

~/Downloads/lab6_1.m

```
1 image = imread('rgb.jpeg');
2
3 if size(image, 3) == 3
4     image = rgb2gray(image);
5 end
6
7 [rows, cols] = size(image);
8
9 histogram = zeros(1, 256);
10
11 for i = 1:rows
12     for j = 1:cols
13         pixel_value = image(i, j);
14         histogram(pixel_value + 1) = histogram(pixel_value + 1) + 1;
15     end
16 end
17
18 cdf = cumsum(histogram);
19 cdf_normalized = cdf / max(cdf);
20
21 equalized_image = uint8(zeros(rows, cols));
22
23 for i = 1:rows
24     for j = 1:cols
25         original_value = image(i, j);
26         new_value = round(cdf_normalized(original_value + 1) * 255);
27         equalized_image(i, j) = new_value;
28     end
29 end
30
31 figure;
32 subplot(1, 2, 1);
33 imshow(image);
34 title('Original Image');
35
36 subplot(1, 2, 2);
37 imshow(equalized_image);
38 title('Histogram Equalized Image');
39
40 figure;
41 subplot(1, 2, 1);
42 bar(0:255, histogram, 'k');
43 title('Histogram of Original Image');
44 xlim([0 255]);
45
46 equalized_histogram = zeros(1, 256);
47 for i = 1:rows
48     for j = 1:cols
49         pixel_value = equalized_image(i, j);
```

```
50         equalized_histogram(pixel_value + 1) = equalized_histogram(pixel_value +
51         1) + 1;
52     end
53 end
54 subplot(1, 2, 2);
55 bar(0:255, equalized_histogram, 'k');
56 title('Histogram of Equalized Image');
57 xlim([0 255]);
58
```