



**College of Computer and Information Sciences
Computer Science Department**

**CSC 478
Image Processing**

HW1: MATLAB 1

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Task 1:

MATLAB Code:

```
% Read the original RGB image
OGimg = imread('image.jpg');
% Convert it to grayscale
result = rgb2gray(OGimg);
% Flip the grayscale image horizontally (can adjust this as needed)
result = flip(result, 2);
% Display the original and modified images side by side
subplot(1, 2, 1);
imshow(OGimg);
title("Before"); % Title for the original image
subplot(1, 2, 2);
imshow(result);
title("After"); % Title for the modified image
```

Output:

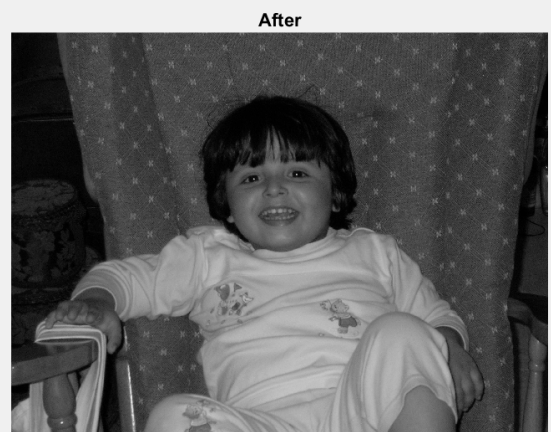
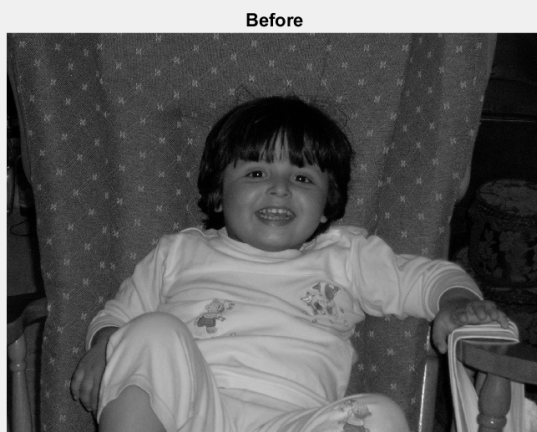


Figure 1

Task 2:

MATLAB Code:

```
% Read the original RGB image
OGimag = imread('image.jpg');
% Convert it to grayscale
result = rgb2gray(OGimag);
% Create a copy of the grayscale image
result2 = result;
% Thresholding: Set pixels with intensity less than 50 to 0 (black)
result2(result < 50) = 0;
% Thresholding: Set pixels with intensity greater than 150 to 255 (white)
result2(result > 150) = 255;
% Display the original and modified images side by side
subplot(1, 2, 1);
imshow(OGimag);
title('Before'); % Title for the original image
subplot(1, 2, 2);
imshow(result2);
title('After'); % Title for the modified image
```

Output:



Figure 2

Task 3:

MATLAB Code:

```
% Read the original RGB image
originalImage = imread('image.jpg');
% Convert it to grayscale
grayscaleImage = rgb2gray(originalImage);
% Perform histogram equalization
equalizedImage = histeq(grayscaleImage);
% Display the grayscale image at the top left
subplot(2, 2, 1);
imshow(grayscaleImage);
title('Grayscale Image');
% Display the equalized image at the top right
subplot(2, 2, 2);
imshow(equalizedImage);
title('Equalized Grayscale Image');
% Compute and display the histogram of the grayscale image at the bottom left
subplot(2, 2, 3);
imhist(grayscaleImage);
title('Histogram of Grayscale Image');
% Compute and display the histogram of the equalized image at the bottom right
subplot(2, 2, 4);
imhist(equalizedImage);
title('Histogram of Equalized Grayscale Image');
```

Output:

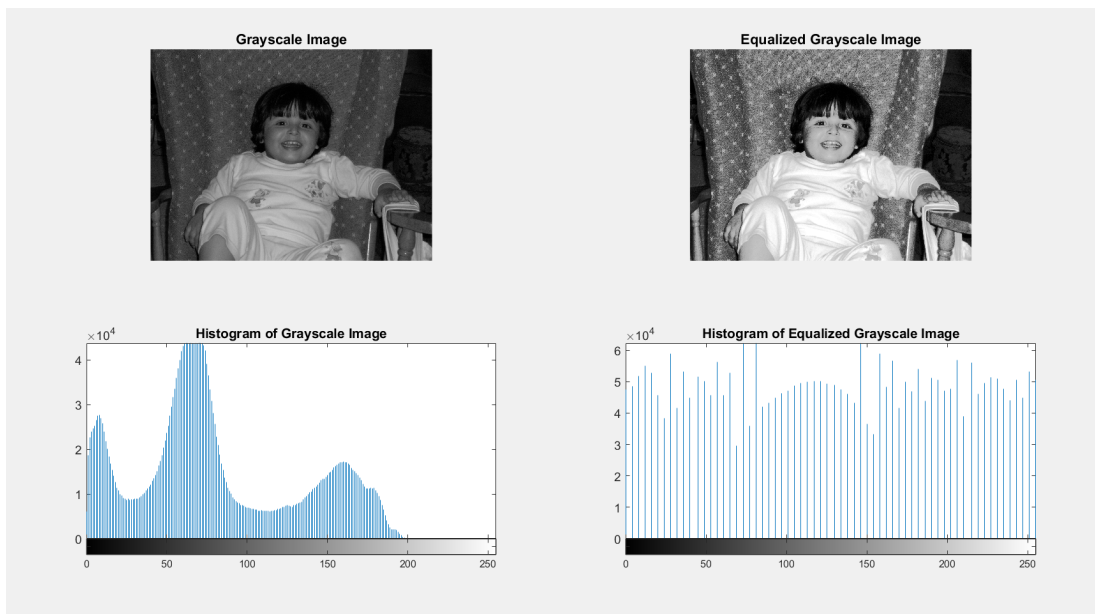


Figure 3

