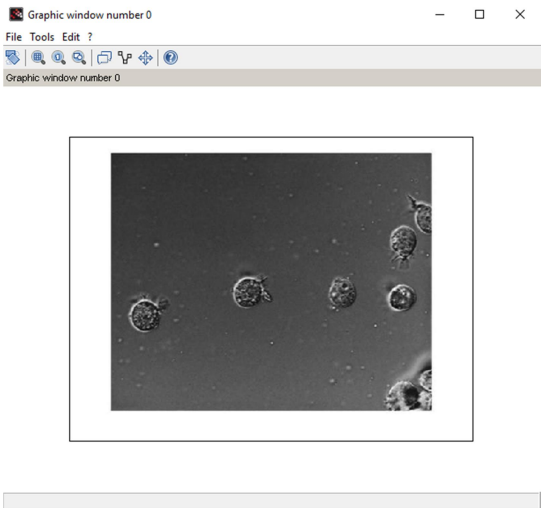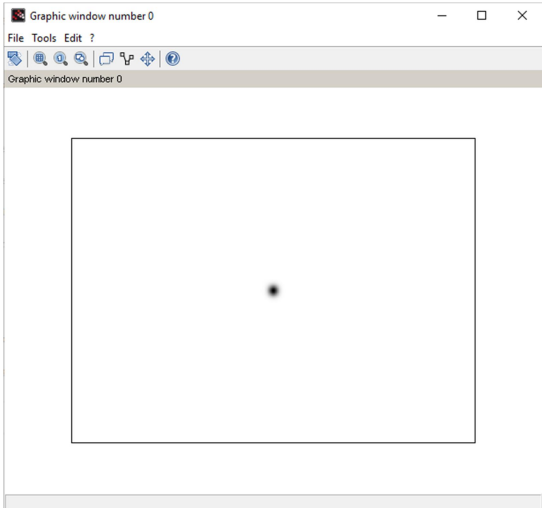# 7.HOMOMORPHIC FILTERING

PROGRAM:

```
--> I=imread('F:\1.jpg');

--> imshow(I);

--> I=rgb2gray(I);

--> I = im2double(I);

--> I = log(1 + I);

--> M=size(I,1);

--> N=size(I,2);

--> sigma=10;

--> [X, Y] = meshgrid(1:M,1:N);

--> centerX = ceil(M/2);

--> centerY = ceil(N/2);

--> gaussianNumerator = (X - centerX).^2 + (Y - centerY).^2;

--> H = exp(-gaussianNumerator./(2*sigma.^2));

--> H=1-H;

--> imshow(H);

--> H=fftshift(H);

--> IFO=fft2(I,M,N);

--> Iout=H.*IFO;

--> Iout=ifft(Iout);

--> Iout = Iout(1:size(I,1),1:size(I,2));

--> Ihmf = exp(Iout) - 1;

--> Ihmf=real(Ihmf)

--> imshow(Ihmf);

--> Ihmf=im2double(Ihmf);

--> imshow(Ihmf);

--> imshow(I);
```

OUTPUT:

(Fig:1)Original image

(Fig:2)imshow(H)

(Fig:5)imshow(I)