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Part 1

```matlab
I=imread('Que_es.png');
imshow(I)
I2 = I + 200;
figure,imshow(I2),title('offset');
max(I(:))
I3 = I*10;
figure,imshow(I3),title('contrast');
[files cols] = size(I)

for i=1: files %invert image dirty code
    for j=1: cols
            I4(i,j) = 255-I3(i,j);
    end
end

figure, imshow(I4), title('negatiu');

I5 = 255-I3; %invert image
figure, imshow(I5), title('negatiu');
I6 = imcomplement(I3); %invert image si no saps el tipus de dades

% histograma normal
histogram = zeros(255);
for i=1: files
    for j=1: cols
        histogram(1+I(i,j)) = histogram(1+I(i,j)) + 1;
    end
end

figure, plot(histogram), title('histogram');
figure, imhist(I), title('histogram with imhist'); % histograma done
 easy

% equalitzacio d'histograma
I7 = histeq(I);
figure,imshow(I7), title('equalitzada');
```

```
figure, imhist(I7), title('histograma equalitzat');
```

ans =

  uint8

    16

files =

    250

cols =

    596

offset

contrast
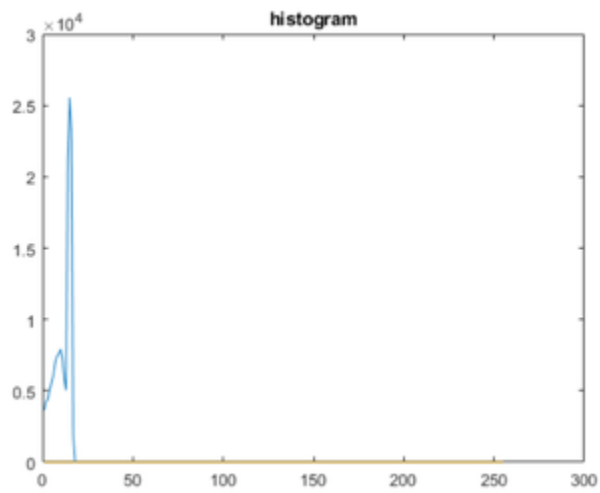
negatiu

negatiu

histogram

histogram with imhist

equalitzada
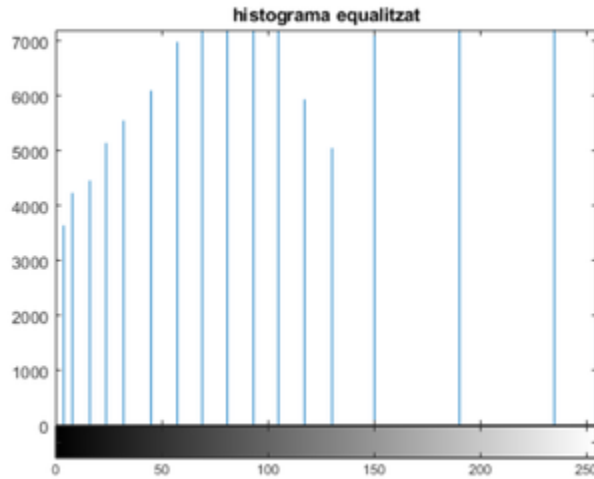

histograma equalitzat
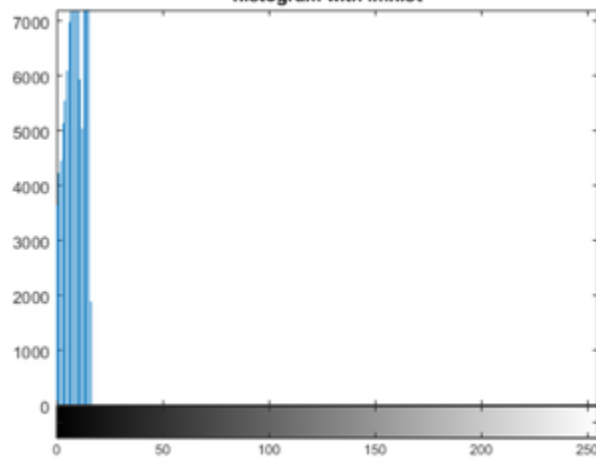
Part 2

```matlab
L = imread('lenna.tif');
figure, imhist(L), title('Histograma Lenna');
figure, imshow(L), title('Lenna');
L2 = imresize(L,0.25);
figure, imshow(L2), title('Lenna 1/4');
L3 = imresize(L2, 4);
figure, imshow(L3), title ('Lenna restaurada'); %Mala resolucio
L4 = imresize(L2, 4, 'nearest');
figure, imshow(L4), title ('Lenna nearest');
L5 = imrotate(L,45);
figure, imshow(L5), title ('Lenna rotate 45');
T = affine2d([1 0 0; 0.5 1 0;0 0 1])
L6 = imwarp(L,T);
figure, imshow(L6), title('Lenna transform');


T =

  affine2d with properties:

            T: [3×3 double]
    Dimensionality: 2
```

histograma equalitzat

Histograma Lenna
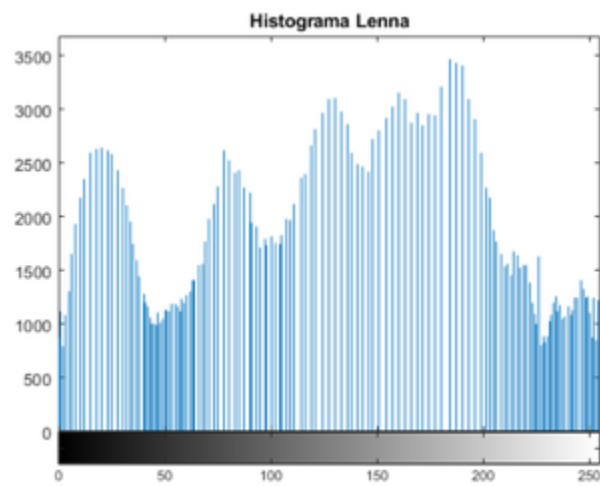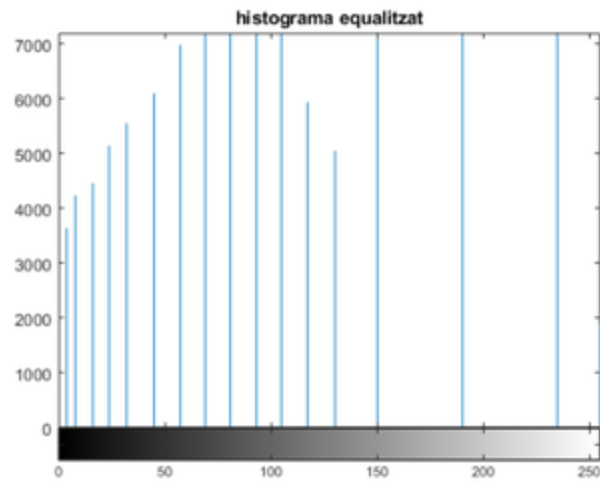
Lenna

Lenna 1/4

Lenna restaurada

Lenna nearest

Lenna rotate 45

Lenna transform

Part 3

```
T1 = imread('toycars1.png');
T2 = imread('toycars2.png');
T3 = imread('toycars3.png');
figure, subplot(1,3,1), imshow(T1);
subplot(1,3,2), imshow(T2), title('toycars');
subplot(1,3,3), imshow(T3);
res1 = imabsdiff(T1,T2);
res2 = imabsdiff(T2,T3);
figure, subplot (1, 2, 1), imshow(res1), title('toycars1-toycars2');
subplot (1,2,2), imshow(res2), title('toycars2-toycars3');
res1 = T3 - T1;
figure, imshow(res1), title('diferencia');
res2 = T1-T3;
figure, imshow(res2), title('diferencia inversa');
```

Lenna transform

toycars

toycars1-toycars2

toycars2-toycars3

diferencia

diferencia inversa

Part 4

```
B1 = imread('Blispac1.tif');
B2 = imread('Blispac2.tif');
figure, imshow(B1), title ('Imatge patro');
figure, imshow(B2), title ('Imatge entrada');
res = imabsdiff(B1, B2);
figure, imshow(res), title ('Diferencia');
figure, imshowpair(B1,B2, 'blend'), title('Superposicio');
B3 = B1(:,:,1);
B4 = B2(:,:,1);
BWB1 = im2bw(B3,0.5); %BINARY
BWB2 = im2bw(B4,0.5);
figure, subplot(1,2,1), imshow(BWB1), title('Binary');
subplot(1,2,2), imshow(BWB2);
```
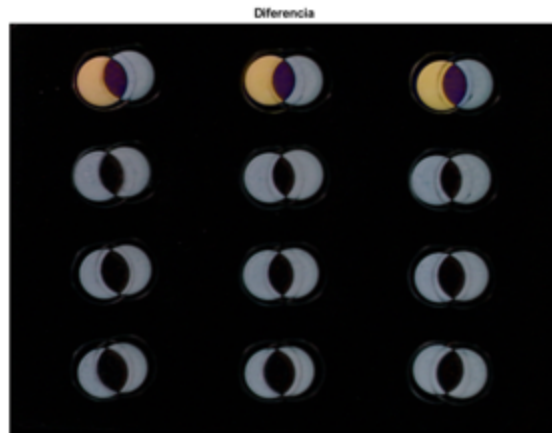
diferencia inversa

Imatge patro

Imatge entrada

Diferencia
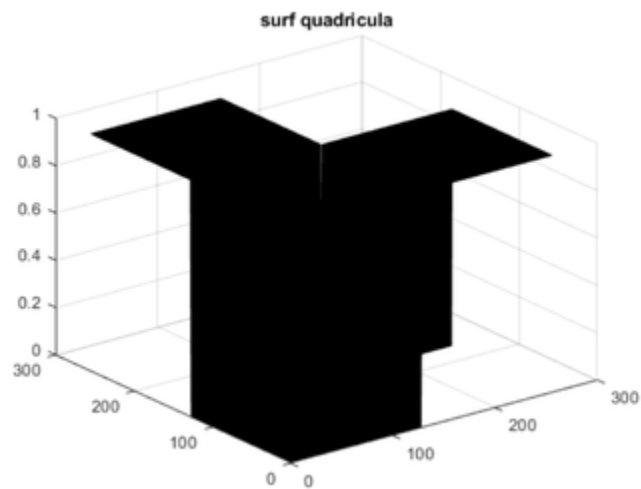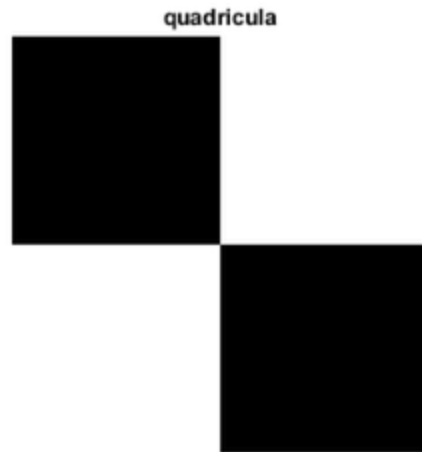

Superposicio

Binary
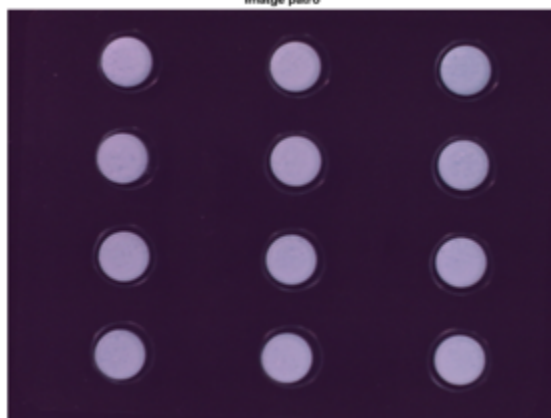
Part 5

```
im(1:256, 1:256)=1;
im(1:128, 1:128)= 0;
```
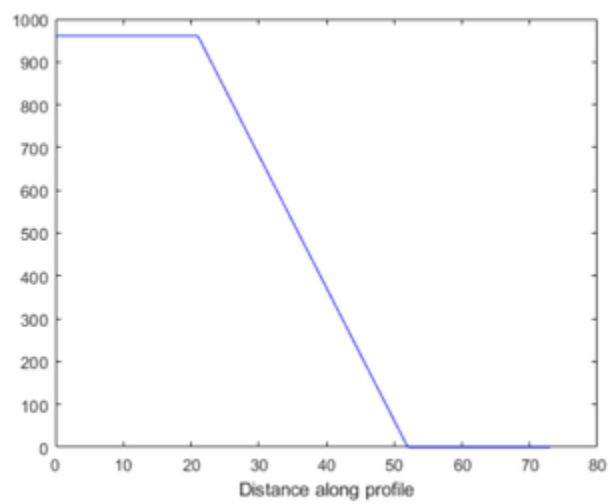
```
im(129:256, 129:256)= 0;
figure, imshow(im), title('quadricula');
improfile
figure, surf(im), title('surf quadricula');
w = ones(31);
res = imfilter(im, w, 'conv');
figure, imshow(res, []), title('imatge filtrada');
improfile
res2 = imfilter(im, w, 'conv', 'replicate');
figure, imshow(res2, []), title('padding amb repl');
```


quadricula

surf quadricula

imatge filtrada

padding amb repl

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