Name: Vighnesh Vikas Salgaonkar
Div / Roll no: B-21

PAGE No.
DATE / /

Experiment 8: Segmentation

Aim: To perform partitioning of digital image into multiple segments using segmentation

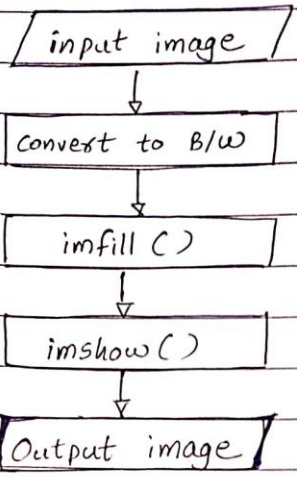
Apparatus: PC/Laptop, MATLAB Software and few Images.

Theory: In digital image processing and computer vision, image segmentation is the process of partitioning a digital image into multiple segments. The goal of segmentation is to simplify and/or operation change the representation of an image into something that is more meaningful and easier to analyze. Image segmentation is mostly used to locate objects and boundaries in images. More precisely, image segmentation is the process of assigning a label to every pixel in an image such that pixels with the same label share certain characteristics. There are two groups of image segmentation. Semantic segmentation and instance segmentation. Semantic segmentation is an approach detecting, for every pixel, belonging class of the object. Instance segmentation is an approach that identifies, for each pixel, a belonging instance of the object. It detects each distinct object of interest in the image.

Name: Vighnesh Vikas Salgaonkar
Div / Roll no: B-21

PAGE No.
DATE / /

Flowchart & Algorithm:



Read the original image and store its values in a variable. Convert the image into a black and white image, and use imfill function on the black & white image. Initiate a for loop which will increment each time when it will detect an object of similar type.

Coding and Output:

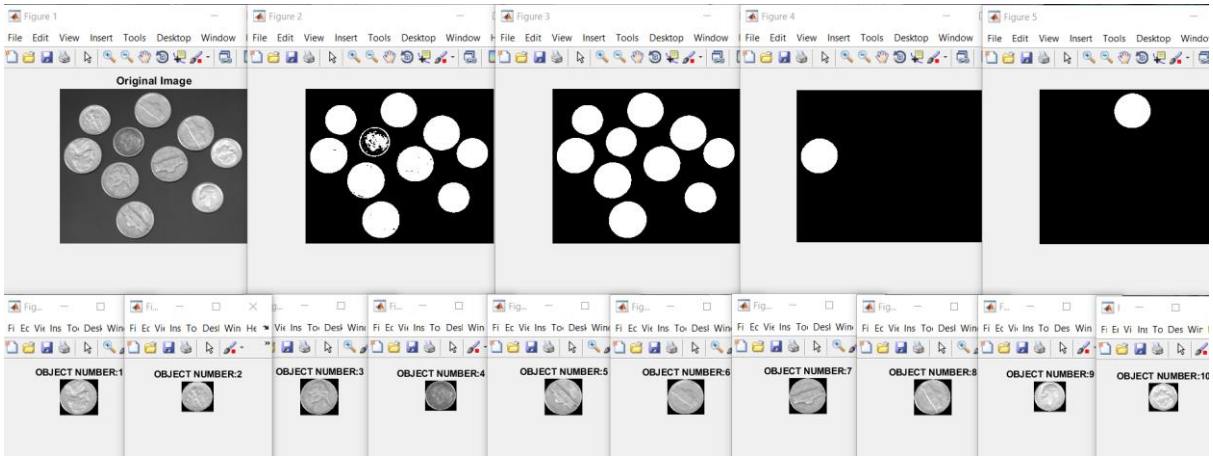
```
% Vighnesh Vikas Salgaonkar | B-21 | TY-EXTC
close all;
A = imread('coins.png');
figure;
imshow(A);
title('Original Image');
B = im2bw(A);
figure;
imshow(B);
C = imfill(B, 'holes');
figure;
imshow(C);
label = bwlabel(C);
max(max(label))
im1 = (label==1);
figure;
imshow(im1);
figure;
imshow(label==6);
for  j=1:max(max(label))
[row, col] = find(label==j);
len = max(row)-min(row)+2;
breadth = max(col) - min(col)+2;
target = uint8(zeros([len breadth]));
sy = min(col)-1;
sx = min(row)-1;
```

```
for i=1:size(row,1)
x = row(i, 1)-sx;
y = col(i, 1)-sy;
target(x,y) = A(row(i,1), col(i,1));
end
mytitle = strcat('OBJECT NUMBER: ', num2str(j));
figure;
imshow(target);
title(mytitle);
end
```

```
>> Untitled

ans =

    10
```



Conclusion: Thus, I conclude that I have studied, understood and performed the experiment based on image segmentation successfully and have recognized the number of similar type of objects in an image.