PRACTICAL No. 8

AIM:- Image Segmentation.

Install Image Processing and Signal Processing packages and restart scilab.

Run this command on console: atomsRemove('scicv')

Restart scilab

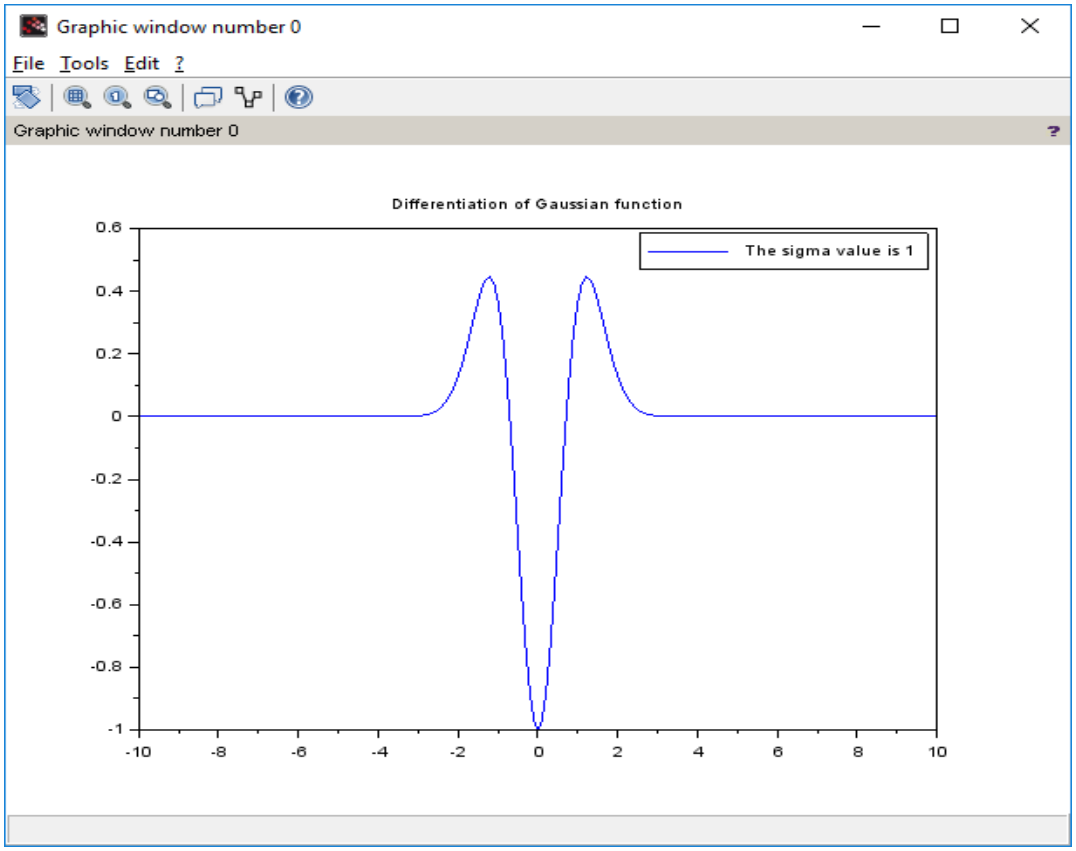
And run code

(a) Differentiation of Gaussian function.

```
clc ;
close ;
sigma = input('Enter the value of sigma: ')
i = -10:.1:10;
j = -10:.1:10;
r = sqrt(i.*i+j.*j);
y = (1/(sigma^2))*(((r.*r)/sigma^2)-1) .* exp(-r.*r/2*sigma^2);
plot(i,y)
legend(sprintf('The sigma value is %g',sigma))
xtitle('Differentiation of Gaussian function')
```

Output:-

Enter the value of sigma: 1



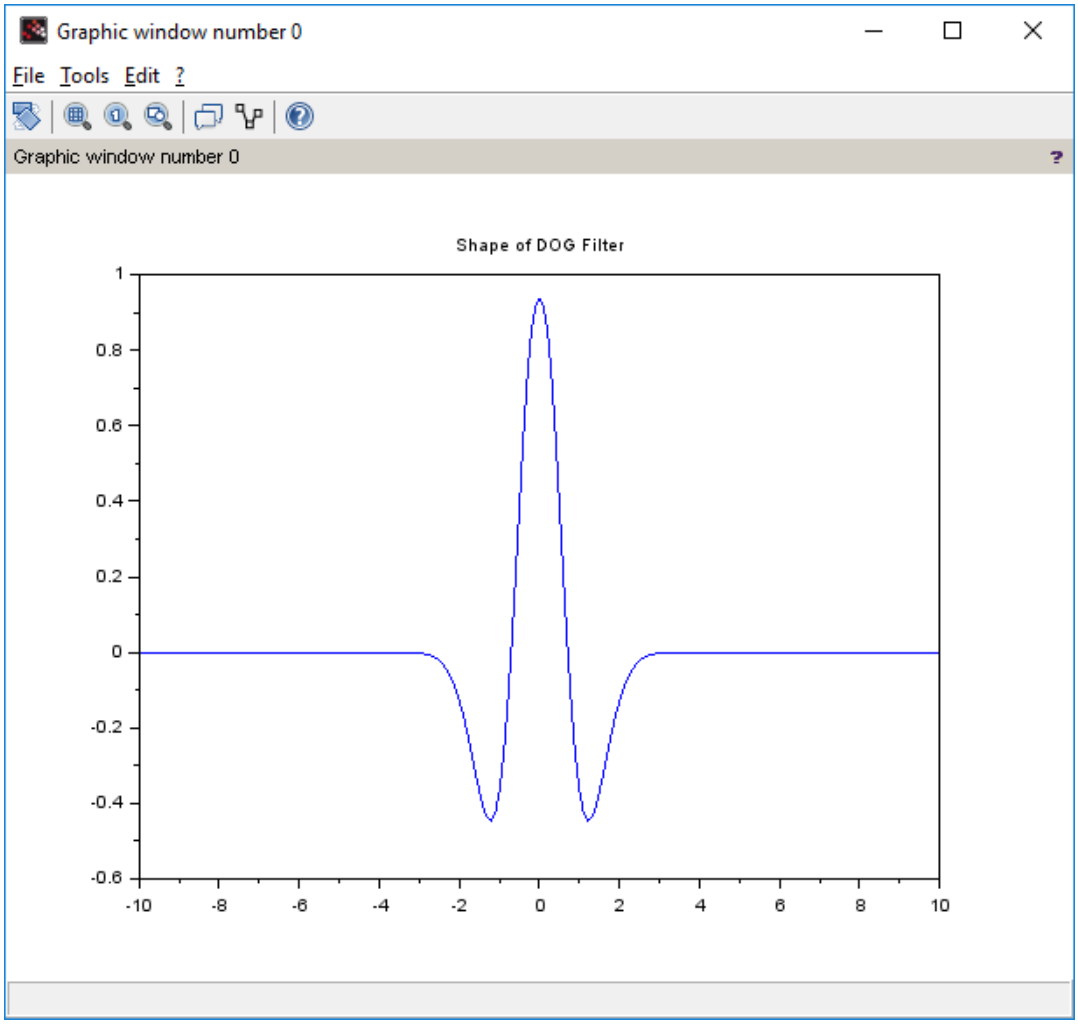
(b) Differentiation of Gaussian Filter function

```
clc ;
close ;
sigma1 = input('Enter the value of sigma1: ')
sigma2 = input ('Enter the value of sigma2: ')
i = -10:.1:10;
j = -10:.1:10;
r = sqrt(i.*i+j.*j);
y1 = (1/( sigma1^2))*(((r.*r)/sigma1^2)-1) .* exp(-r.*r/2*sigma1^2);
y2 = (1/( sigma2^2))*(((r.*r)/sigma2^2)-1) .* exp(-r.*r/2*sigma2 ^2);
y = y1-y2;
plot(i,y)
xtitle('Shape of DOG Filter ')
```

Output:

Enter the value of sigma1: 4

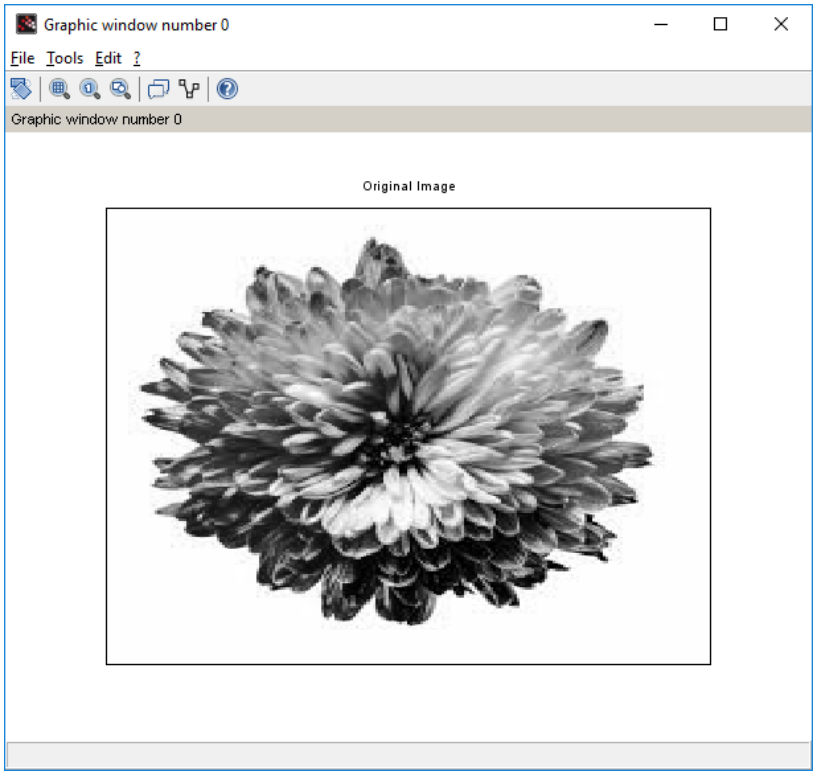
Enter the value of sigma2: 1

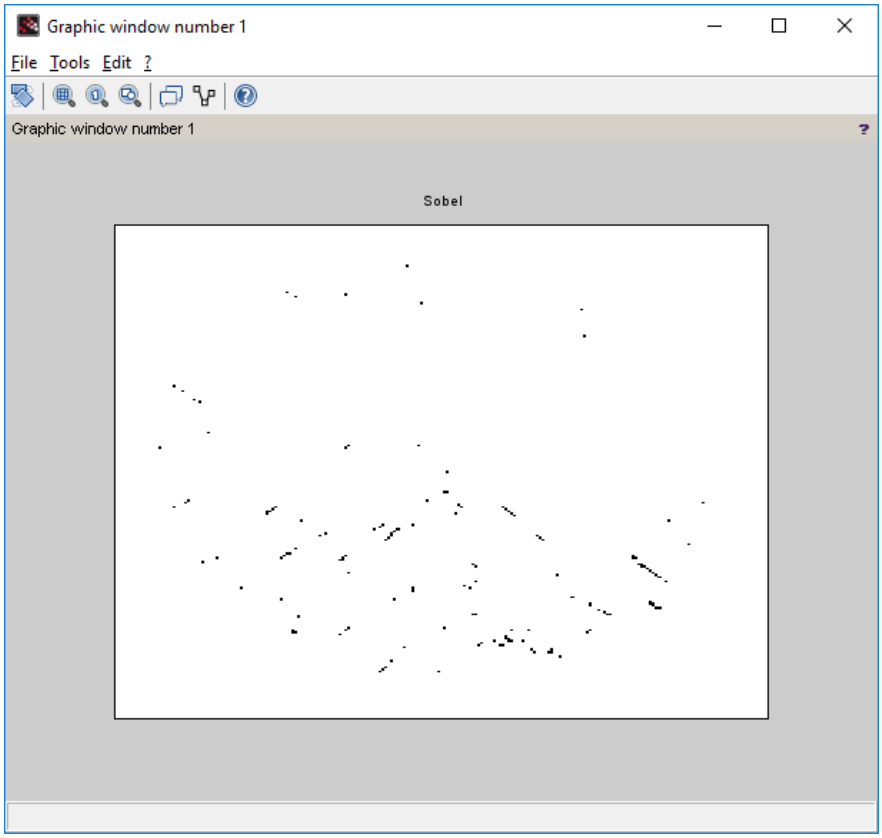


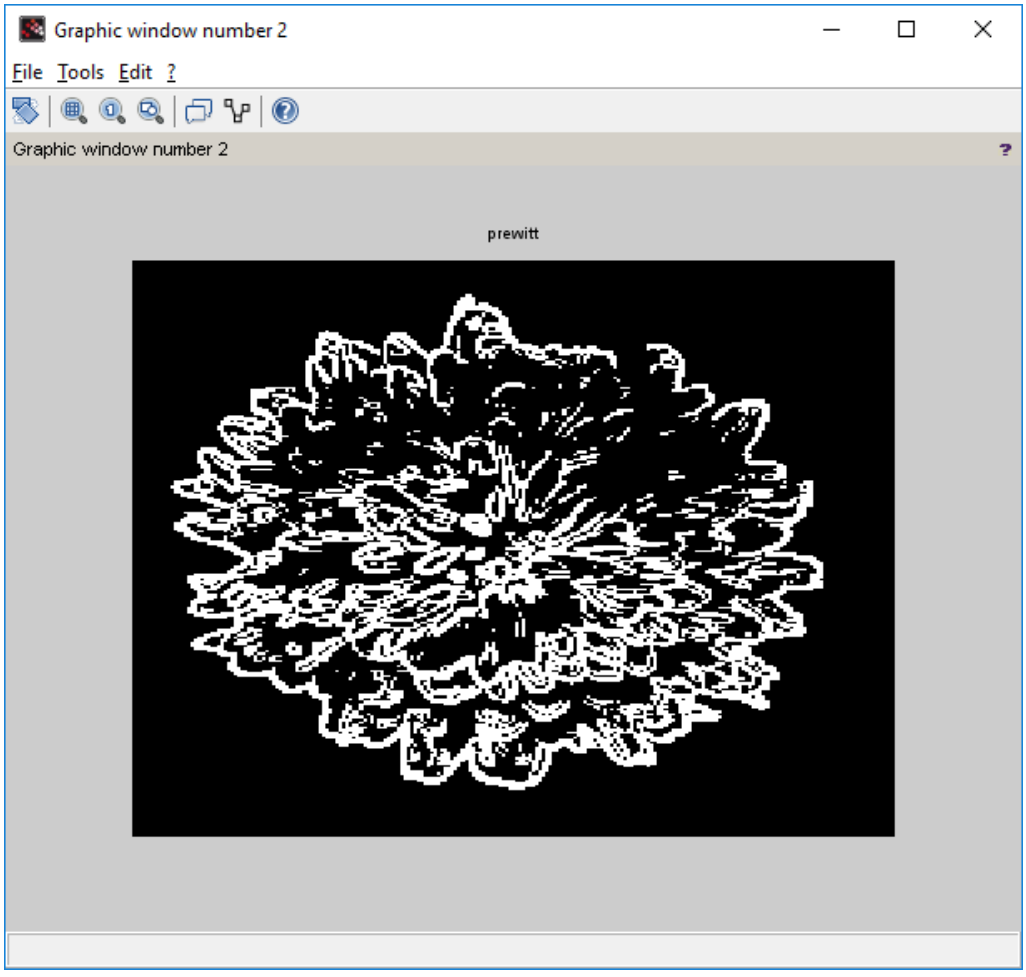
(c) Edge Detection using Different Edge detectors

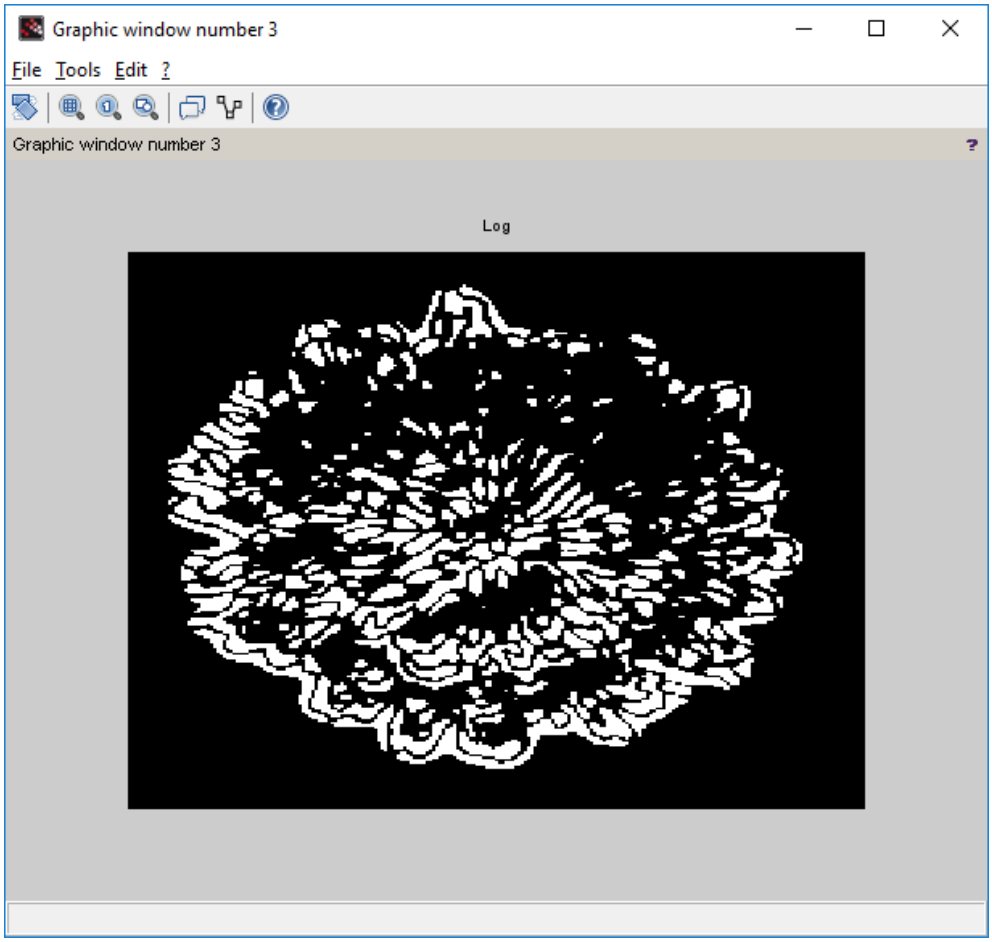
```
close ;
clc ;
a = imread('C:\Users\ADMIN\Desktop\flower.jpg');
a = rgb2gray(a);
c = edge(a,'sobel');
d = edge(a,'prewitt');
e = edge(a,'log');
f = edge (a,'canny');
imshow(a)
title('Original Image')
figure
imshow(c)
title('Sobel')
figure
imshow(d)
title('prewitt')
figure
imshow(e)
title('Log')
figure
imshow(f)
title('Canny')
```

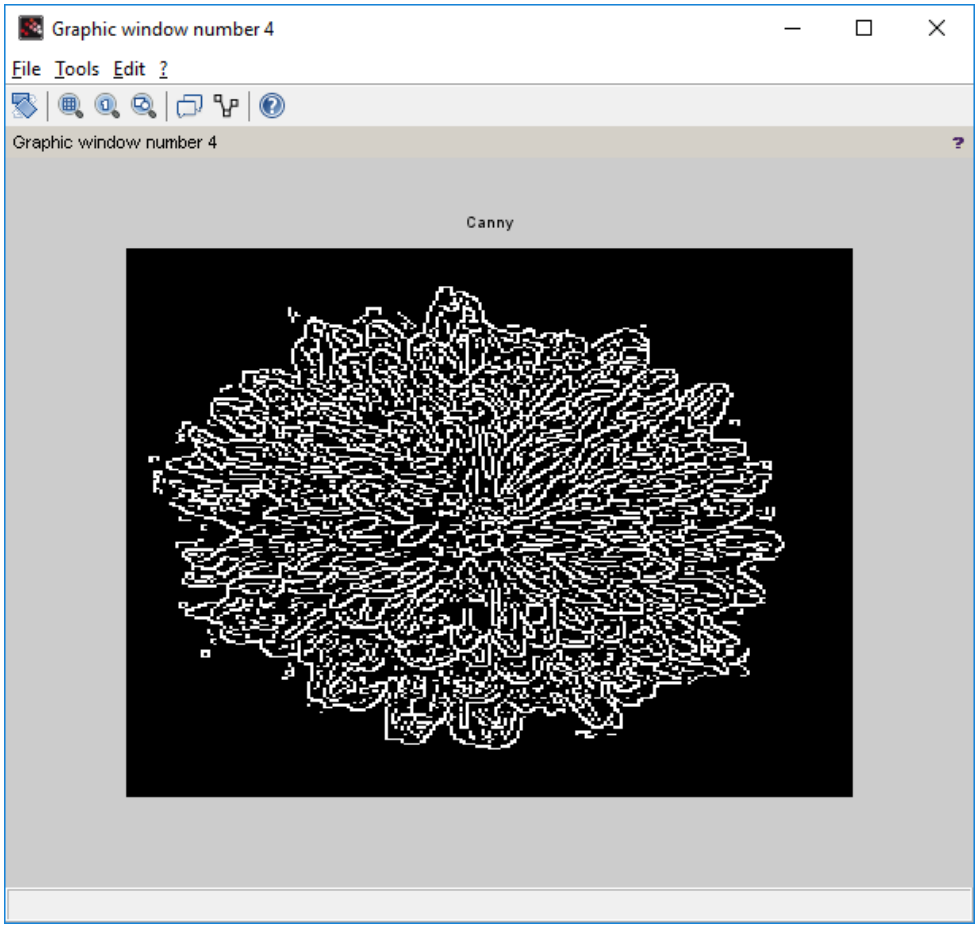
Output:




Graphic window number 1
File Tools Edit ?
Graphic window number 1
Sobel


Graphic window number 2
File Tools Edit ?
Graphic window number 2
prewitt


Graphic window number 3
File Tools Edit ?
Graphic window number 3
Log


Graphic window number 4
File Tools Edit ?
Graphic window number 4
Canny