```
I_orig = imread("cat_driving.jpg");
I = rgb2gray(I_orig);
disp("Chosen Image:")
```

```
Chosen Image:
```

```
imshow(I)
title("Original")
```


```
disp("Question 2:")
```

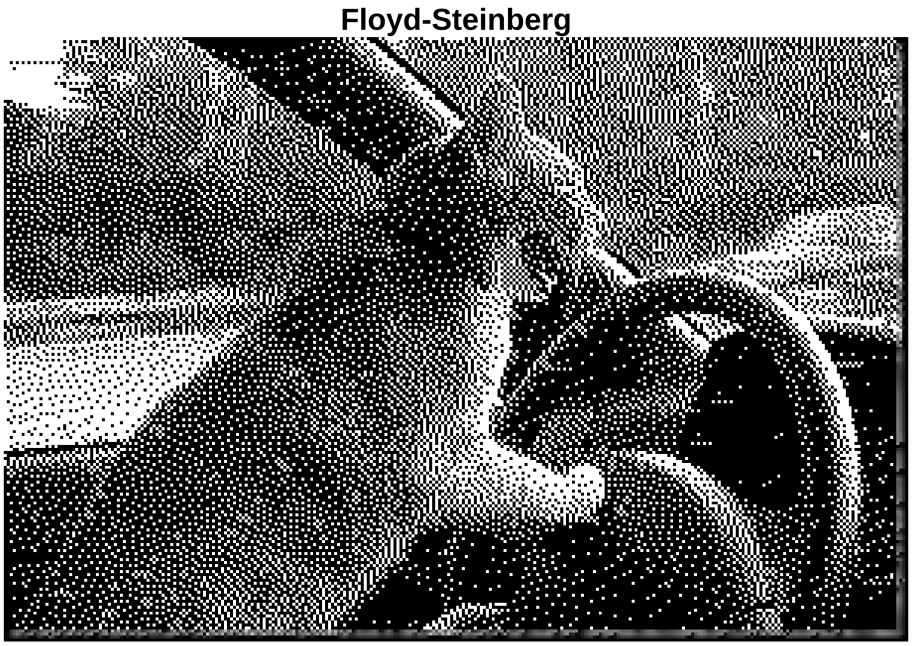
```
Question 2:
```

```
im = imresize(I, [200, 300]);
height = size(im, 1);
width = size(im, 2);
out = zeros(size(im));
ed = [0 0 0.075 0.3575; 0.3 0.13 0.05 0; 0 0.11 0 0] / 48;
z = zeros(size(im)+4);
z(3:height+2, 3:width+2) = double(im);

for i = 3:height+2
    for j = 3:width+2
        quant = 255 * (z(i, j) >= 128);
        out(i-2, j-2) = quant;
        e = z(i, j) - quant;
```

```
        z(i:i+2, j:j+min(3, width+4-j)) = z(i:i+2, j:j+min(3, width+4-j)) +
e * ed(:, 1:min(4, width+4-j+1));
    end
end

out = im2uint8(out);
imshow(out)
title("Jarvis-Judice-Ninke")
```


```
height = size(I, 1);
width = size(I, 2);
k = 2;
ed = [0 0 0 7 0; 0 3 5 1 0; 0 0 0 0 0] / 16;

y = uint8(zeros(height, width));
z = double(zeros(height + 4, width + 4));
z(3:height+2, 3:width+2) = double(I);

for i = 3:height+2
    for j = 3:width+2
        old = z(i, j);
        new = floor(255 / (k - 1)) * floor(z(i, j) * k / 256);
        z(i-2, j-2) = new;
        e = old - new;
        z(i:i+2, j-2:j+2) = z(i:i+2, j-2:j+2) + e * ed;
```

```
    end
end
z = uint8(max(min(z, 255), 0));
imshow(z)
title("Floyd-Steinberg")
```




```
%Both filters are quite different the Floyd-Steinberg creates a grainy
%effect while the Jarvis filter focuses on certain regions
```