CS 576 – Assignment 1 – Analysis

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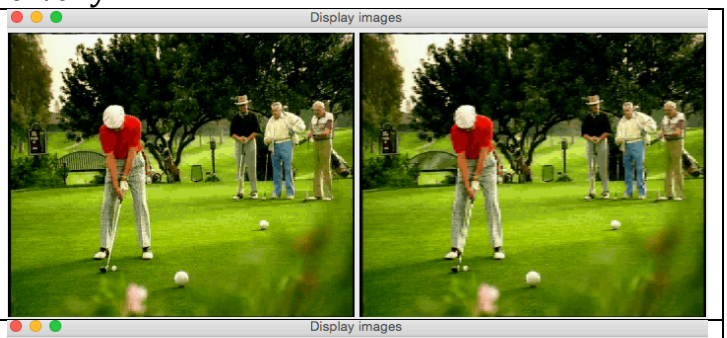
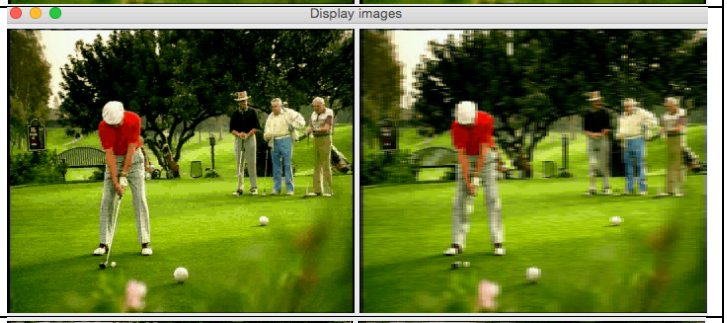
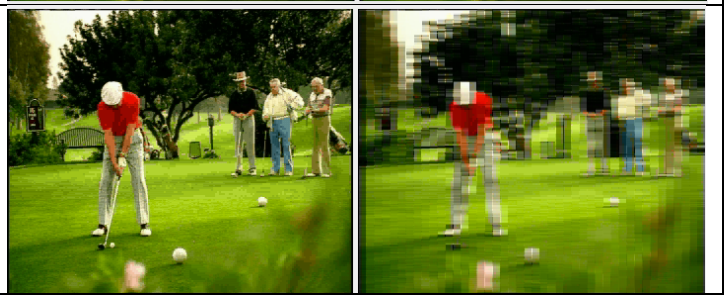
Analysis Question 1:

1. keep U, V constant at 1, and vary Y:

2, 1, 1 image has subtle changes	
4, 1, 1 image is blurring and feel uncomfortable	
8, 1, 1 image is totally unacceptable	

2. keep U, V constant at 1 and 2, vary Y: the result similar to item 1.

3. keep Y and U constant at 1, varying V or keep Y and V constant at 1, and varying U: result images have subtle changes which only affects boundaries where color changing too much.

Conclusion: Y is most important elements that we keep for the quality for image, and we can do many sub sampling on U and V for low bits rate purpose.

Analysis Question 2:

1. keep Y and U constant at 1 and V varying larger and larger.

1 1 128	image 1 looks good
1 1 128	image 2 looks good
1 1 128	image 3 looks good
1 1 128	image 4 lost some details but looks fine

2. keep Y and V constant at 1 and U varying larger and larger.

1 128 1	image 1 acceptable, only some areas goes to pink
1 128 1	image 2 looks good
1 128 1	image 3 more areas goes to pink, looks median acceptable
1 128 1	image 4 large areas turn to pink, not acceptable

3. according to the analysis result, we could know that when meet a lot red area like image 4, sub sampling for U and V would cause more errors than other images. So we could do some changes to our implementation that when meet large read areas like more than 30% of the image, we could reduce the red color for each pixel to the percentage of red areas compared to whole area.