```
input_image_rgb = imread('Digital Image Processing/Assignment 2/vase.jpg');
input_image_gray = rgb2gray(input_image_rgb);
imshow(input_image_gray);
title('Original Grayscale Image');
```


```
%Normalizing the image to [0, 1] for easier processing
normalized_image = double(input_image_gray) / 255;

% Resizng the image down to have just 32 intensity levels (reduce spatial
resolution)
img_resized = imresize(normalized_image, [32 32]);

% Scaling the image to 32 levels, round, and bring it back to [0, 1]
img_resized_quantized = round(img_resized * 31) / 31;

% Resizing the image back to original size, using 'nearest' to preserve the
quantization
quantized_image = imresize(img_resized_quantized, size(input_image_gray),
'nearest');

% Converting the image back to [0, 255] grayscale and uint8
quantized_image_uint8 = uint8(quantized_image * 255);


imshow(quantized_image_uint8);
title('Quantized Image with 32 Grayscale Levels');
```

Quantized Image with 32 Grayscale Levels