Experiment No:03 (MATLAB)

Title: Filtering.

Code:

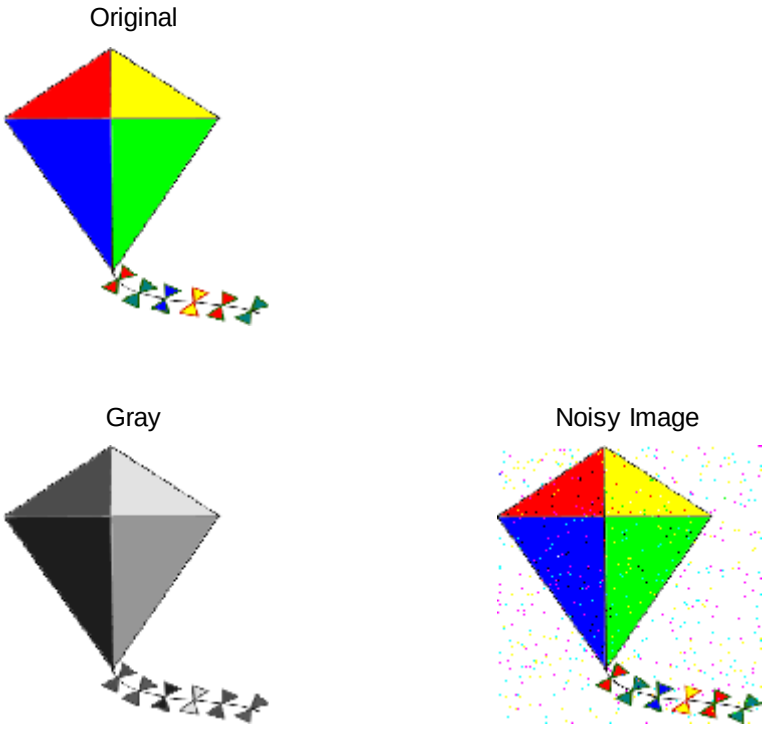
```
clc;
clear all;
close all;
figure(1);
a=imread('C:\Users\me-lab\Desktop\3223\kite.bmp');
subplot(2,2,1);
imshow(a);
title('Original');
b=rgb2gray(a);
subplot(2,2,3);
imshow(b);
title('Gray');
c=imnoise(a,'salt & pepper',0.02);
subplot(2,2,4);
imshow(c);
title('Noisy Image');
figure(2);
bo=1/9*[1,1,1;1,1,1;1,1,1];
d=imfilter(c,bo);
subplot(2,2,1);
imshow(d);
title('Box Filter');
wg=1/16*[1,2,1;2,4,2;1,2,1];
e=imfilter(c,wg);
subplot(2,2,2);
imshow(e);
title('Weighted Average Filter');
%t=imread('C:\Users\me-lab\Desktop\3223\eliza.bmp');
%subplot(2,2,3);
%imshow(t);
%s=medfilt2(t);
%subplot(2,2,4);
%imshow(s);
%title('median Filter');

figure(3);
la=[1,1,1;1,-8,1;1,1,1];
f=imfilter(b,la);
subplot(2,2,1);
imshow(f);
title('Laplacian Filter');
h=im2double(b);
[m,n]=size(h);
for i=1:m-2;
    for j=1:n-2;
```

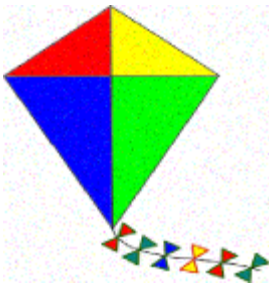
```
        px(i,j)=[h(i,j)*(-1)+h(i,j+1)*(-1)+h(i,j+2)*(-
1)+0+0+0+h(i+2,j)*(1)+h(i+2,j+1)*(1)+h(i+2,j+2)*(1)];
        py(i,j)=[h(i,j)*(1)+0+h(i,j+2)*(-1)+h(i+1,j)*(1)+0+h(i+1,j+2)*(-
1)+h(i+2,j)*(1)+0+h(i+2,j+2)*(-1)];
    end
end
subplot(2,2,2);
imshow(px);
title('px Prewitt Filter');

subplot(2,2,3);
imshow(py);
title('py Prewitt Filter');
l=imadd(px,py);
subplot(2,2,4);
imshow(l);
title('Add Prewitt Filter');
```

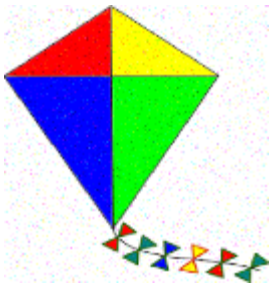
Output:



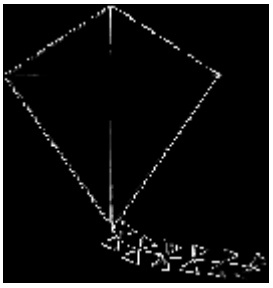
Box Filter



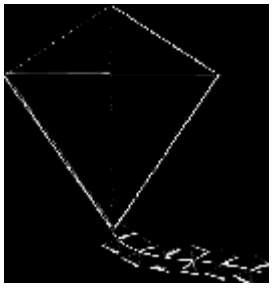
Weighted Average Filter



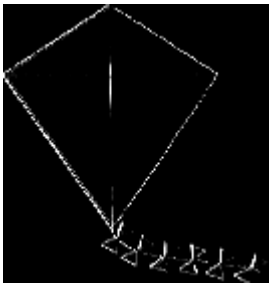
Laplacian Filter



px Prewitt Filter



py Prewitt Filter



Add Prewitt Filter