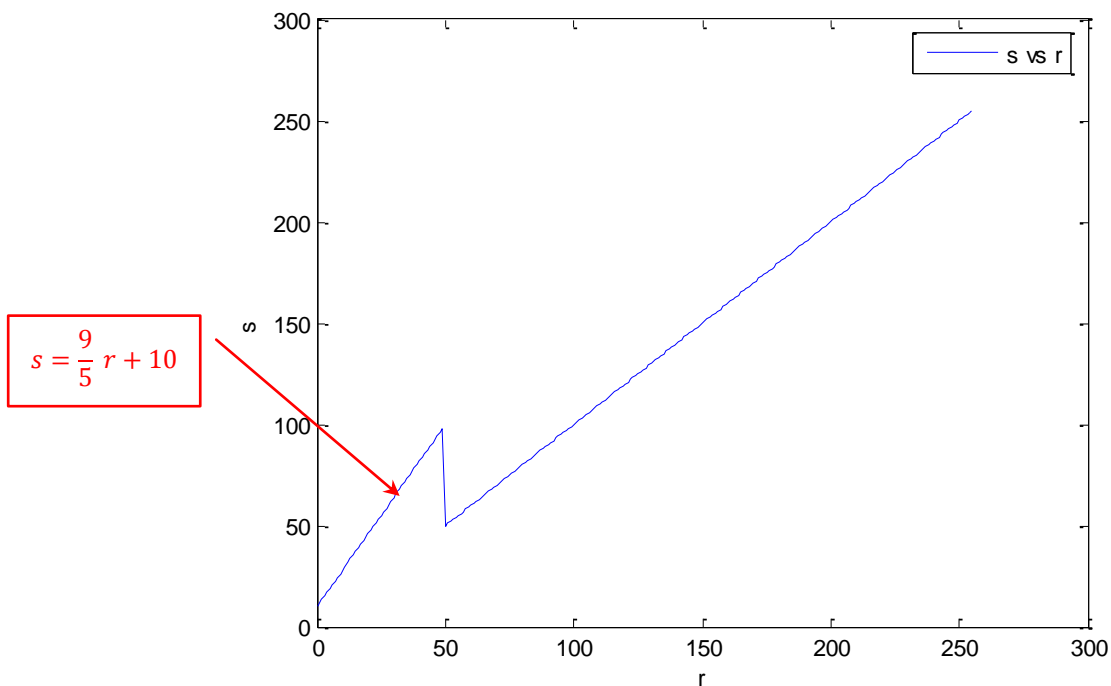


Exercises on Image Manipulation – Part 1 (Contrast Enhancement)

1. Study the following requirements and explain clearly what you do to fulfil these requirements. Use sketch if possible.
 - a. Stretch the contrast of low grey level pixels linearly (0:50 to be 10:100) and leave the remaining grey level (51-255) without change.

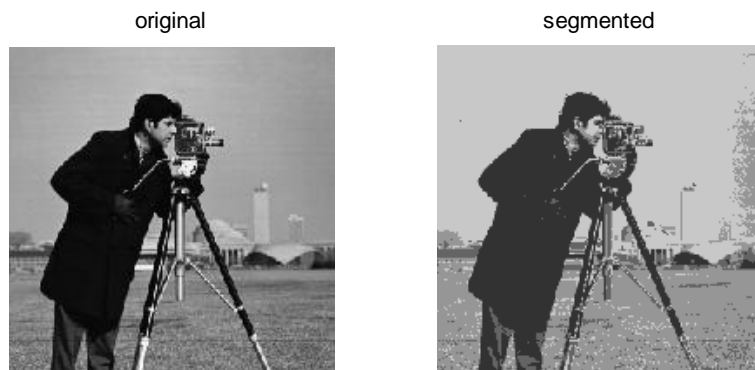
$$s = \left\{ \frac{100-10}{50-0} \right\} r + 10 = \frac{9}{5} r + 10$$



- b. Segment the image into five regions with new grey levels 50, 100, 150, 200, 255. The segmentation is based on the range of the image grey level such that none of the region has grey level more than the new grey level.

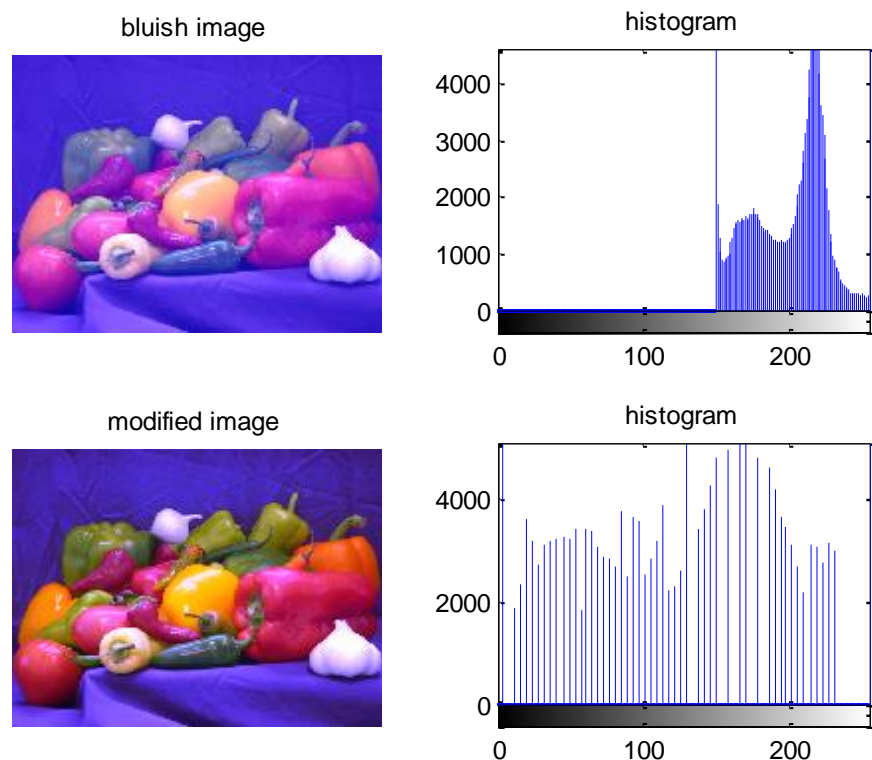
Apply Brightness Thresholding as follows:

```
for i = 1:M
    for j = 1:N
        if (I(i,j) < 50)
            I(i,j) = 50;
        elseif (I(i,j) < 100)
            I(i,j) = 100;
        elseif (I(i,j) < 150)
            I(i,j) = 150;
        elseif (I(i,j) < 200)
            I(i,j) = 200;
        else
            I(i,j) = 255;
        end;
    end;
end;
```



8. A blue light was used during image acquisition that makes the image looks more bluish. Eliminate the effect of this extra blue in the image.

Apply Histogram equalization to the Blue component of the image only.



2. Apply Histogram equalization to the following data. Draw the equalized histogram. Assume 100 pixels per image and 8 grey level.

Intensity	0	1	2	3	4	5	6	7
Number of pixels	10	20	22	28	0	10	0	10

Check the lecture notes for a similar example.

final table =
0 10 20 0 22 0 38 10