**Prewitts mask-**

img = rgb2gray(imread('down.png'));

subplot(2,2,1);

imshow(img);

title('Original Image');

img = double(img);

[r,c] = size(img);

%Prewitts mask

L(i:r,i:c) = 0;

%vertical

for i=2:r-2

for j=2:r-2

L(i,j)=-1\*img(i-1,j-1)+0+0+0+1\*img(i+1,j+1)-1\*img(i,j-1)-1\*img(i+1,j-1)+1\*img(i-1,j+1)+1\*img(i,j+1);

end

end

subplot(2,2,2);

imshow(uint8(L));

title('On Applying Vertical Prewitts mask');

M(1:r,1:c)=0;

%horizontal

for i=2:r-2

for j=2:r-2

M(i,j)=-1\*img(i-1,j-1)+0+0+0+1\*img(i+1,j+1)-1\*img(i-1,j)-1\*img(i-1,j+1)+1\*img(i+1,j-1)+1\*img(i+1,j);

end

end

subplot(2,2,3);

imshow(uint8(M));

title('On Applying Horizontal Prewitts mask');

N = L+M;

subplot(2,2,4);

imshow(uint8(N));

title('On Applying Prewitts mask');

**Sobels mask-**

img = rgb2gray(imread('down.png'));

subplot(2,2,1);

imshow(img);

title('Original Image');

img = double(img);

[r,c] = size(img);

%Sobels mask

L(i:r,i:c) = 0;

%vertical

for i=2:r-2

for j=2:r-2

L(i,j)= -1\*img(i-1,j-1)+0+0+0+1\*img(i+1,j+1)-2\*img(i-1,j)-1\*img(i-1,j+1)+1\*img(i+1,j-1)+2\*img(i+1,j);

end

end

subplot(2,2,2);

imshow(uint8(L));

title('On Applying Vertical Sobels mask');

M(1:r,1:c)=0;

%horizontal

for i=2:r-2

for j=2:r-2

M(i,j)= 1\*img(i-1,j-1)+0+0+0-1\*img(i+1,j+1)+2\*img(i,j-1)+1\*img(i+1,j-1)-1\*img(i-1,j+1)-2\*img(i,j+1);

end

end

subplot(2,2,3);

imshow(uint8(M));

title('On Applying Horizontal Sobels mask');

N = L+M;

subplot(2,2,4);

imshow(uint8(N));

title('On Applying Sobels mask');

**Roberts mask-**

img = rgb2gray(imread('down.png'));

subplot(2,2,1);

imshow(img);

title('Original Image');

img = double(img);

[r,c] = size(img);

%Roberts mask

L(i:r,i:c) = 0;

%vertical

for i=1:r-2

for j=1:r-2

L(i,j)= 1\*img(i,j+1)+0+0-1\*img(i+1,j);

end

end

subplot(2,2,2);

imshow(uint8(L));

title('On Applying Vertical Roberts mask');

M(1:r,1:c)=0;

%horizontal

for i=2:r-2

for j=2:r-2

M(i,j)= 1\*img(i,j)+0+0-1\*img(i+1,j+1);

end

end

subplot(2,2,3);

imshow(uint8(M));

title('On Applying Horizontal Roberts mask');

N = L+M;

subplot(2,2,4);

imshow(uint8(N));

title('On Applying Roberts mask');

**Laplacian-**

img = rgb2gray(imread('down.png'));

subplot(1,2,1);

imshow(img);

title('Original Image');

img = double(img);

[r,c] = size(img);

%Laplacian mask

M(1:r,1:c)=0;

%horizontal

for i=2:r-2

for j=2:r-2

M(i,j)=-1\*img(i-1,j)-1\*img(i,j-1)-1\*img(i,j+1)-1\*img(i+1,j)+4\*img(i,j);

end

end

subplot(1,2,2);

imshow(uint8(M));

title('On Applying Laplacian mask');