**Exp:4 Convolution property of DFT Date:2/8/13**

**Program:**

clc;

close all;

clear all;

## generation of first image

a = zeros(256);

[m,n] = size(a);

for i = 110:140

for j=110:140

a(i,j)=255;

end

end

## generation of second image

b = ones(256);

[m,n]=size(b);

for i=110:160

for j=110:160

b(i,j)=0;

end

end

## generation of spatial domain

c = conv2 (a,b,'same');

## multiplication of frequency domain

a1 = fft2(a);

b1 = fft2(b);

c1 = a1\*b1;

d1 = fftshift(ifft2 (c1));

figure

subplot(2,2,1);

imshow(a);

title('image1');

subplot(2,2,2);

imshow(b);

title('image2');

subplot(2,2,3);

imshow(c);

title('convolution in spatial domain');

subplot(2,2,4);

imshow(d1);

title('spatial multiplication');

**OUTPUT:**

