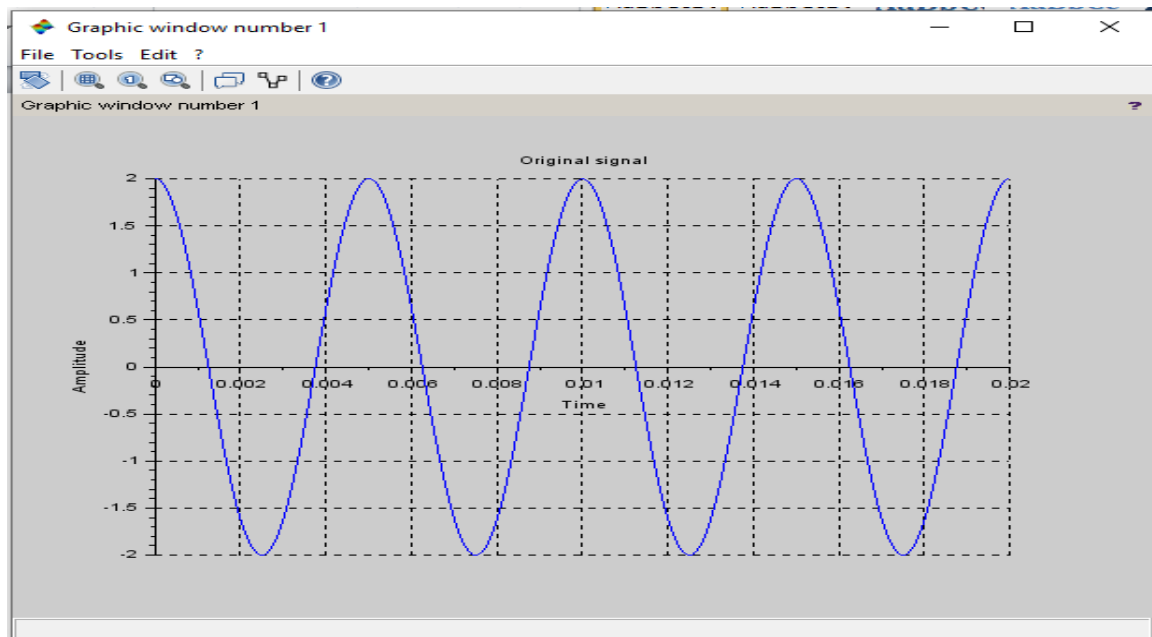


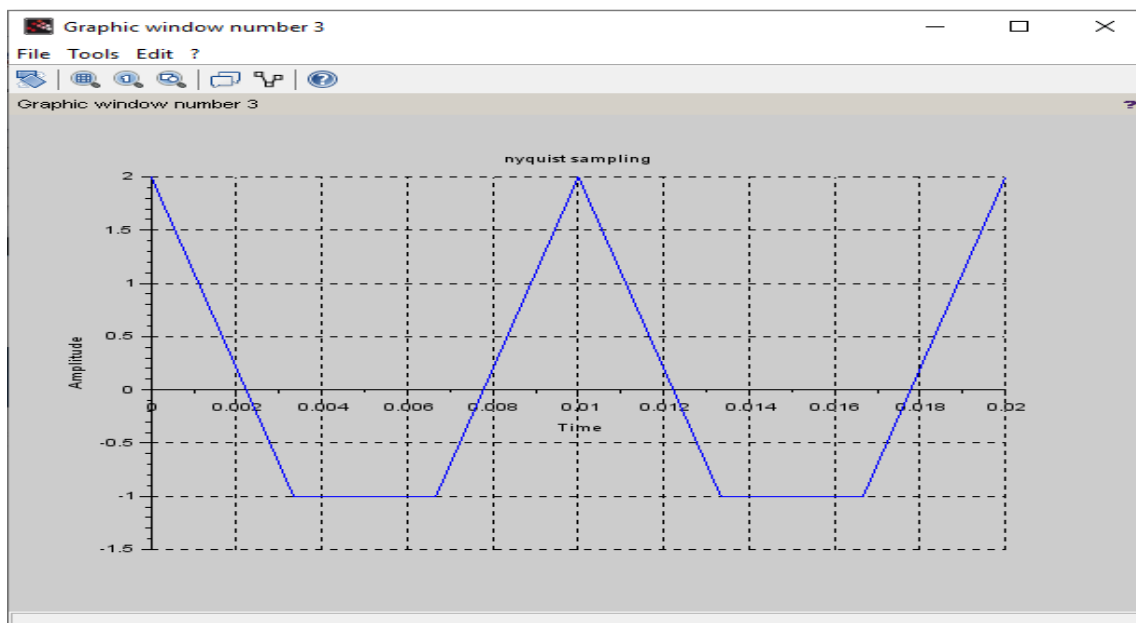
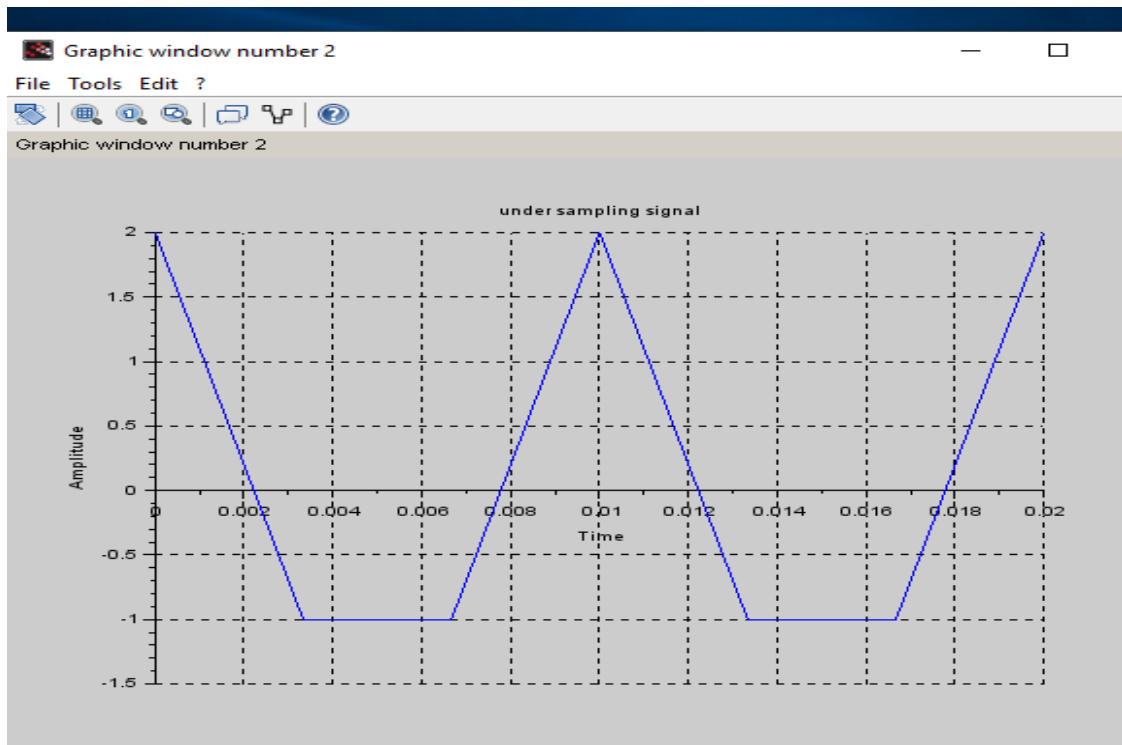
## Practical 1 a ) & b)

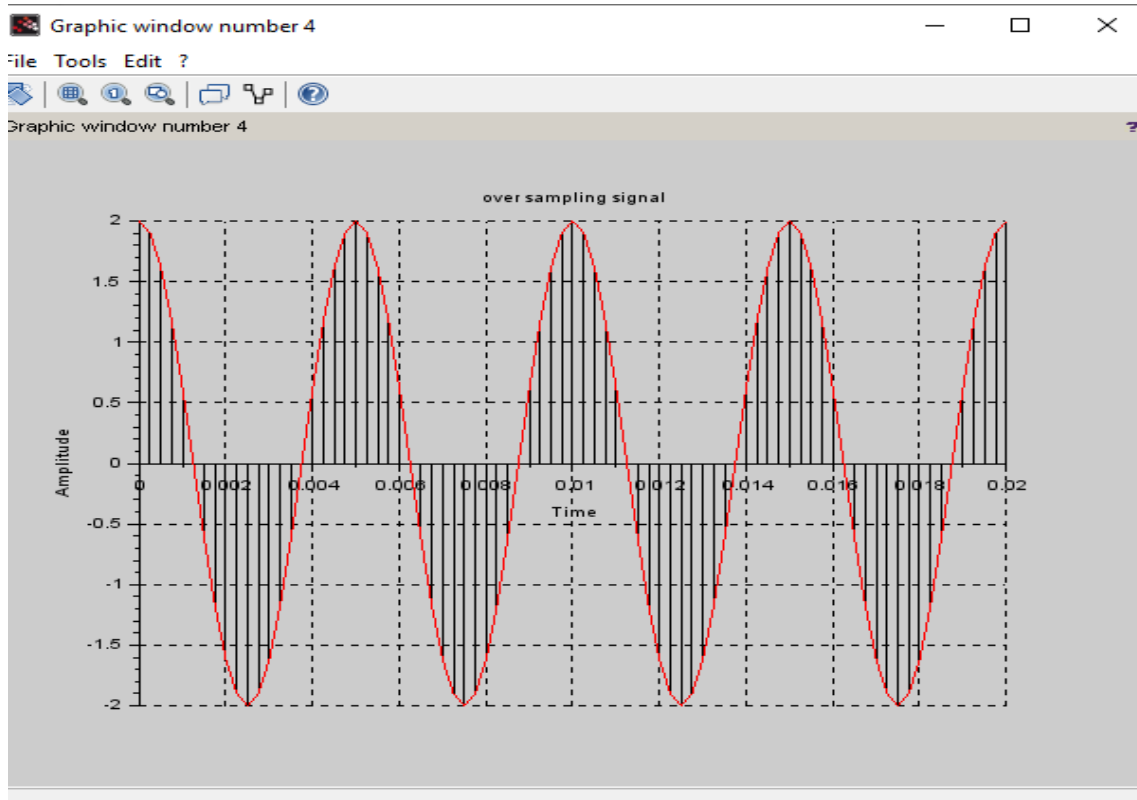
```
clc;
clear;
fm = input('input signal frequency');
k = input('no. of cycles');
A = input('Enter amplitude signal');
tm = 0:1 / (fm*fm) :k/fm;
x = A*cos(2*%pi *fm*tm);
figure(1);
a = gca();
a.x_location = "origin";
a.y_location = "origin";
plot(tm,x);
title('Original signal');
xlabel('Time');
ylabel('Amplitude');
xgrid(1)
fnyq = 2* fm;
fs = (3/4) * fnyq ;
n = 0:1 / fs: k / fm;
x = A * cos(2 * %pi *fm * n);
figure(2);
a = gca();
a.x_location = "origin";
a.y_location = "origin";
plot(n,x);
title('under sampling signal');
xlabel('Time');
ylabel('Amplitude');
xgrid(1)
fnyq = 2* fm;
fo = (3/4) * fnyq ;
o = 0:1 / fo : k / fm;
x = A * cos(2 * %pi *fm * o);
figure(3);
a = gca();
a.x_location = "origin";
a.y_location = "origin";
plot(o,x);
title('nyquist sampling');
xlabel('Time');
ylabel('Amplitude');
xgrid(1)

fo = 10 * fnyq ;
o = 0:1 / fo : k / fm;
x = A * cos(2 * %pi *fm * o);
figure(4);
a = gca();
```

```
a.x_location = "origin";  
a.y_location = "origin";  
plot2d3('gnn',o,x);  
plot(o,x,'r');  
title('over sampling signal');  
xlabel('Time');  
ylabel('Amplitude');  
xgrid(1)
```







Pract 1 b)

```

clc;
clear all;
Img=imread('C:\Program Files\scilab-6.0.2\IPCV\images\lena.png');
subplot(2,2,1),imshow(Img),title('Og image 512*512');
Samp=zeros(256);
for i=1:1:512
    for j=1:1:512
        if modulo(i,2)==0
            m=i/2;
            if modulo(j,2)==0
                n=j/2;
                Samp(i-m,j-n)=Img(i,j);
            else
                n=0;
            end
        else
            n=0;
        end
    end
end

```

```

        m=0;
    end
end
end
SampImg256=mat2gray(Samp);
subplot(2,2,2),imshow(SampImg256),title('Sampled.Img512*512')
Samp=zeros(128)
for i=1:1:512
    for j=1:1:512
        if modulo(i,4)==0
            m=i/4*3;
            if modulo(j,4)==0
                n=j/4*3;
                Samp(i-m,j-n)=Img(i,j);
            else
                n=0;
            end
        else
            m=0;
        end
    end
end
end
end

```

```

SampImg128=mat2gray(Samp);
subplot(2,2,3),imshow(SampImg128),title('Sampled.Img 128*128')
Samp=zeros(64)
for i=1:1:512
    for j=1:1:512
        if modulo(i,8)==0
            m=i/8*7;
            if modulo(j,8)==0
                n=j/8*7;
                Samp(i-m,j-n)=Img(i,j);
            else
                n=0;
            end
        else
            m=0;
        end
    end
end
end
end

```

```

SampImg64=mat2gray(Samp);
subplot(2,2,4), imshow(SampImg128), title('Sampled Image 64 x 64');

```

```

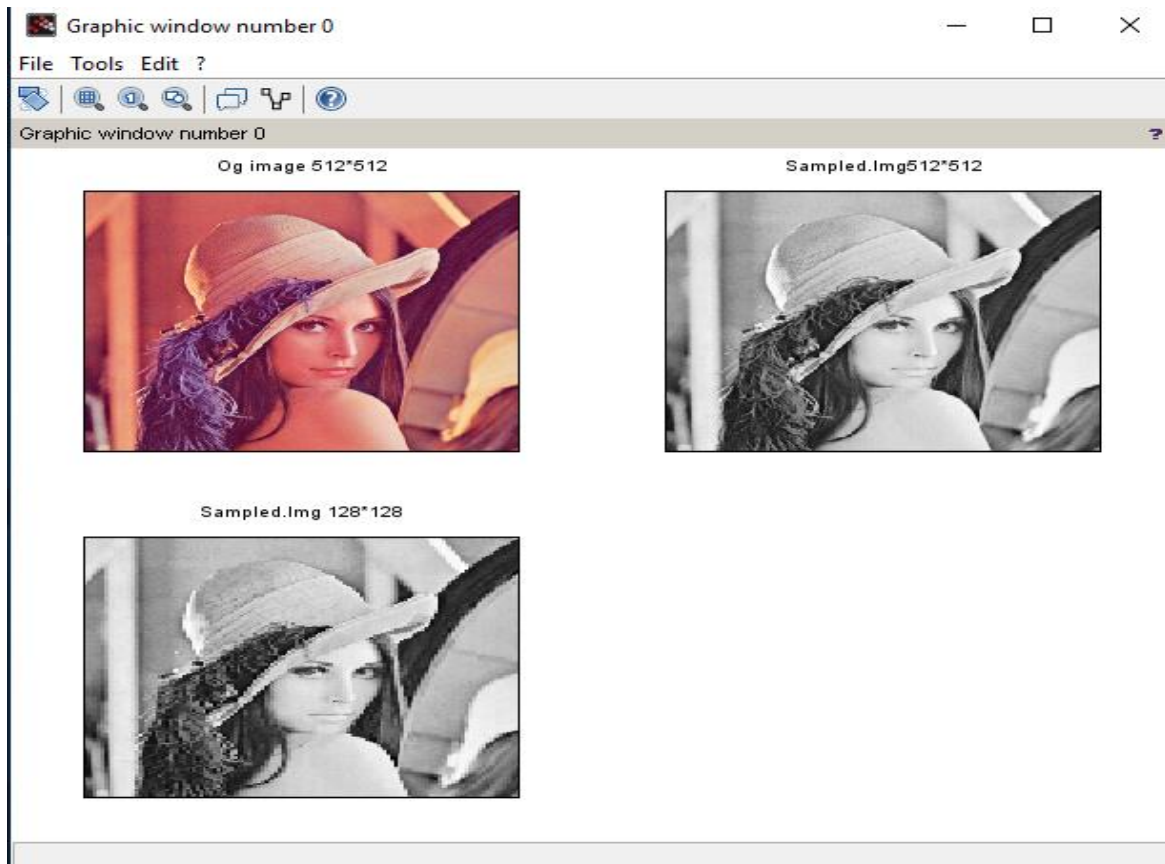
Samp = zeros(32);
for i=1:1:512
    for j = 1 : 1 : 512
        if modulo(i,16)==0
            m= i/16*4;

```

```










if modulo(j,16)==0
    n=j/16*4;
    Samp(i-m,j-n) = Img(i,j);
else
    n=0;
end
else
    m=0;
end
end
end
end

```




Graphic window number 0

File Tools Edit ?




Graphic window number 0


Og image 512\*512




Sampled.png512\*512



Sampled.png 128\*128



Sampled Image 64 x 64



Pract1 c)

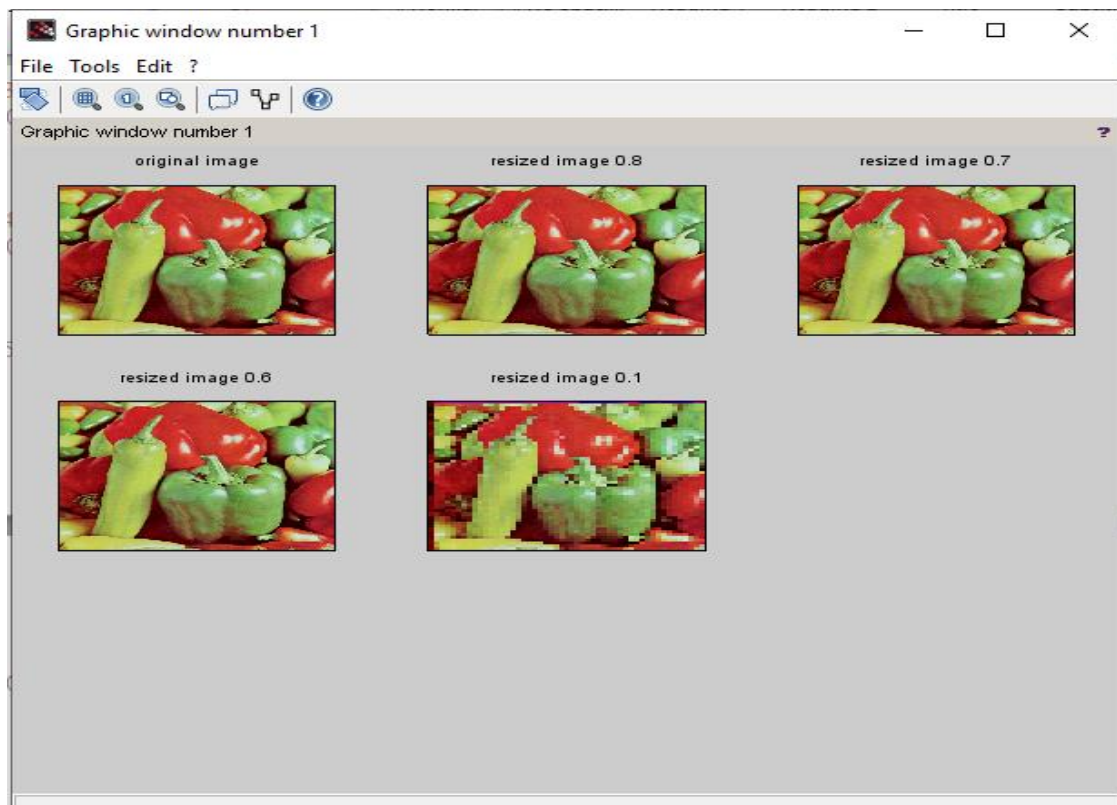
```
clc;
clear all;
figure(1)
/// checker board
subplot(3,3,1);
i=imread('C:\Program Files\scilab-6.0.2\IPCV\images\peppers.png');
imshow(i);
title('original image');
subplot(3,3,2);
j=imresize(i,0.8);
imshow(j);
title('resized image 0.8');

subplot(3,3,3);
j=imresize(i,0.7);
imshow(j);
title('resized image 0.7');

subplot(3,3,4);
j=imresize(i,0.6);
imshow(j);
title('resized image 0.6');

subplot(3,3,5);
j=imresize(i,0.1);
imshow(j);
title('resized image 0.1');
```





Pract 1 d)

*//quantization*

`clc;`

`clear all;`

`subplot(2,2,1);`

`i=imread('C:\Program Files\scilab-6.0.2\IPCV\images\cameraman.tif');`

`i=double(i);`

`imshow(uint8(i));`

`title('original image')`

`k = floor(i*256)/64;`

`subplot(2,2,2);`

`imshow(uint8(k));`

`title('quantization 64')`

`k = floor(i*255)/32;`

`subplot(2,2,3);`

`imshow(uint8(k));`

`title('quantization 32')`

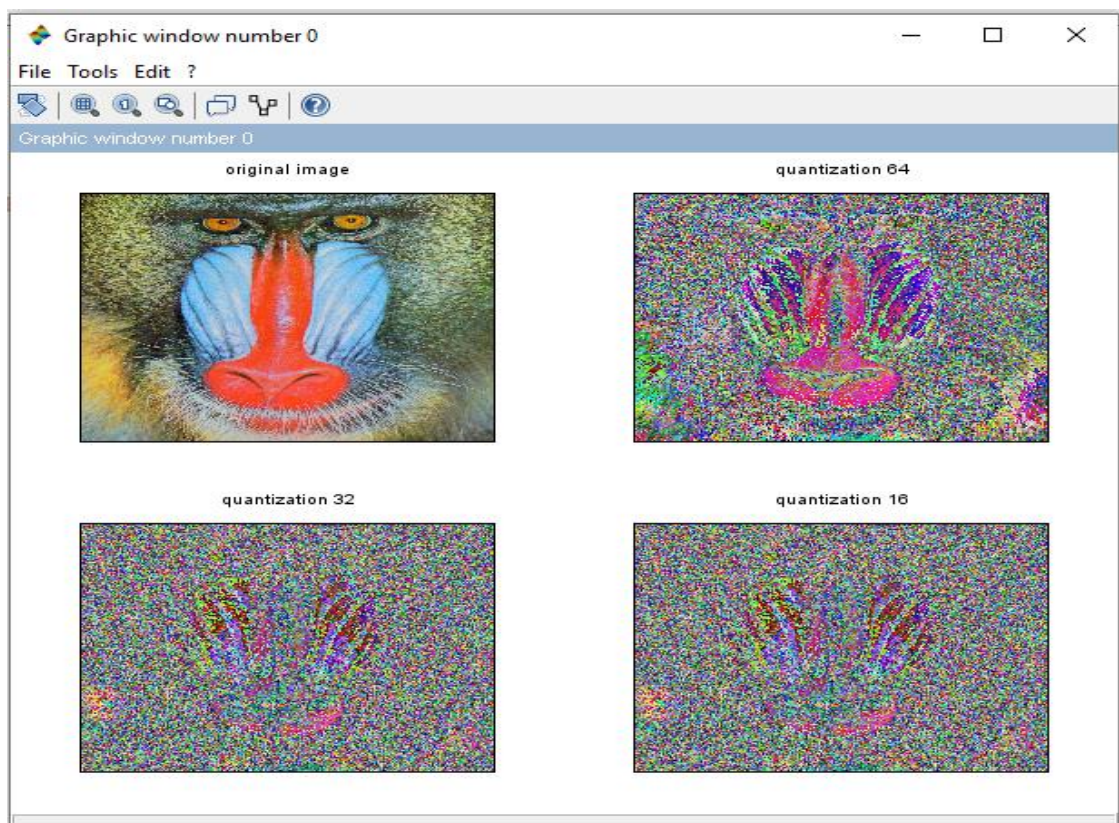
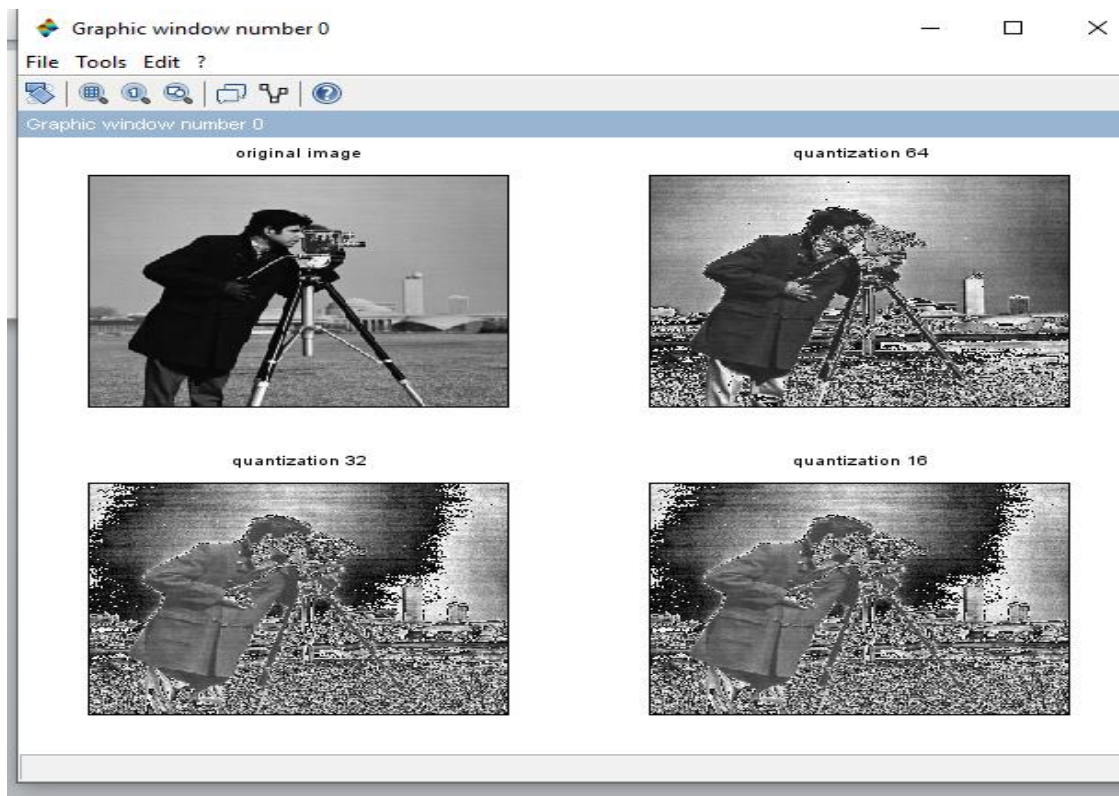
`k = floor(i*255)/16;`

`subplot(2,2,4);`

`imshow(uint8(k));`

`title('quantization 16')`

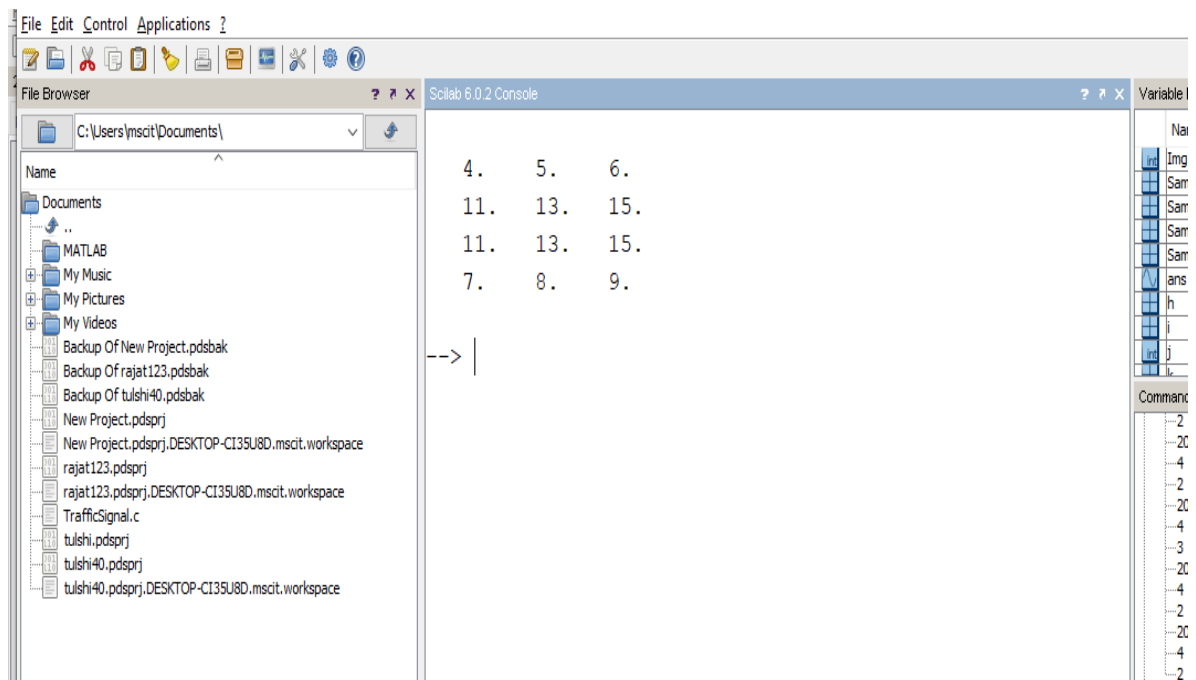
`k = floor(i*255)/16;`



Pract 1 e)

Pract 2 c

```
clc;  
x=[4,5,6;7,8,9];  
h=[1;1;1];  
y=conv2(x,h);  
disp(y);
```



## Practical 2 d)

```
clc;
clear all;
a=imread('C:\Program Files\scilab-
6.0.2\IPCV\images\cameraman.tif');
a=double(a);
[row col k]=size(a);
while(1)
    rc=input('mask');
    remain=modulo(rc,2);
    if remain ==0
        disp('enter odd value');
        continue;
    else
        break;
    end
end
z=(rc+1)/2;
n=rc*rc;
for v=1:1:rc
    for w=1:1:rc
        msk(v,w)=1/n;
    end
end

a1=a;
for d=1:1:k
    for x=z:1:row-z+1
        for y=z:1:col-z+1
            for i=1:1:rc
                for j=1:1:rc
                    a1(x,y,d)= a1(x,y,d)+msk(i,j)*a(x-z+i,y-z+j,d);
```

```

end
end
end
end
subplot(2,2,1);
imshow(uint8(a));
title('original image');
subplot(2,2,2);
imshow(uint8(a1));
title('image filtered lowpass');
x = a1 - a;
subplot(2,2,3);
imshow(uint8(x));

```

