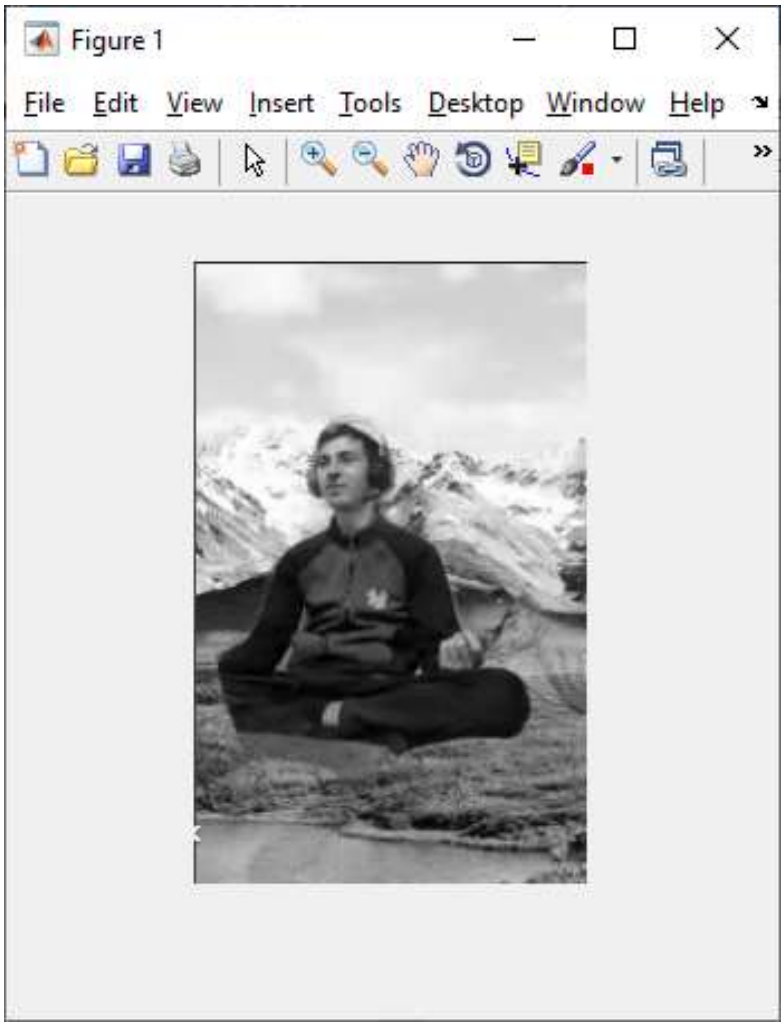
Classes 1 - Binary Image

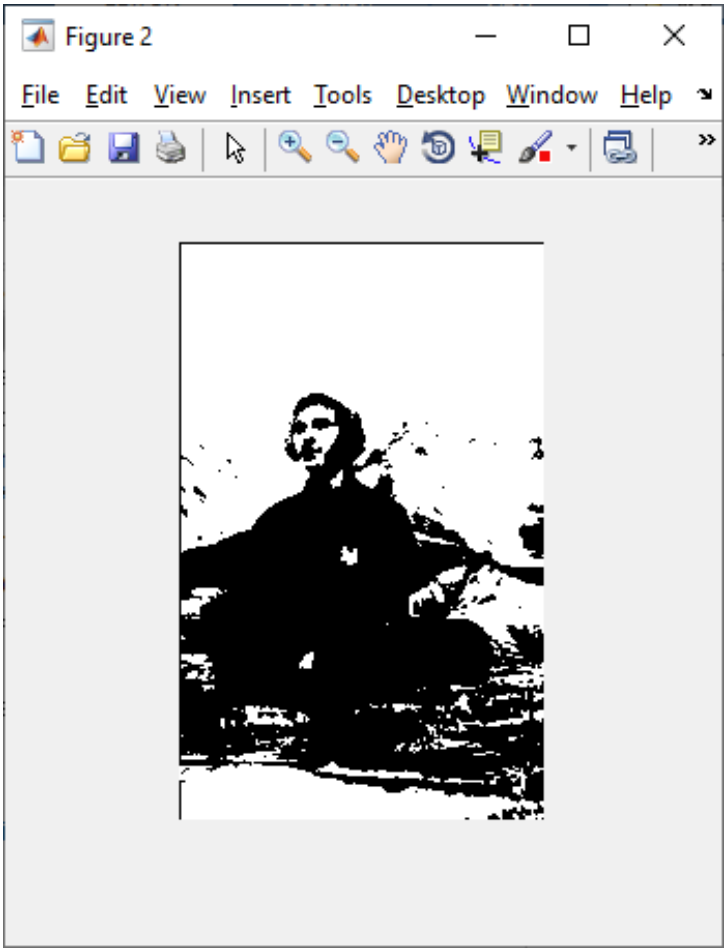
Exercise 1 . Display a binary image using an automatic threshold.

Output code :

```
X=imread('miraculousMovie.jpg');
I=im2double( rgb2gray(X));
figure,imshow(I)
T = 0.5*(min(I(:)) + max(I(:)));
done = false;
while ~done g=I>= T;
 Tnext = 0.5*(double(min(I(g))) + double(max(I(~g))));
 done = abs(T - Tnext) < 0.5;
 T = Tnext;
end
bw = I> T;
figure, imshow(bw)
```



Pic.1.1 – Negative image

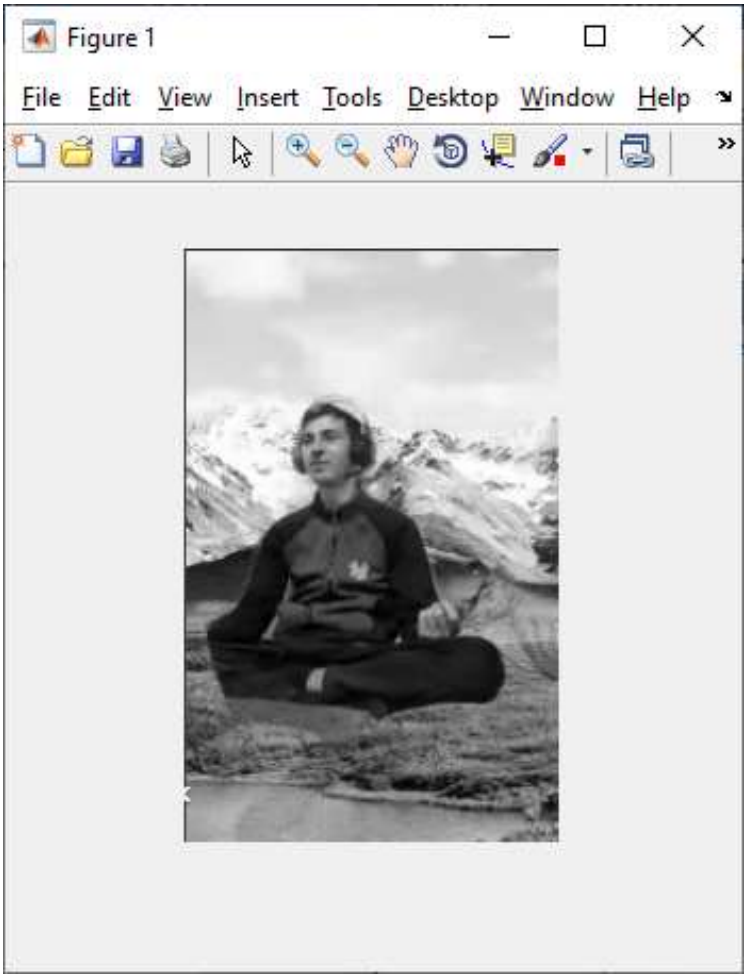


Pic.1.2 – Binary image

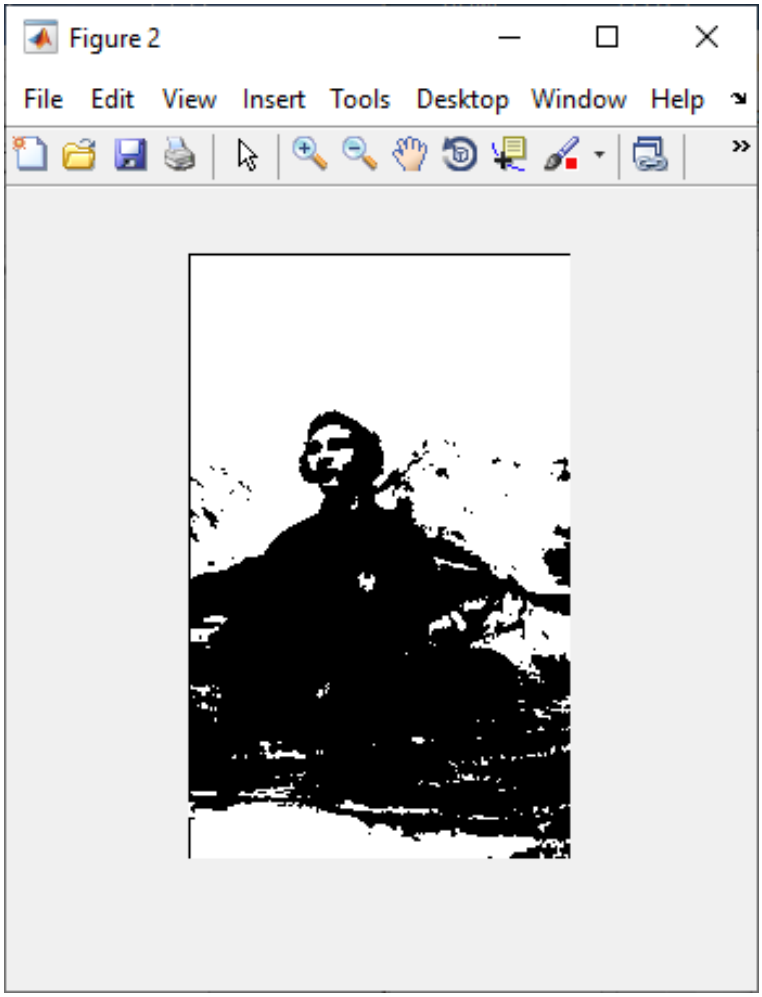
Exercise 2 . Display binary image using function graythresh.

Output code :

```
rgb = imread('kagami.jpg');
I= im2double(rgb2gray(rgb));
figure,imshow(I)
T = graythresh(I);
Bw=I > T;
figure, imshow(Bw)
```



Pic.1.3 – Negative image

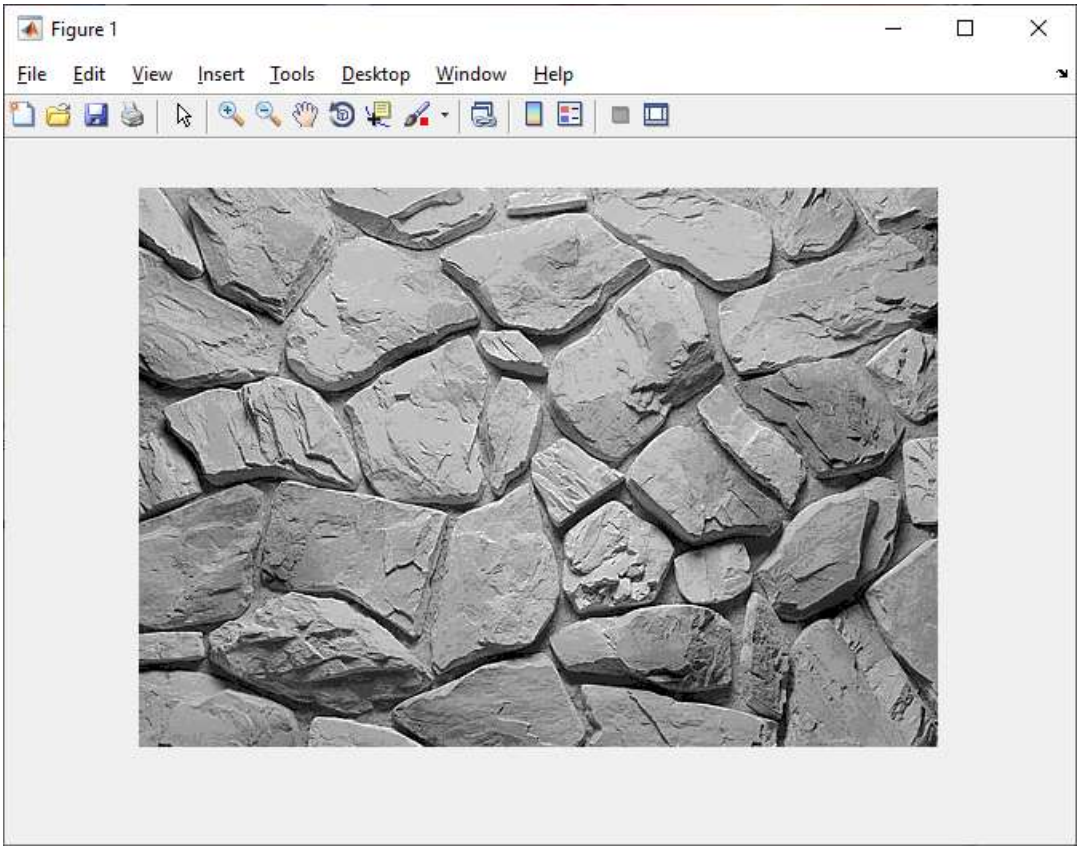


Pic.1.4 – Binary image

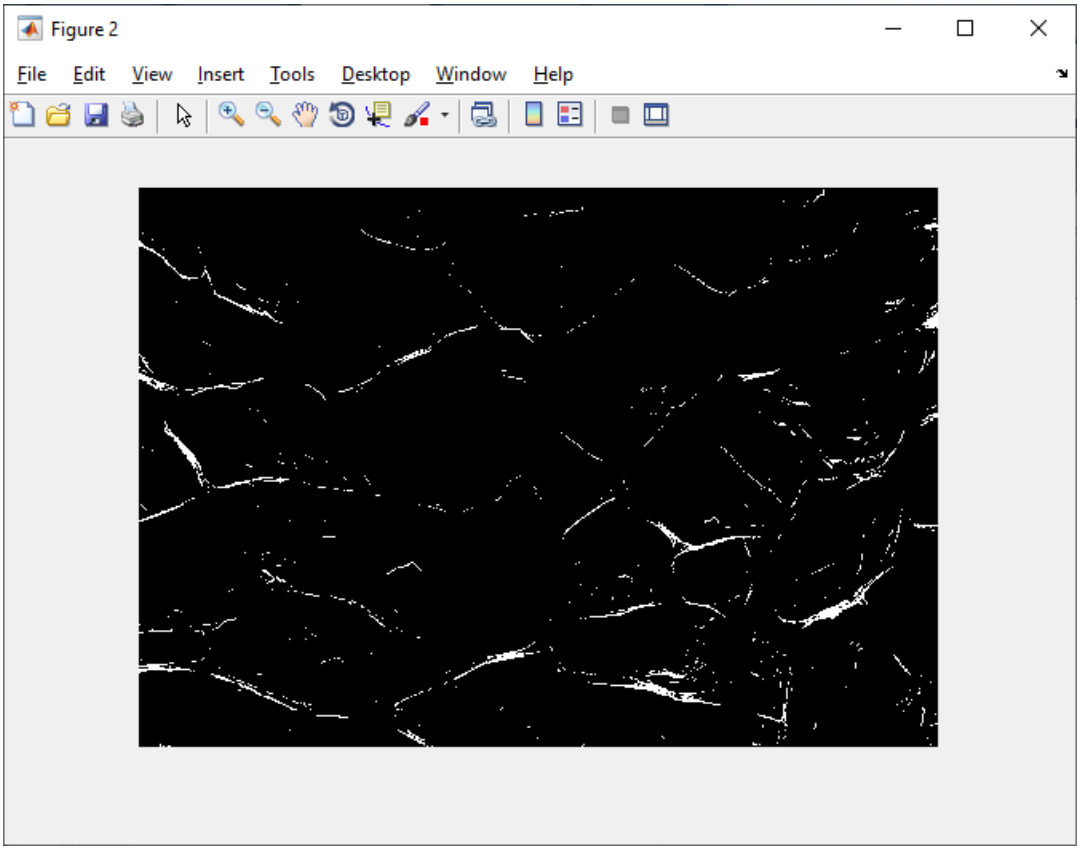
Exercise 3 . Display binary image using a negative.

Output code :

```
[X,map] = imread('rock.bmp' );
I = ind2gray(X,map);
figure,imshow(I)
T=graythresh(I);
BW = I < T;
figure,imshow(BW)
```



Pic.1.5 – Negative image

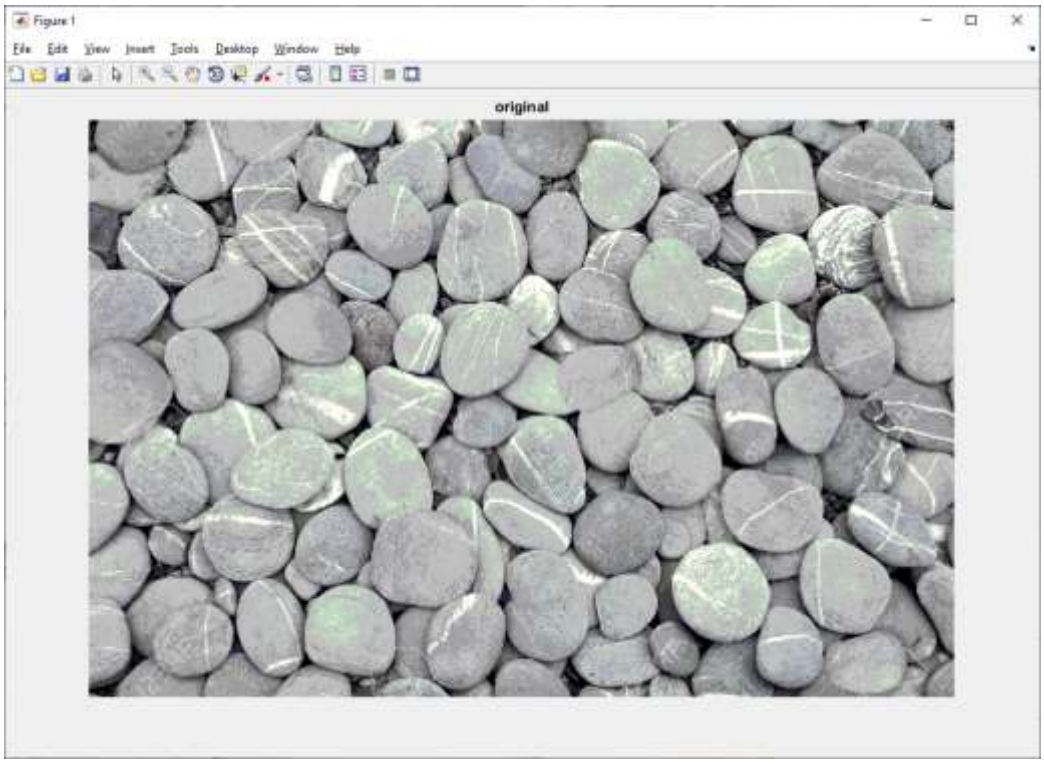


Pic.1.6 – Binary image

Exercise 4 . Display binary image using 0 to 1 threshold and default threshold.

Output code :

```
[X,map] = imread('kamen1.bmp');
figure,imshow(X,map)
title ('original')
BW = im2bw(X,map);
figure,imshow(BW)
title ('default threshold')
I = im2double(ind2gray(X,map));
figure,imshow(I)
title ('negative')
T = 0.1 ;
BW = im2bw(I,T);
figure,imshow(BW)
title ('threshold from 0 to 1 ')
```



Pic.1.7

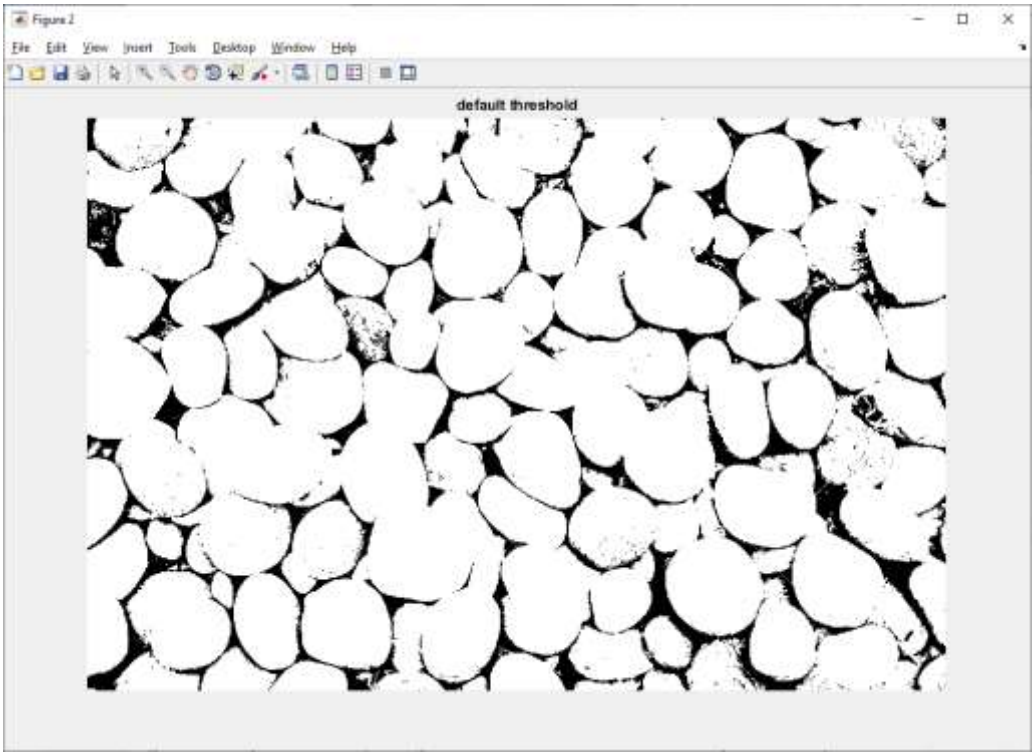


Figure 2
File Edit View Insert Tools Desktop Window Help
default threshold

Pic.1.8

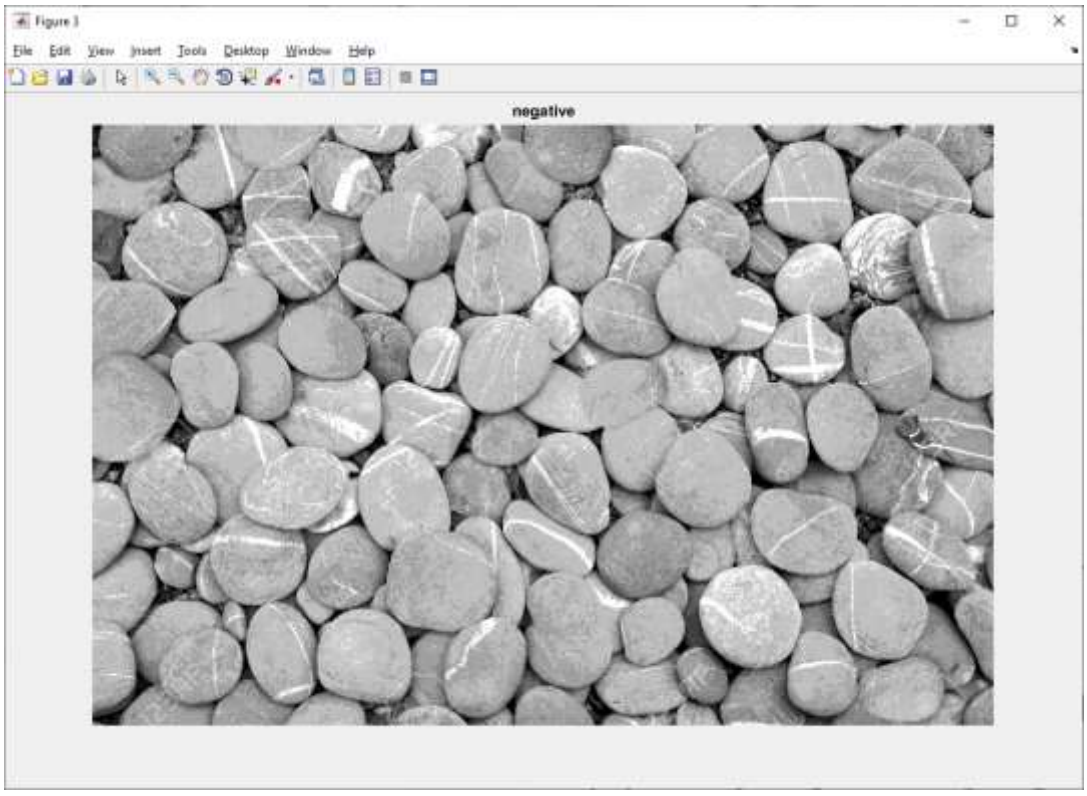
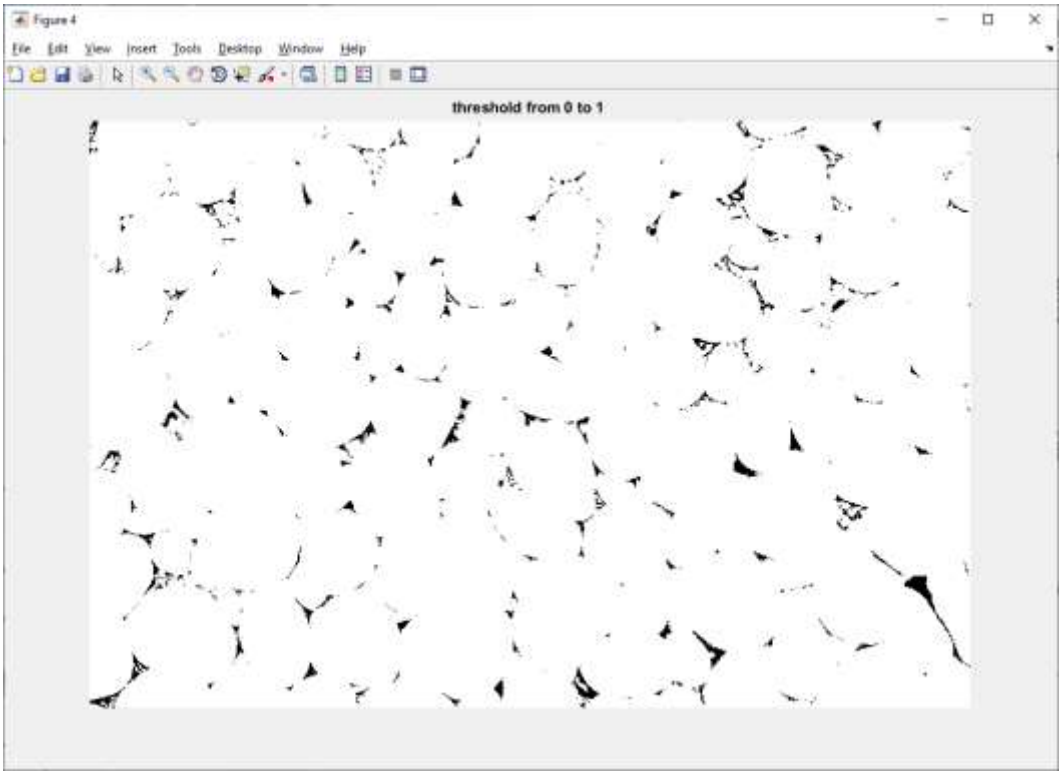


Figure 1
File Edit View Insert Tools Desktop Window Help
negative

Pic.1.9



Pic.1.10

Conclusions : on this lesson had learned different methods of image binaryzation and had improved practical skills .