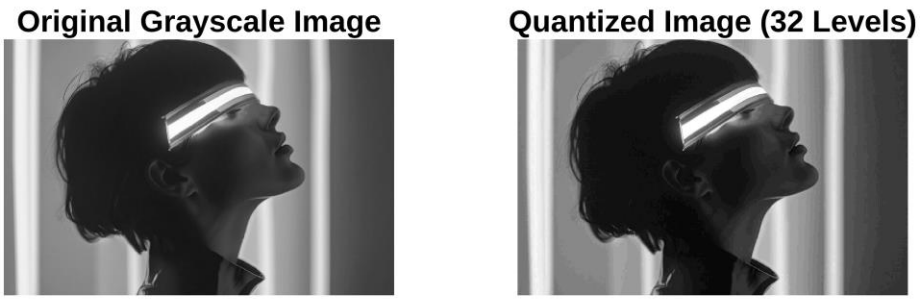
```
% Step 1: Load the image in grayscale
img = imread('DIP_assign_img.jpg'); % Replace with your image filename
if size(img, 3) == 3
    img = rgb2gray(img); % Convert to grayscale if it is a color image end

% Step 2: Define the quantization factor
quantization_factor = 8;

% Step 3: Quantize the image using imresize
img_quantized = imresize(floor(double(img) / quantization_factor),
size(img));
img_quantized = img_quantized * quantization_factor; % Scale back to 0-255
range

% Step 4: Display the original and quantized images
figure;
subplot(1, 2, 1), imshow(img), title('Original Grayscale Image');
subplot(1, 2, 2), imshow(img_quantized, []), title('Quantized Image (32
Levels)');
```



Steps followed are:

1. **Load the Image in Grayscale**: Start by loading your image in grayscale mode.
2. **Define the Quantization Factor**: Since we want 32 grayscale levels, we'll scale the pixel values down and then back up, creating 32 distinct levels. Since grayscale images typically have 256 levels, this means we'll reduce each pixel's intensity by a factor of 8 (256/32 = 8).
3. **Resize the Image to Reduce Grayscale Levels**:
    - Use imresize to scale down the pixel values by dividing the image by 8 (integer division), making the pixel values range from 0 to 31.
    - After resizing, multiply the image back by 8 to restore the pixel values to the range of 0 to 255, but with only 32 distinct levels.
4. **Display and Save the Quantized Image**.