

```
clc; % Clear Command Window
clear all; % Remove all variables from workspace
close all; % Close all open figure windows

% Create an 8x8 matrix with random values between 0 and 255
% Stored as unsigned 8-bit integers (like image pixel values)
A = uint8(randi([0 255], 8, 8));

% Read the RGB image from the specified file path
I = imread("C:\Users\student\Pictures\Screenshots\Screenshot 2024-09-10 113757.png");

% Display the original color image
imshow(I);
title('Original RGB Image');

% Create a new figure window
figure();

% Convert the RGB image to grayscale
Ig = rgb2gray(I);

% Display the grayscale image
imshow(Ig);
title('Grayscale Image');

% Create a new figure window
figure();

% Perform histogram equalization to enhance image contrast
Ieq = histeq(Ig);

% Display the contrast-enhanced image
imshow(Ieq);
title('Histogram Equalized Image');

% Create a new figure window
figure();

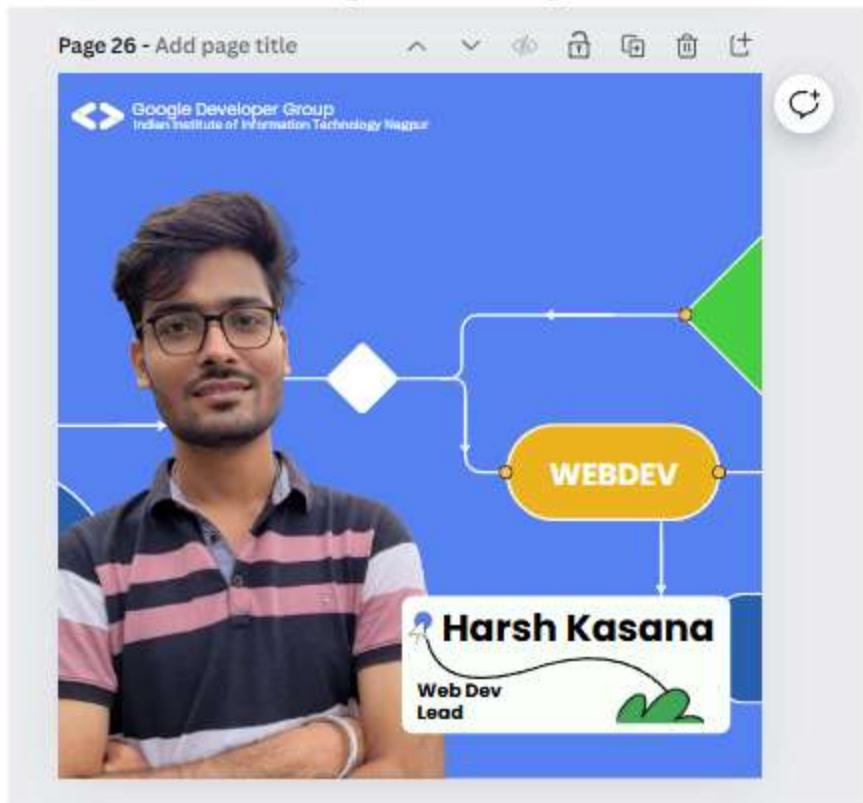
% Convert grayscale image to black and white using a fixed threshold
% Pixels > 128 become white (1), others become black (0)
bw = Ig > 128;

% Display the binary (black and white) image
imshow(bw);
title('Black and White Image');

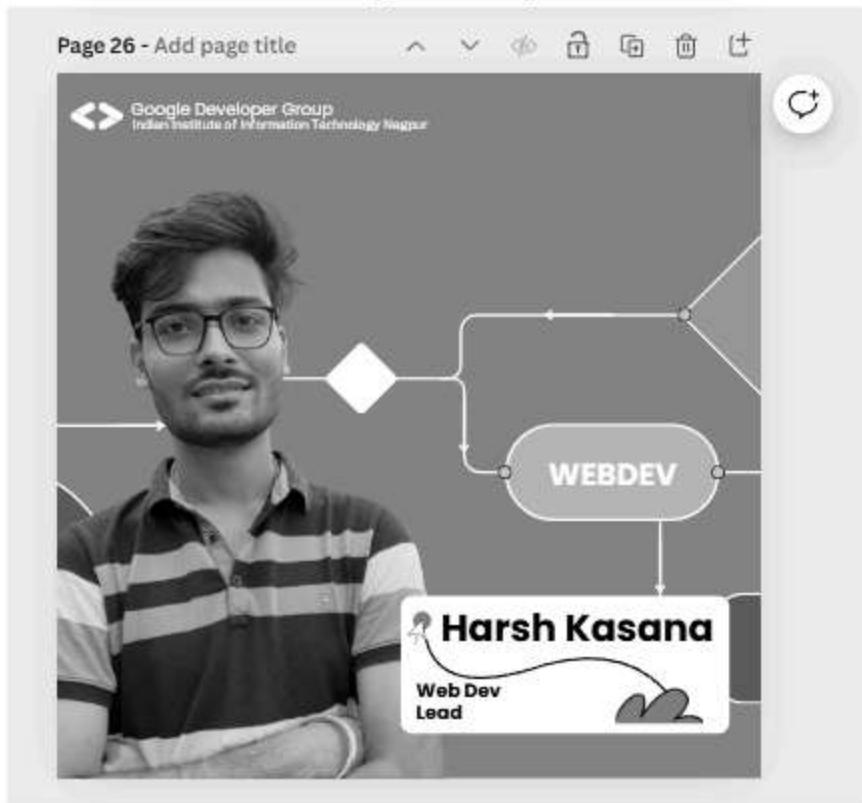
% Create a new figure window
figure();

% Extract the red channel by setting green and blue channels to zero
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```
Ired = I;  
Ired(:,:,2) = 0; % Remove green channel  
Ired(:,:,3) = 0; % Remove blue channel  
  
% Display the red-channel image  
imshow(Ired);  
title('Red Channel Image');
```

Original RGB Image

Grayscale Image



Histogram Equalized Image



Black and White Image

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Red Channel Image



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