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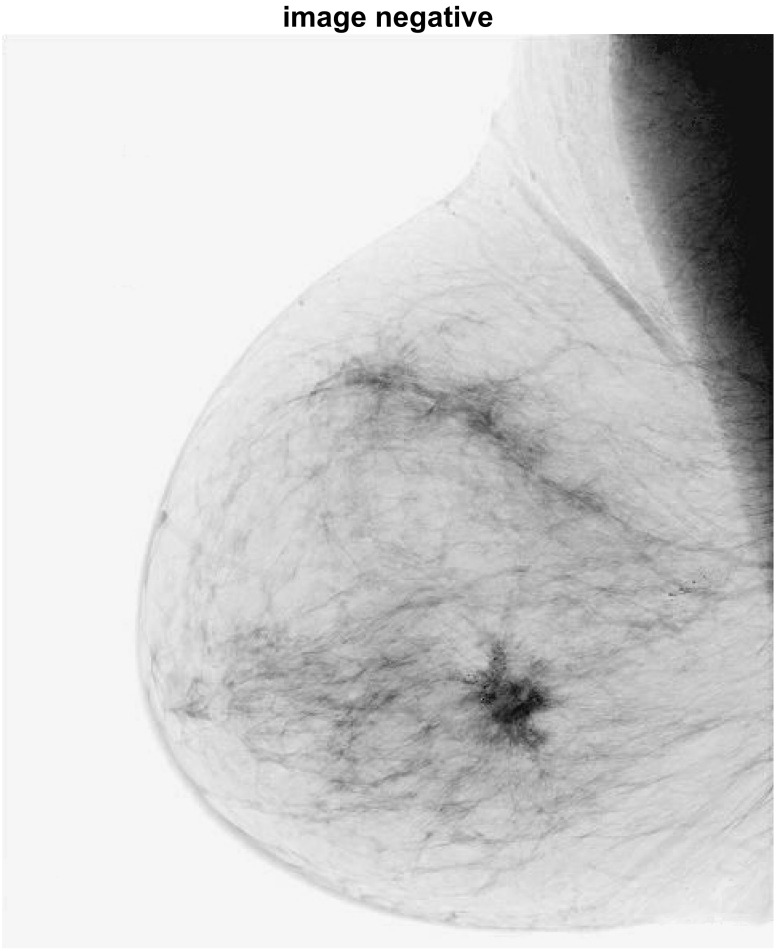
image negatives excercise 1

```
m=imread("Fig3.04(a).jpg");
imshow(m)
title("original image")
```


```
m1=double(m)
```

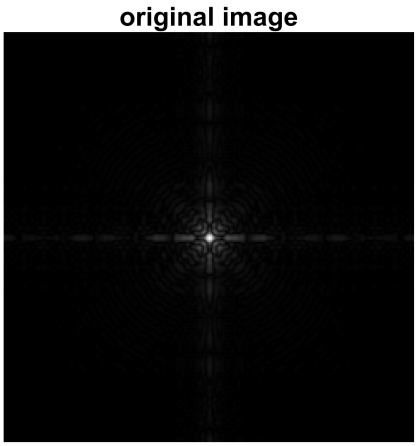
```
m1 = 571×482
    22    30    32    28    27    28    28    29    28    28    28    28    28 ···
    38    26    39    33    33    33    33    33    33    33    33    33    33
    35    21    43    28    28    28    28    28    28    28    28    28    28
    38    33    32    33    33    33    33    33    33    33    33    33    33
    23    42    33    31    31    31    31    32    31    31    31    31    31
    33    33    29    31    30    30    29    31    30    30    30    30    30
    32    31    28    30    30    30    30    30    30    30    30    30    30
    32    33    30    30    30    30    30    30    30    30    30    30    30
    33    35    33    29    30    30    30    30    30    30    30    30    30
    33    33    33    29    30    30    30    30    30    30    30    30    30
     ⋮
```

```
out=255-m1;
imshow(out,[])
title("image negative")
```

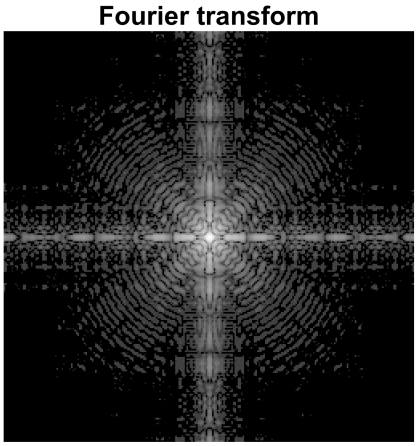


ex2 Log transformations

```
d=imread("Fig3.05(a).jpg");
imshow(d)
title("original image")
```




```
d1=double(d);
s=log(1+d1);
imshow(s,[])
title("Fourier transform")
```



ex3 Power-law transformations

```
b=imread("Fig3.08(a).jpg");
imshow(b)
title("image original")
```


```
b=double(b)
```

```
b = 488×373
     0     1     1     0     0     1     1     1     1     1     1     1     1 ···
     0     1     1     0     0     1     1     1     1     1     1     1     1
     1     1     0     0     1     1     1     0     0     1     1     2     2
     1     1     1     1     1     1     1     0     1     1     1     1     1
     1     2     1     2     1     0     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     2     2     2     1     1     1     1     1     1     1     1     1     1
     2     1     1     1     1     1     1     1     1     1     1     1     1
     1     1     1     1     1     1     1     1     1     1     1     1     1
     ⋮
```

```
b1=b.^0.6;
imshow(b1,[])
title("image 0.6")
```

ex4 Lookup tables (LUT)

```
T=uint8(floor((0:255)/2));
ct=T(255);
ct=double(ct)
```

```
ct = 127
```

```
b2=ct.*(b.^0.4);
imshow(b2,[])
title("image 0.4")
```

ex4

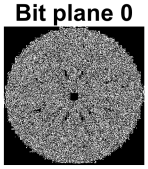
```
f=imread("Fig3.13.jpg")
```

```
f = 600×608 uint8 matrix
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0···
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
      ⋮
```

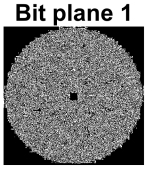
```
subplot(4,2,1)
c0=mod(f, 2);
imshow(c0,[]);
title("Bit plane 0")
subplot(4,2,2)
c1=mod(floor(f/2), 2);
imshow(c1,[]);
title("Bit plane 1")
```

```
subplot(4,2,3)
c2=mod(floor(f/4), 2);
imshow(c2,[]);
title("Bit plane 2")
subplot(4,2,4)
c3=mod(floor(f/8), 2);
imshow(c3,[]);
title("Bit plane 3")
subplot(4,2,5)
c4=mod(floor(f/16), 2);
imshow(c4,[]);
title("Bit plane 4")
subplot(4,2,6)
c5=mod(floor(f/32), 2);
imshow(c5,[]);
title("Bit plane 5")
subplot(4,2,7)
c6=mod(floor(f/64), 2);
imshow(c6,[]);
title("Bit plane 6")
subplot(4,2,8)
c7=mod(floor(f/128), 2);
imshow(c7,[]);
title("Bit plane 7")
```

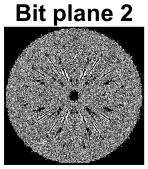
Bit plane 0



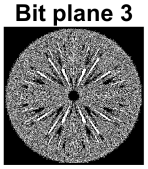
Bit plane 1



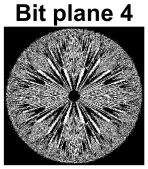
Bit plane 2



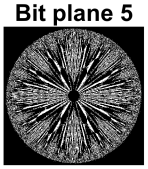
Bit plane 3



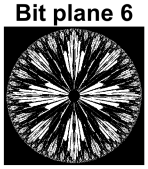
Bit plane 4



Bit plane 5



Bit plane 6



Bit plane 7