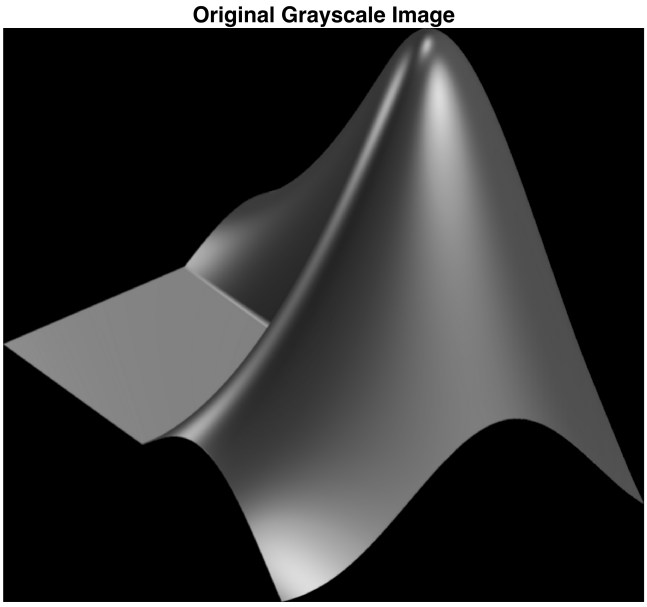
```
% Load and display the original image
I = imread('image1.png');
% Convert the image to grayscale if it's a color image
if size(I, 3) == 3
    I_gray = rgb2gray(I);
else
    I_gray = I;
end

% Display the original grayscale image
figure, imshow(I_gray), title('Original Grayscale Image');
```




```
%  Normalize the grayscale image to the range [0, 1]
I_norm = im2double(I_gray);  % Convert to double and normalize the image

%  Downsample using imresize to approximate 32 levels
scale_factor = 1/8;  % Calculate the scale factor for quantization
I_downsampled = imresize(I_norm, scale_factor);  % Downsample by a factor
of 8

%  Upsample back to the original size using imresize
I_upsampled = imresize(I_downsampled, size(I_gray));  % Upsample back to
original size

%  Quantize the result to 32 levels
I_quantized = round(I_upsampled * 31) / 31;  % Scale the intensity values
to 32 levels

% Display the quantized image
```

```
figure, imshow(I_quantized), title('Quantized Image with 32 Grayscale
Levels');
```