Part(a)

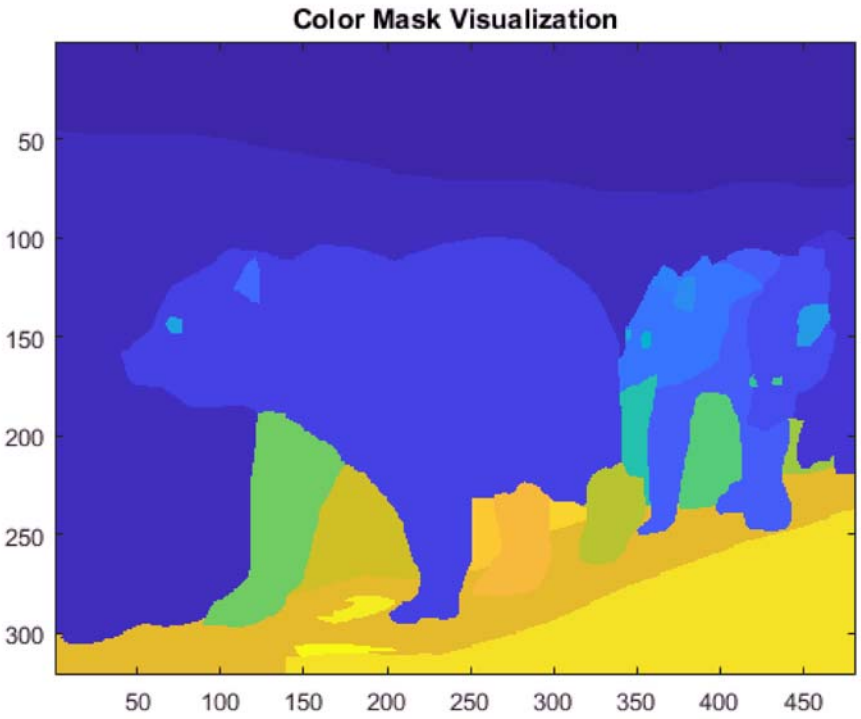
In this part, ground truth mask images are stored in .png format in seperate folders as is stated in project instructions.

```
CD=cd;
%this code should be run twice with word "color" changed to "gray" in next two lines
seg_directory=[cd '\BSDS300sorted\ground_truth\color\train\'];
mask_directory=[cd '\mask\color\train\'];
cd(seg_directory)
seg_filenames=dir([seg_directory '*.seg']);
cd(CD)
for i=1:length(seg_filenames)
    seg_filename=seg_filenames(i).name;
    mask_filename=[erase(seg_filename,'.seg') '.png'];
    make_mask([seg_directory seg_filename],[mask_directory mask_filename])
end
```

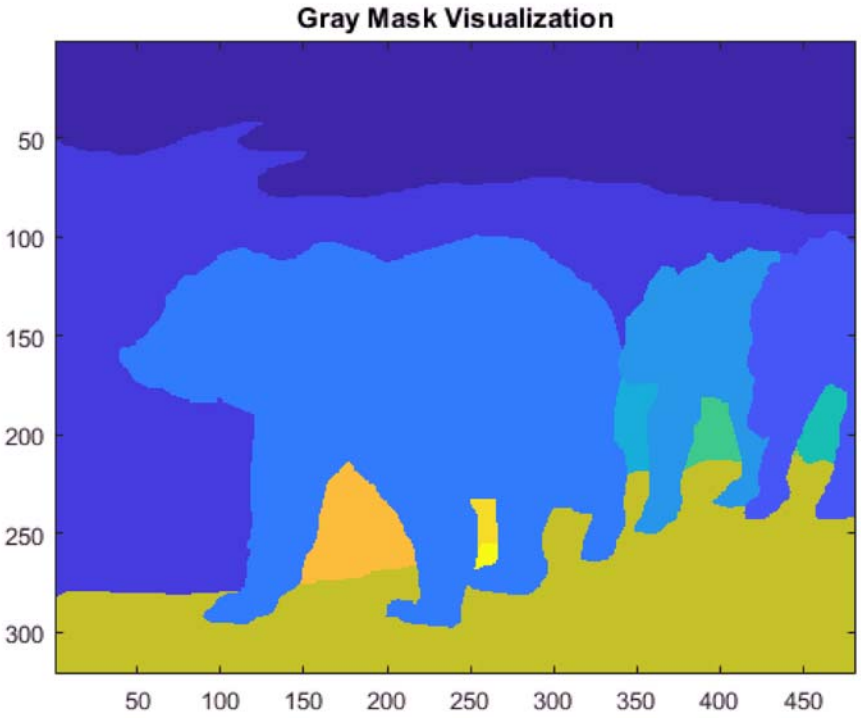
Displaying Images

```
I=double(imread([cd '\BSDS300\images\train\100075.jpg']))/255;
figure, imshow(I),title('Original Image')
```


```
Icolor=double(imread([cd '\mask\color\train\100075.png']));
figure, imagesc(Icolor),title('Color Mask Visualization')
```




```
Igray=double(imread([cd '\mask\gray\train\100075.png']));
figure, imagesc(Igray),title('Gray Mask Visualization')
```



make_mask Function

```
function make_mask(seg_filename,mask_filename)
%mask source file is read and stored in array "C" in next three lines
fid=fopen(seg_filename);
```

```
C=textscan(fid,'%d %d %d %d', 'HeaderLines', 11);
fclose(fid);
%turning the array into a matrix
Seg_Data=double([C{1,1} C{1,2} C{1,3} C{1,4}]);
%adding 1 to values corresponding to pixel addresses since in matlab images begin with coordinate (1,1)
Seg_Data(:,2:4)=Seg_Data(:,2:4)+1;
%reading the size and orientation of image and making a blank image to be filled in the for loop
Mask=zeros(max(Seg_Data(:,2)),max(Seg_Data(:,4)));
%filling the image segment by segment
for i=1:size(Seg_Data,1)
   Mask(Seg_Data(i,2),Seg_Data(i,3):Seg_Data(i,4))=Seg_Data(i,1);
end
%normalizing
Mask=Mask/max(max(Mask));
%storing the result image
imwrite(Mask,mask_filename)
end
```