**3.1** Give a single intensity transformation function for spreading the intensities of an image so the lowest intensity is 0 and the highest is *L* −1.

First find the max intensity level of the image-g\_max

Then find the min intensity level of the image-g\_min

Let the transform function f

f=(L-1)/(g\_max-g\_min) \* (g-g\_min) ,g is the input intensity of the point in image.

**3.5** In general:

**(a) \*** What effect would setting to zero the lower- order bit planes have on the histogram of an image?

**(b)** What would be the effect on the histogram if we set to zero the higher-order bit planes instead?

(a) the lower- order bit planes include the details of the image , they denote relatively small gray intensity of the whole intensity ,so information in the planes often represent difference ,if set to zero the lower- order bit planes,the details between pixels will decrease, the whole intensity difference of the image will become less. In the histogram ,it represent the components will decrease , but the number of pixels does not change,

So the height of some intensity in the histogram will become higher.

(b)the higher-order bit planes include the most information of the image, if we set to zero the higher-order bit planes,the intensity range will become smaller,it means the details between pixels will decrease, like problem(a),the components will decrease in the histogram and the height of some intensity in the histogram will become higher.