

```
Image=imread('coin.jpg');
subplot(2,2,1);
imshow(Image);
title("Original Image");
hold on
```



```
I = rgb2gray(Image);
n=imhist(I);
N=sum(n);
max=0;
for i=1:256
P(i)=n(i)/N;
end
for T=2:255 w0=sum(P(1:T));
w1=sum(P(T+1:256));
u0=dot(0:T-1,P(1:T))/w0;
u1=dot(T:255,P(T+1:256))/w1;
sigma=w0*w1*((u1-u0)^2);
if sigma>max
max=sigma;
threshold=T-1;
end
end
```

```
bw=imbinarize(I,threshold/255);
display(threshold)
```

```
threshold = 88
```

```
originalImage = I;
subplot(2,2,2)
imshow(originalImage);
title("Original GrayScale Image");
set(gcf, 'units','normalized','outerposition',[0 0 1 1]);
hold on
binaryImage=bw;
thresholdValue=threshold;
labeledImage = bwlabel(binaryImage, 8);
blobMeasurements = regionprops(labeledImage, originalImage,'all');
numberOfBlobs = size(blobMeasurements, 1);
textFontSize = 14;
labelShiftX = -7;
blobECD = zeros(1, numberOfBlobs);
X = zeros(length(numberOfBlobs),4);
for k = 1 : numberOfBlobs
    thisBlobsPixels = blobMeasurements(k).PixelIdxList;
    meanGL = mean(originalImage(thisBlobsPixels));
    meanGL2008a = blobMeasurements(k).MeanIntensity;
end
blobArea = blobMeasurements(k).Area;
Perimeter = blobMeasurements(k).Perimeter;
blobCentroid = blobMeasurements(k).Centroid;
blobECD(k) = sqrt(4 * blobArea / pi);
X(k,1)=k;
X(k,2) = blobMeasurements(k).Area;
X(k,3)=blobCentroid(1);
X(k,4)=blobCentroid(2);
disp(X)
```

```
0      0      0      0
0      0      0      0
0      0      0      0
0      0      0      0
0      0      0      0
6      1     131     189
```

```
cent = sortrows(X,2);
allBlobCentroids = [blobMeasurements.Centroid];
centroidsX = cent(2:6,3);
centroidsY = cent(2:6,4);
se = strel('disk',3);
s1 = imclose(bw,se);
s2 = imopen(s1,se);
subplot(2,2,3);
imshow(s2);
title('binary image');
subplot(2,2,4);
imshow(s2);
title('Numbered in ascending order.');
```

```
subplot(2,2,4);
for k = 1 : numberOfBlobs-1
    text(centroidsX(k) + labelShiftX, centroidsY(k), num2str(k), 'FontSize', textFontSize,
```

```
end  
hold on
```

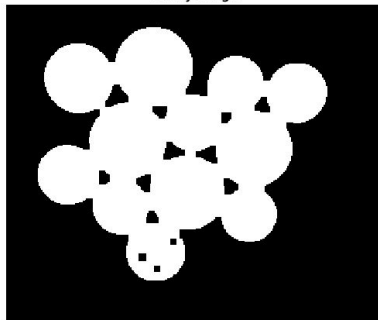
Original Image



Original GrayScale Image



binary image



Numbered in ascending order.

