Exercise 1:

1. The cvMat will contain the pixel value of each pixel in the photo. Its stored in sequence BGR.

Exercise 2:

1. The solution is in ColorImage.py
2. The output in pixel (20,25) is :

Value in RGB is (224, 127, 105)

Value in YCBCR is (153, 179, 101)

Value in HSV is (6, 135, 224)

1. The range of RGB is (0,255)

Y = (B \* 1868 + G \* 9617 + R \* 4899 + 8192)/16384;

Cb = ((B - Y)\* 9241 + 8192)/16384 + 128;

Cr = ((R - Y)\*11682 + 8192)/16384 + 128;

H:  0— 180

S:  0— 255

V:  0— 255

Exercise 4:

1. Solution is in Threshold.py. And we noticed that the photo can be binary into different photos with different threshold.
2. Binary threshold is hard to pick and will lose lots of information.
3. With some influence like the light, global threshold for the whole photo is performance badly, then we need to use adaptive threshold.