TELECOM Paris

SI221

TP3 : k-means

Auteur :
Paul Fayard, Pablo Pevsner

Professeur encadrant :
Aslan Tchamkerten

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K-means

Exercise 2

Question 1

The size of the image is (390, 755, 3).

Question 2

m is the number of samples selected in the image. n is the number of colors that we want at the end.

Question 3

It enables to have only one array, of size (w*h,3), rather than a matrix with rows and columns of pixels. In fact, we don't care about the positions of the pixels in this algorithm, so we compact the rows and the colums into one row.
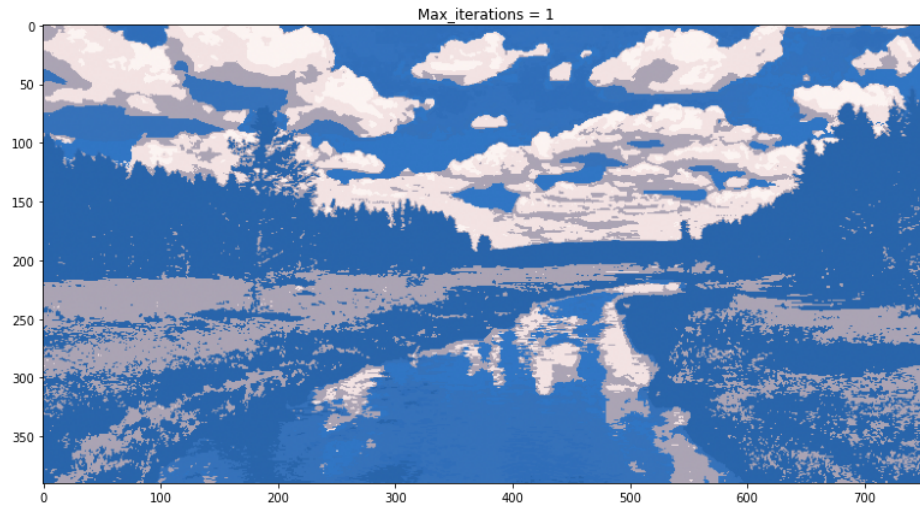
Question 5
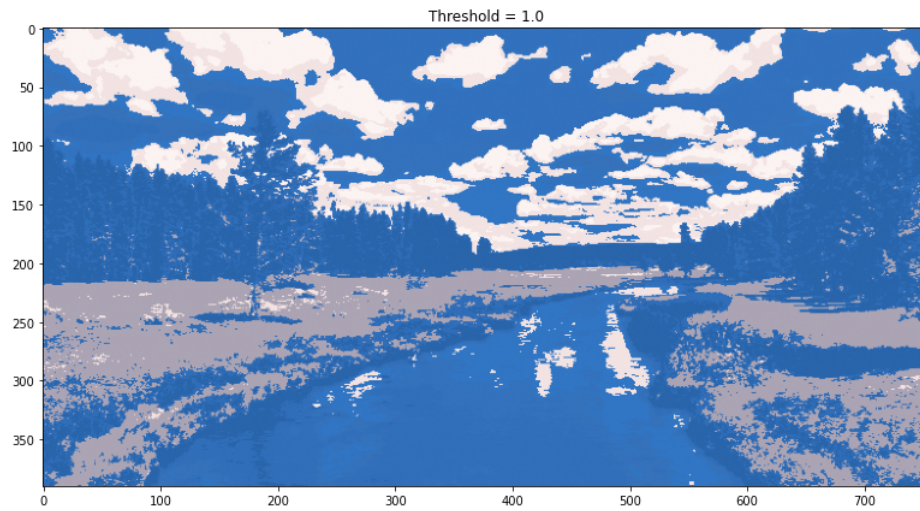
When the threshold is small, the algorithm runs during all the iterations (10 here).
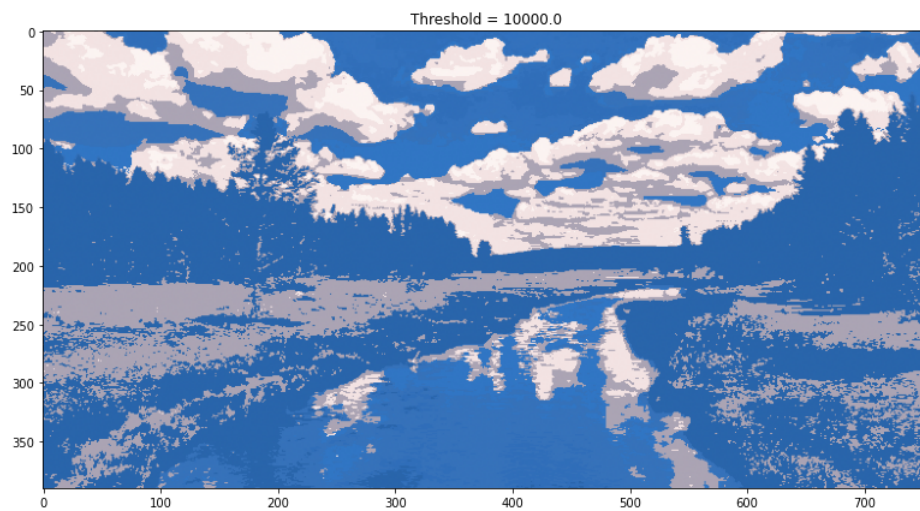
When, it's higher the algorithm has less time to converge. We see in the water colors that were not supposed to be here, like gray. It's faster but less effective.

When max_iterations equals 1, we are in the same case than with a high threshold, the algorithm has no time to converge and the colors are further from those of the real image.
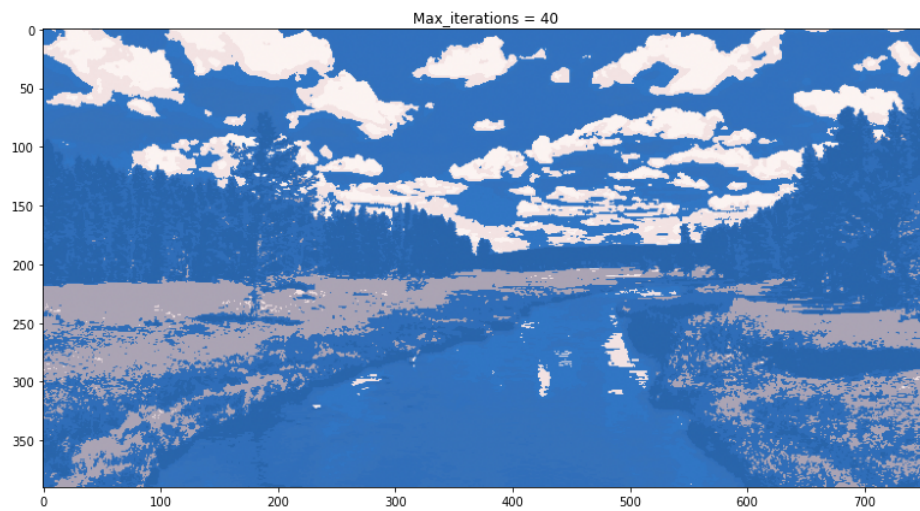
When it is 40, the algorithm converges, the delta inertia becomes very small, and the final image is closer to the real one.