Homework 5

Philip Hasse

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Solution to Problem (1e):

(i) When you increase the value of n_colors the quality of the image increases because there is less compression. When you decrease the value of n_colors the quality decreases, however, you can get some interesting and funny results.

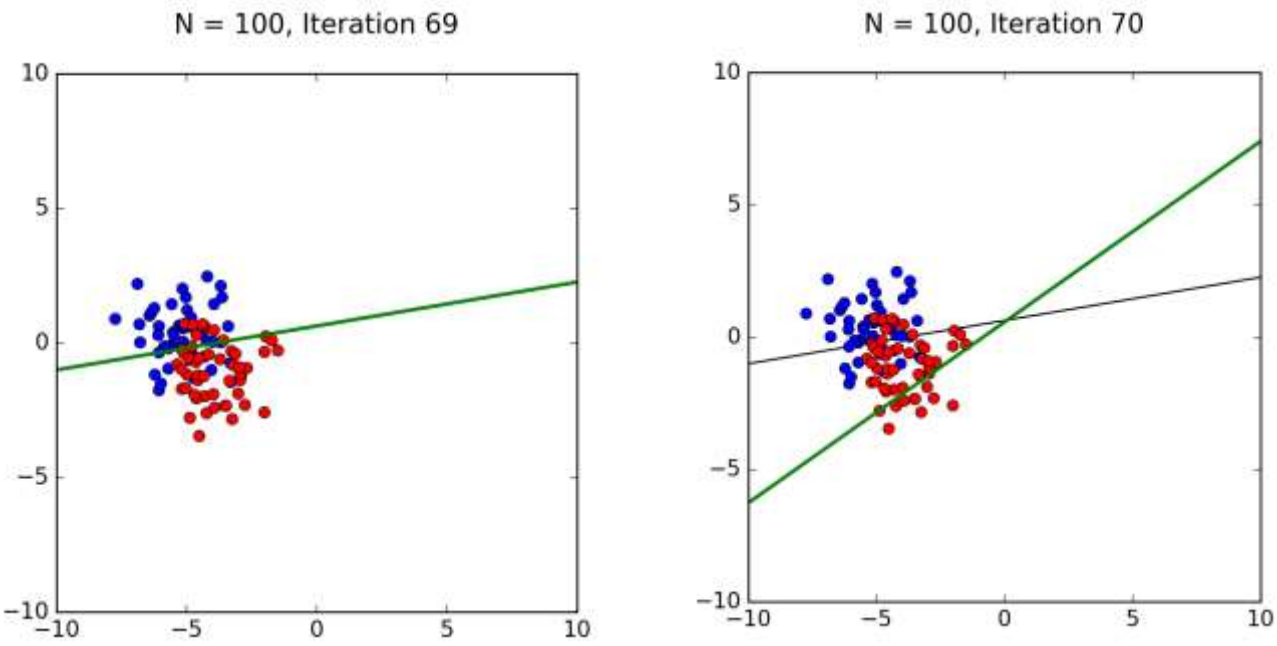
(ii) This is useful for compressing photos or videos to make the files smaller but keep it similar to the original. The compression just makes two similar colors and makes them the same color in order to achieve the smaller file size. This is also an easy way to put a black and white filter on a photo or any other filter that may come up.

(iii) The resulting picture is funny at the end because I put the value of n_colors so low that it's now just combining almost anything and the picture looks somewhat ridiculous. For example, I made the value of n_colors 4 and little bit of light that shined on my forehead now is just a white blob combined with the original light source. This adds a little comedy to the picture.

Solution to Problem (2d):

As the number of neurons increases the more accurate the network gets, and computation time increases. As the number of neurons gets larger, the improvement in results decreases because of the noise in the data making it very difficult to achieve and extremely accurate network. However, overall this is a very good way to train and test data because in the end my test score was around .88, which isn't a terrible feat.

However, in the next iteration the Pocket algorithm finds a line with a better w and replaces the black line with the new best w.



Although this method takes more time to compute the best w, finding a better solution to the problem is more important than giving up a little time.

Solution to Problem (1):