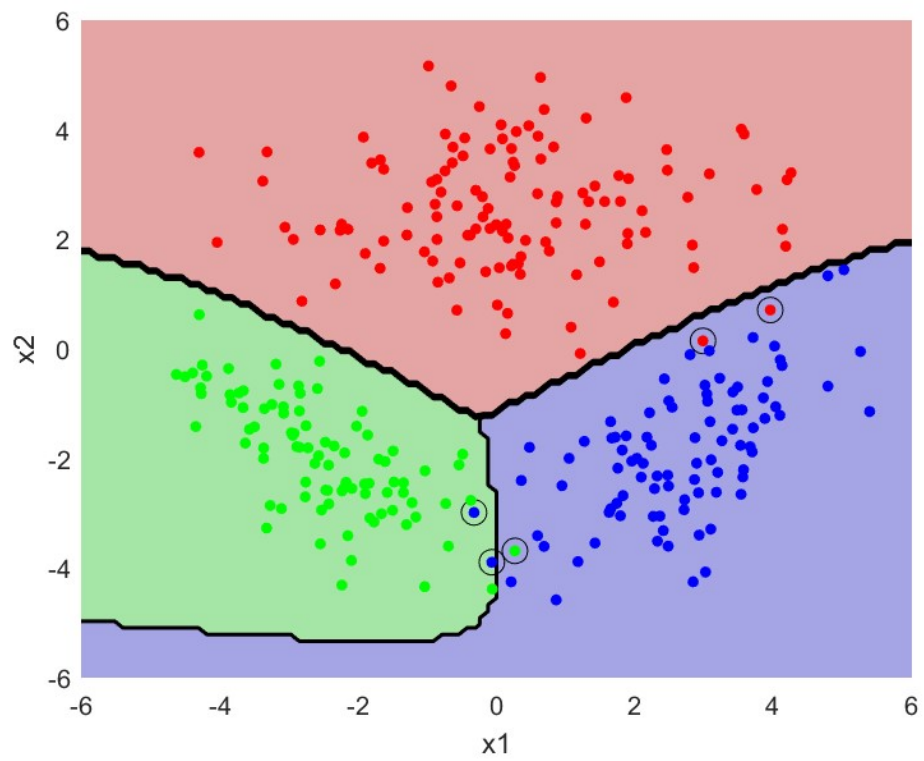


Figure 1 Example output of the implementation