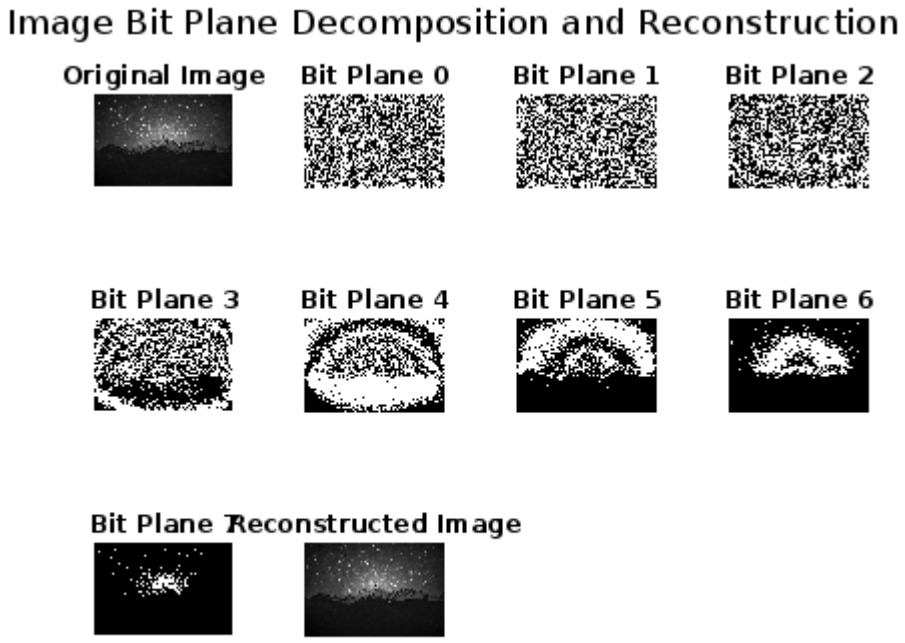
```
% Script by Vipul Pawar
% URL of the image to be processed
image_url = 'https://images.unsplash.com/photo-1736077722346-31ba59414728?
q=80&w=2940&auto=format&fit=crop&ixlib=rb-4.0.3&ixid=M3wxMjA3fDB8MHxwaG90by1wY
WdlfHx8fGVufDB8fHx8fA%3D%3D';

% Load the image from the provided URL
original_image = imread(image_url);

% Convert the image to grayscale if it is in color
if ndims(original_image) == 3
    grayscale_image = rgb2gray(original_image);
else
    grayscale_image = original_image;
end

% Get the dimensions of the grayscale image
[height, width] = size(grayscale_image);

% Initialize an empty matrix for the reconstructed image
reconstructed_image = zeros(height, width, 'uint8');

% Set up the figure for visualization
figure;

% Display the original grayscale image
subplot(3, 4, 1);
imshow(grayscale_image);
title('Original Image');

% Loop through each bit plane (0 to 7)
for bit = 0:7
    % Extract the specified bit plane using bitwise operations
    current_bit_plane = bitget(grayscale_image, bit + 1);

    % Enhance the bit plane for visualization (scale values to 0-255)
    visual_bit_plane = uint8(current_bit_plane * 255);

    % Add the weighted contribution of the current bit plane to reconstruct
the image
    reconstructed_image = reconstructed_image + uint8(current_bit_plane *
2^bit);

    % Display the current bit plane
    subplot(3, 4, bit + 2);
    imshow(visual_bit_plane);
    title(['Bit Plane ', num2str(bit)]);
end

% Display the reconstructed image from all bit planes
subplot(3, 4, 10);
imshow(reconstructed_image);
```

```
title('Reconstructed Image');

% Add an overall title for the figure
sgtitle('Image Bit Plane Decomposition and Reconstruction');
```



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