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% Fundamental Operations for Image Processing in MATLAB
% Name   : Akshay (BT23ECE050)
% Branch : ECE 3rd Year
% Aim    : To perform basic image processing operations in MATLAB
% Date   : 14-01-2026

clc;           % Clears command window
clear;        % Clears workspace variables
close all;    % Closes all figure windows

% 1. Generate an 8x8 random matrix (0 to 255)
B = randi([0 255], 8, 8);
display(B);

% 2. Read and display original image
I = imread("display_img.jpeg"); % Make sure image is in same folder
figure;
imshow(I);
title('Original RGB Image');

% 3. Convert RGB image to Grayscale
Ig = rgb2gray(I);
figure;
imshow(Ig);
title('Grayscale Image');

% 4. Extract Red Channel Only
I_red = I; % Copy original image
I_red(:, :, 2) = 0; % Remove Green channel
I_red(:, :, 3) = 0; % Remove Blue channel

figure;
imshow(I_red);
title('Red Channel Image');

% 5. Convert Grayscale to Black & White using Threshold
Ib = Ig > 100; % Thresholding operation

figure;
imshow(Ib);
title('Black & White');

B =

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210	96	196	51	28	217	0	127
110	55	42	104	34	143	221	230
227	202	220	191	173	237	156	147
100	243	253	211	126	178	253	216
196	83	131	202	48	149	135	189
101	171	226	81	126	208	122	150
206	112	150	136	37	225	205	63

193 213 39 23 14 253 58 170

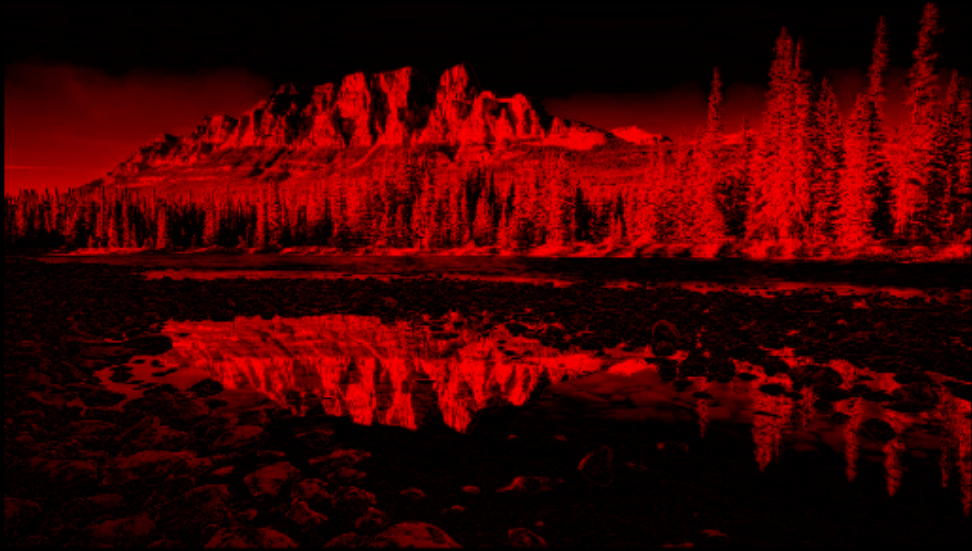
Original RGB Image



Grayscale Image



Red Channel Image





Published with MATLAB® R2025b