Classes 1 - Binary Image

Example 1.

Binary image using an automatic threshold

```
[X,map]=imread('kamen.bmp');
I=im2double( ind2gray(X,map));
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)
```

Example 2.

Binary image using *graythresh* function.

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

Example 3.

Binary image using a negative

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

Example 4.

Binary image using choice of threshold

a) default threshold

```
[X,map] = imread('kamen1.bmp');
figure,imshow(X,map)
BW = im2bw(X,map);
figure,imshow(BW)
```

b) threshold using the *graythresh* function

```
[X,map] = imread('kamen1.bmp');
I = im2double(ind2gray(X,map));
figure,imshow(I)
 T = graythresh(I);
BW = im2bw(I,T);
figure,imshow(BW)
```

Exercise 1

Display a binary image using an automatic threshold.

Exercise 2

Display binary image using function graythresh.

Exercise 3

Display binary image using a negative.

Exercise 4

Display binary image using choice of threshold at 0 to 1 and default threshold.

Notes: *you can use your images, but make sure that the image format matches (.jpg, .jpeg, .bmp).*