

```
title('Original Image');
figure;

% MATLAB built-in equalization
Ieq = histeq(img);
imshow(Ieq);
title('Equalized Image (MATLAB histeq)');
figure;

% ----- Manual Histogram Equalization (Simplified) -----

% Convert to gray if needed
if size(img,3) == 3
    img = rgb2gray(img);
end

% Flatten image to 1D
pixels = img(:);

% Histogram (counts of each intensity)
[counts, grayLevels] = imhist(img);

cdf_vals = cumsum(counts);

cdf_min = min(cdf_vals(cdf_vals > 0));
cdf_norm = round((cdf_vals - cdf_min) / (numel(pixels) - cdf_min) * 255);
equalized_img = cdf_norm(double(img)+1);
equalized_img = uint8(equalized_img);
imshow(equalized_img);
title('Equalized Image (Manual)');
```

Original Image

