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CLASS:- B.E - 4
ROLL NO:- 04
BATCH:- A

EXPERIMENT 7

SOURCE CODE:

```
clc;
clear all;
close all;
e = double(imread('cameraman.tif'));
l=im2double(imread('cameraman.tif'));
b = imnoise(l,'salt & pepper');
[m,n] = size(e);
c = zeros(m,n);
d = zeros(m,n);
f = zeros(m,n);
g = zeros(m,n);
h = zeros(m,n);
k = zeros(m,n);
a = input('Enter value of magnification factor A: ');
for i = 2:m-1
    for j = 2:n-1
        c(i,j) = 1/9*(b(i-1,j-1) + b(i-1,j) + b(i-1,j+1) +
b(i,j-1) + b(i,j) + b(i,j+1) + b(i+1,j-1) + b(i+1,j) +
b(i+1,j+1));
        f(i,j) = 1/16*(b(i-1,j-1) + 2*b(i-1,j) + b(i-1,j+1) +
2*b(i,j-1) + 4*b(i,j) + 2*b(i,j+1) + b(i+1,j-1) + 2*b(i+1,j) +
b(i+1,j+1));
        d1 = b(i-1:i+1,j-1:j+1);
        d2 = reshape(d1,1,9);
        d3 = sort(d2);
        d4 = median(d3);
        d(i,j) = d4;
        g(i,j) = 1/9*(8*e(i,j) - (e(i-1,j-1) + e(i-1,j) +
e(i-1,j+1) + e(i,j-1) + e(i,j+1) + e(i+1,j-1) + e(i+1,j) +
e(i+1,j+1)));
        if g(i,j)<0
            g(i,j)=0;
        end
        k(i,j) = 1/9*(e(i-1,j-1) + e(i-1,j) + e(i-1,j+1) +
e(i,j-1) + e(i,j) + e(i,j+1) + e(i+1,j-1) + e(i+1,j) +
e(i+1,j+1));
        h(i,j) = a*e(i,j) - k(i,j);
    end
end
figure
subplot(2,2,1)
imshow(b);title('Original Image');
subplot(2,2,2)
imshow(c);title('Low PassFiltered Image (smoothed)');
subplot(2,2,3)
imshow(f);title('Gaussian Filtered Image (smoothed)');
subplot(2,2,4)
imshow(d);title('Median Filtered Image (smoothed)');
```

```
figure
subplot(1,2,1)
imshow(uint8(g),[]);title('Basic High Pass Filtered Image
(sharpened)');
subplot(1,2,2)
imshow(uint8(h));title('High Boost Filtered Image (sharpened)');
```

OUTPUT:

Enter value of magnification factor A: 2