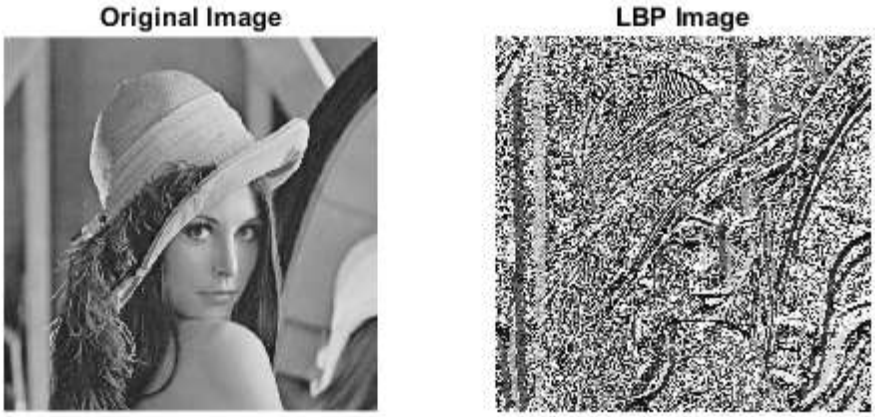
```
% created by Atharva Deopujari
clear all;
close all;
clc;
% Read the input image
input_image = imread('lena_color.tiff');
% Convert the image to grayscale
gray_image = rgb2gray(input_image);

% Get the dimensions of the image
[rows, cols] = size(gray_image);
% Initialize the LBP image
lbp_image = zeros(rows, cols);

% Define the 8 neighbors
neighbors = [
    -1 -1; -1 0; -1 1;
     0 -1;       0 1;
     1 -1;  1 0;  1 1;
];

% Calculate the LBP for each pixel
for i = 2:rows-1
    for j = 2:cols-1
        center_pixel = gray_image(i, j);
        binary_pattern = zeros(1, 8);
        for k = 1:8
            neighbor_pixel = gray_image(i + neighbors(k, 1), j + neighbors(k, 2));
            binary_pattern(k) = neighbor_pixel >= center_pixel;
        end
        % Convert the binary pattern to a decimal value
        lbp_image(i, j) = sum(binary_pattern .* 2 .^ (7:-1:0));
    end
end

% Display the original and LBP images
figure;
subplot(1, 2, 1);
imshow(gray_image);
title('Original Image');
subplot(1, 2, 2);
imshow(uint8(lbp_image));
title('LBP Image');
```



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