Exercise 1

There is no vector construct in OpenCV. Whenever we want a vector, we just use a matrix with on column or one row.

To create a new 2-D matrix, we do:

CvMat\* cvCreateMat (int rows, int cols, int type);

The order of the pixel structure is Blue, Green and Red.

Exercise 2

The output images have lots of difference between the original Lenna picture and they are also different with each other.

BGR=[106 122 225];

ycbcr=[151 181 103];

hsv=[4 135 225].

Exercise 3

Since I get the result from the implement of the noise, it’s obvious that the Gaussian blur is most suitable for the gaussian noise and the Median filter is the most suitable for the salt and pepper noise.

Exercise 4

1. Binary threshold makes the dark part darker and the light part brighter. And the band thresholding is the inverse of the binary threshold.

Adaptive threshold makes the contour more obvious and clear.

Semi threshold

2. The binary threshold conveys limited information of the original picture. It loses important characteristics of the colorful picture.

3. It’s useful when we need only the outline of a picture or we want some edges features, then we can simplify the picture using the adaptive threshold.