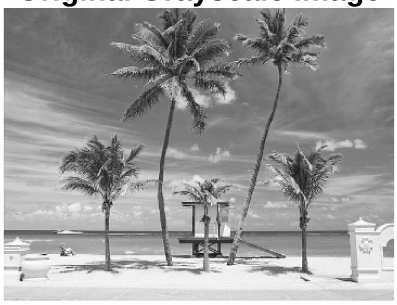
```
% By resizing to a smaller size, the number of distinct pixel values are
% reduced and when resized back to the original dimensions, a quantized
% effect is produced from teh interpolated pixel values. 'nearest'
% interpolation is used to avoid introducing new intesity levels.



%  Read the image and convert to grayscale
img = imread('beach.jpg');
if size(img, 3) == 3
    grayImg = rgb2gray(img);
else
    grayImg = img;
end

% using imresize to quantize. First the image is resizes the image to a
smaller size
% and back to its original size
smallSize = [8, 8];
resizedImg = imresize(grayImg, smallSize, 'nearest');
quantizedImage = imresize(resizedImg, size(grayImg), 'nearest');

% Display the original and quantized images
figure;
subplot(1, 2, 1);
imshow(grayImg);
title('Original Grayscale Image');

subplot(1, 2, 2);
imshow(quantizedImage);
title('Quantized Image (32 Levels)');
```

Original Grayscale Image



Quantized Image (32 Levels)