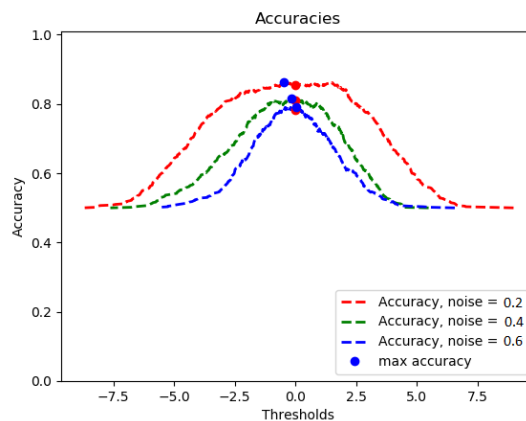


Lab exercise 02 (home). Conclusions

I have implemented linear and quadratic discriminant analysis for moon (banana) datasets both in matlab and python. I tried to play with different levels of noise and number of points.

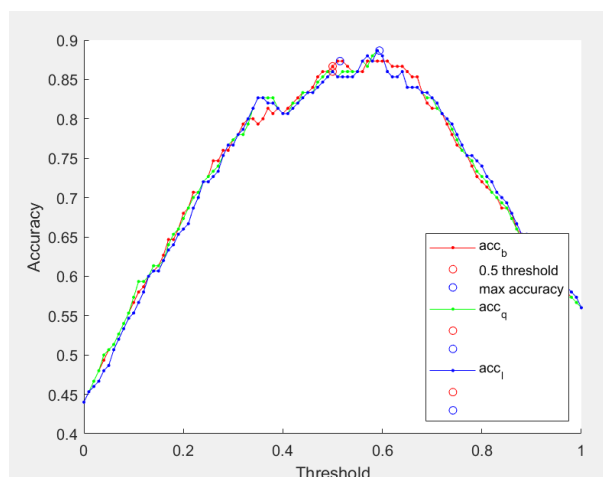
Basically, I found out two important things:

- Increasing noise level for dataset makes average accuracy lower. Noise level below 0.2 gives accuracy about 0.88. Then it starts to decrease. You can see the change of accuracy depending on the noise level at the picture.



Maximum accuracy values are 0.86333, 0.81667 and 0.79167 respectively.

- Last time we discussed in the class that linear discriminant classifier is almost never used in practice, because for most of datasets boundary between classes is much more complex than just a line. Nevertheless, for banana shaped datasets it works not so bad. Moreover, it gives almost the same results as quadratic classifier. I also compared the results with Bayes classifier. You can see some of results at the picture.



Here linear and quadratic classifiers give maximum accuracy 0.88667, Bayes classifier – 0.87333.