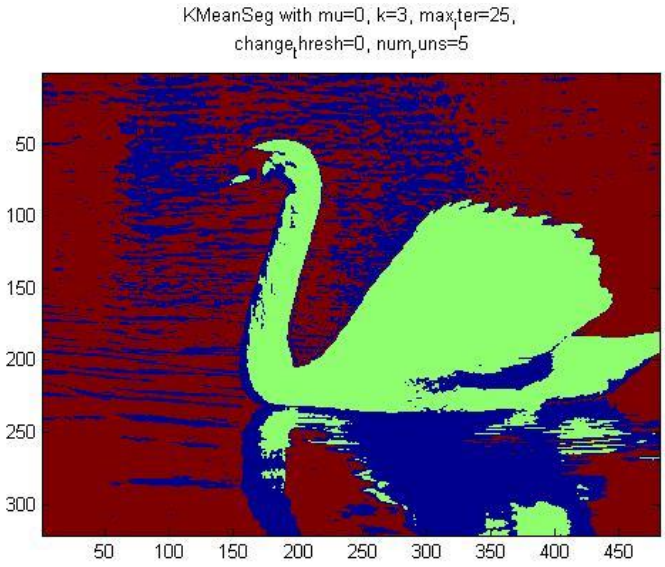
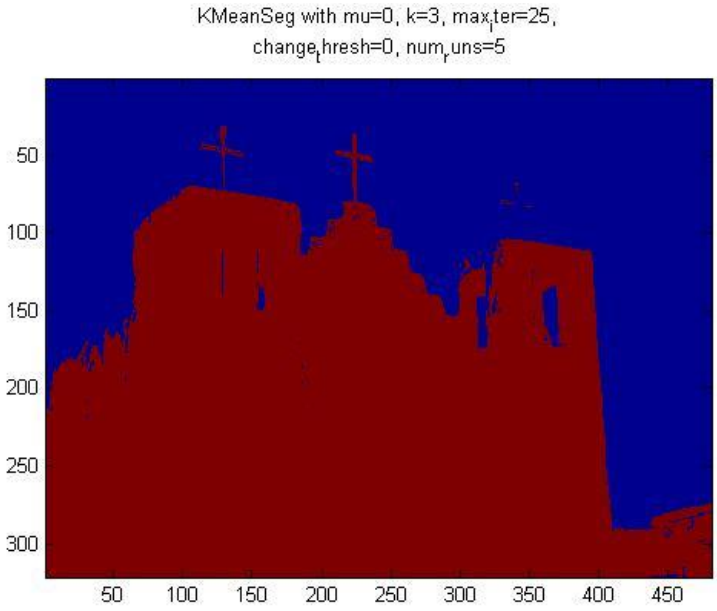
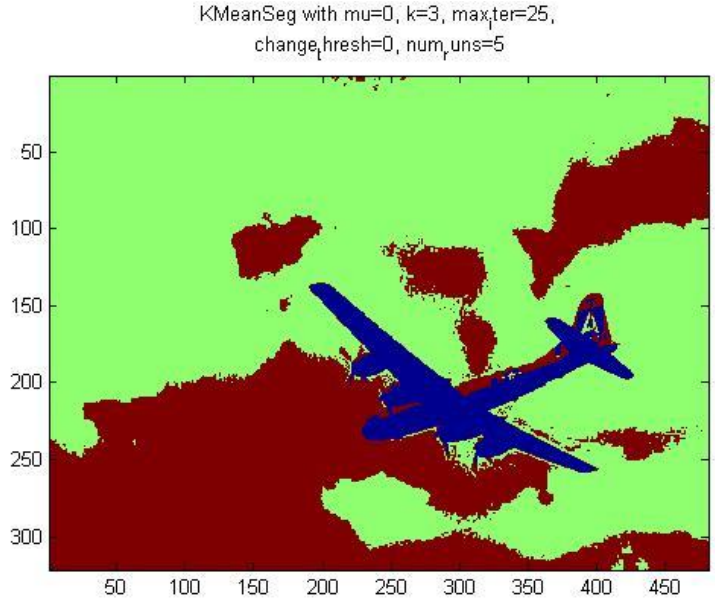
# Report Computer Vision EX1:

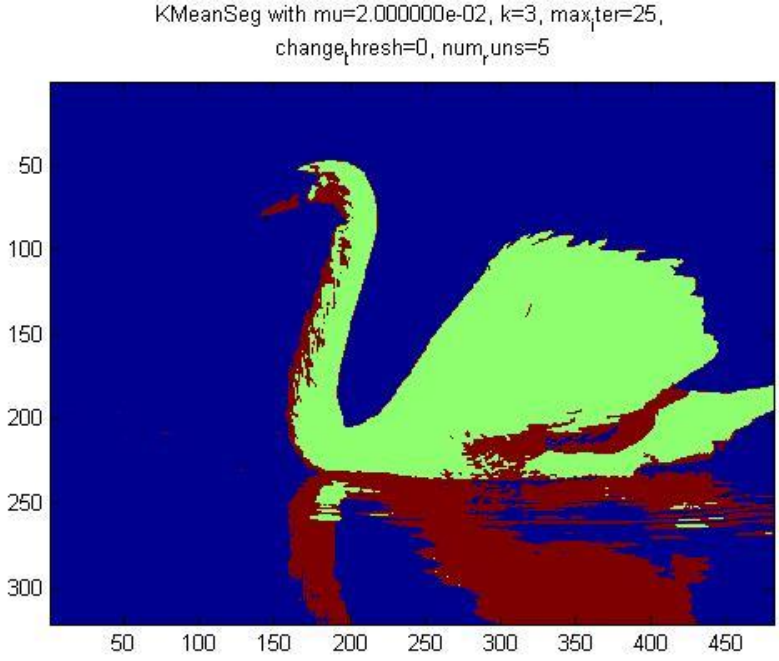
## Lirane Bitton 200024677

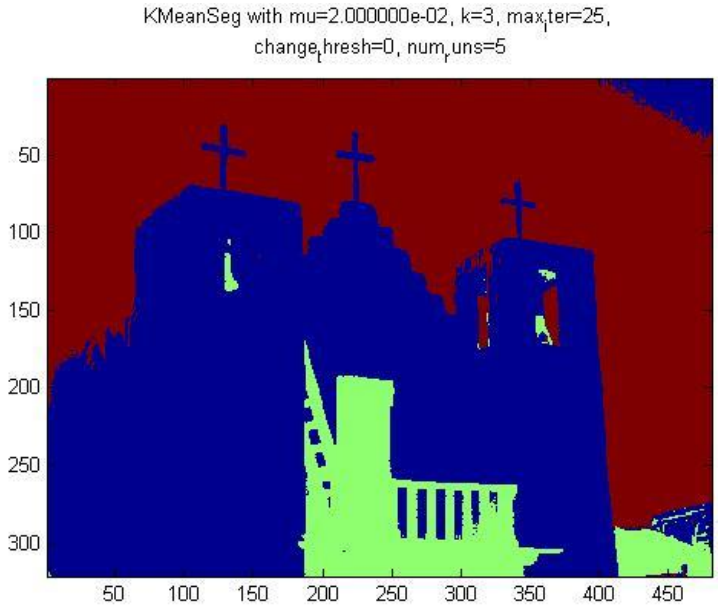
***Part 2 :***

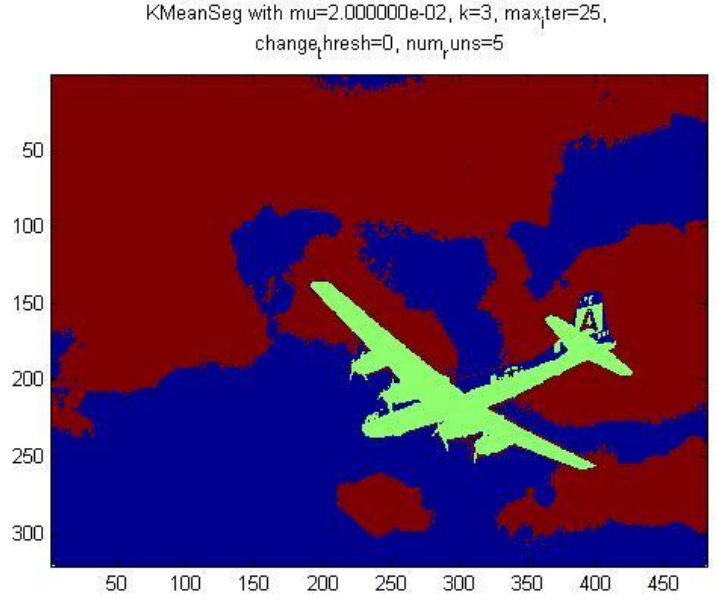


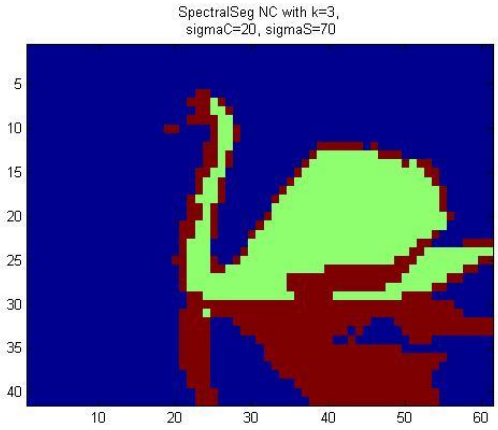

KMeanSeg with mu=0, k=3, max_iter=25,
change_thresh=0, num_runs=5
50
100
150
200
250
300
50
100
150
200
250
300
350
400
450

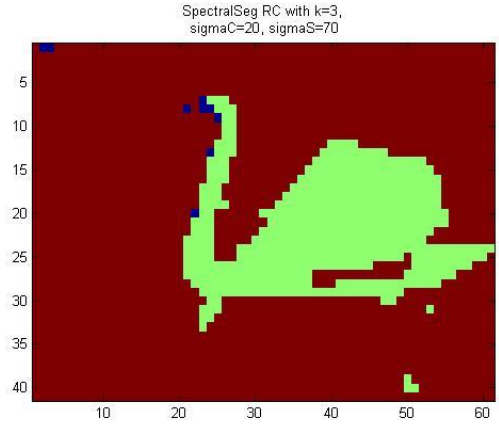

KMeanSeg with mu=2.000000e-02, k=3, max_iter=25,
change_thresh=0, num_runs=5
50
100
150
200
250
300
50
100
150
200
250
300
350
400
450

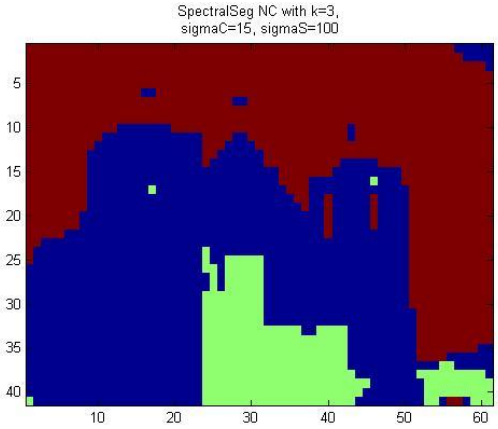

KMeanSeg with mu=2.000000e-02, k=3, max_iter=25,
change_thresh=0, num_runs=5
50
100
150
200
250
300
50
100
150
200
250
300
350
400
450

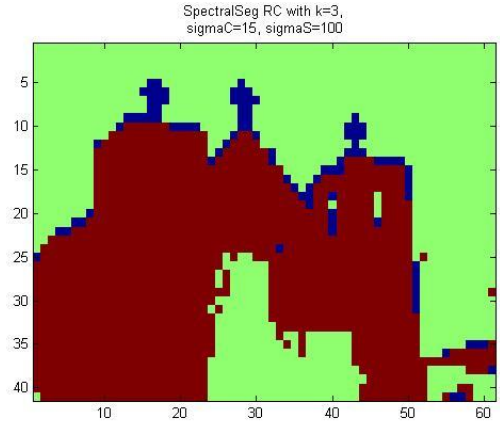

KMeanSeg with mu=2.000000e-02, k=3, max_iter=25,
change_thresh=0, num_runs=5
50
100
150
200
250
300
50
100
150
200
250
300
350
400
450

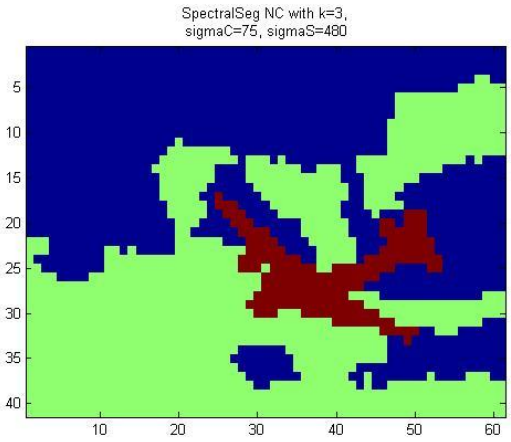
***Part 4 :***

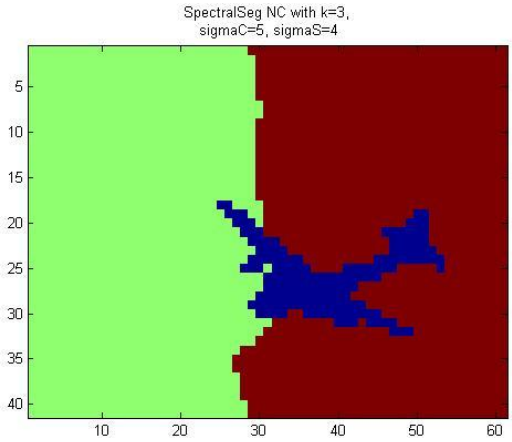

SpectralSeg NC with k=3,
sigmaC=20, sigmaS=70
5
10
15
20
25
30
35
40
10
20
30
40
50
60

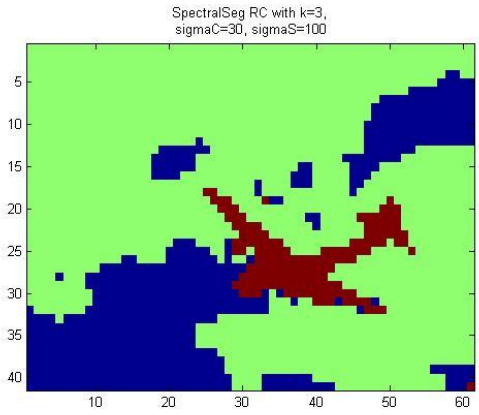

SpectralSeg RC with k=3,
sigmaC=20, sigmaS=70
5
10
15
20
25
30
35
40
10
20
30
40
50
60


SpectralSeg NC with k=3,
sigmaC=15, sigmaS=100
5
10
15
20
25
30
35
40
10
20
30
40
50
60


SpectralSeg RC with k=3,
sigmaC=15, sigmaS=100
5
10
15
20
25
30
35
40
10
20
30
40
50
60

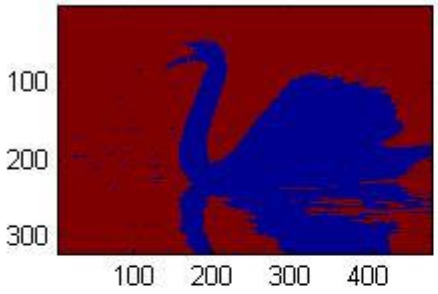

SpectralSeg NC with k=3,
sigmaC=75, sigmaS=480
5
10
15
20
25
30
35
40
10
20
30
40
50
60


SpectralSeg NC with k=3,
sigmaC=5, sigmaS=4
5
10
15
20
25
30
35
40
10
20
30
40
50
60

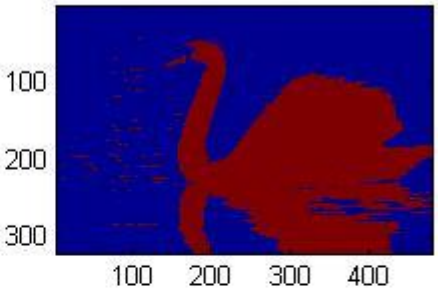

SpectralSeg RC with k=3,
sigmaC=30, sigmaS=100
5
10
15
20
25
30
35
40
10
20
30
40
50
60

***Part 5 :***

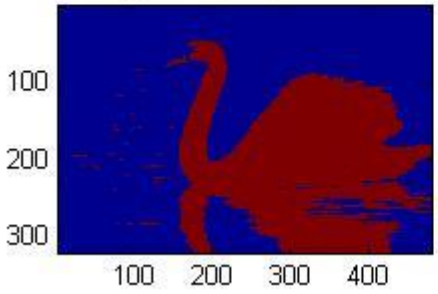
NystormSeg with n=50, k=2, sigmaC=7, sigmaS=600



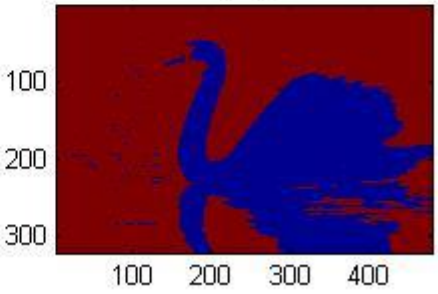

NystormSeg with n=100, k=2, sigmaC=7, sigmaS=600



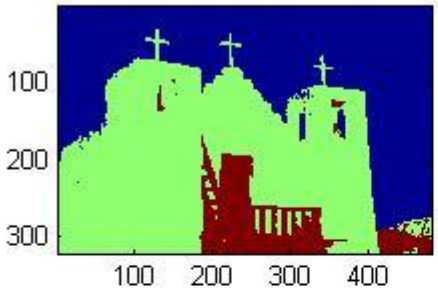

NystormSeg with n=200, k=2, sigmaC=7, sigmaS=600



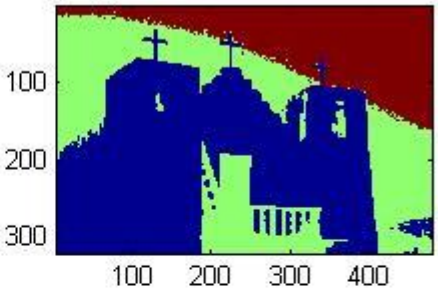

NystormSeg with n=400, k=2, sigmaC=7, sigmaS=600



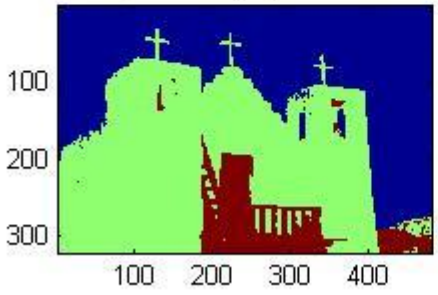

NystormSeg with n=50, k=3, sigmaC=10, sigmaS=600



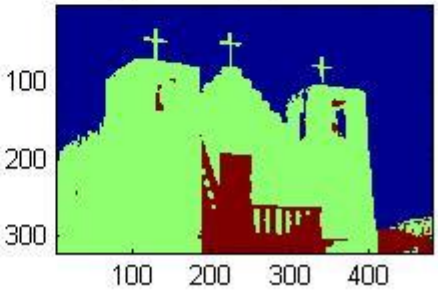

NystormSeg with n=100, k=3, sigmaC=10, sigmaS=600

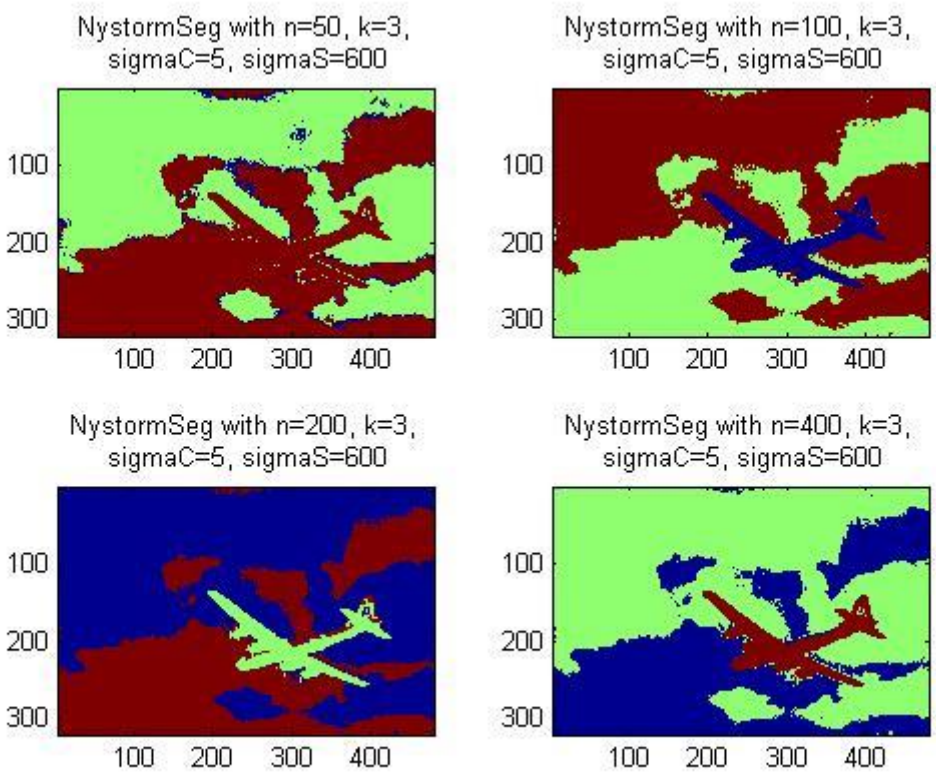



NystormSeg with n=200, k=3, sigmaC=10, sigmaS=600




NystormSeg with n=400, k=3, sigmaC=10, sigmaS=600






In terms of running time there is a significant difference between n=50 to n=400, where the first one take only 1 sec on my computer (not the lab ones) and the second one which run for about 9 sec, which represent a difference of one order of magnitude that in fact not release better result if we take a look to the two first picture segmentation.

A proposition to optimize this function would be to find an optimal n value to get the best estimation possible from NystorNCuts. This could be done by sampling from each object in the image representative pixels in order to have matrix A representing the links existing between the objects and less inside them. Then after some n value we'll see that the effect is minor. Hence we get a better estimation using a smaller n for less calculation thus les runtime.