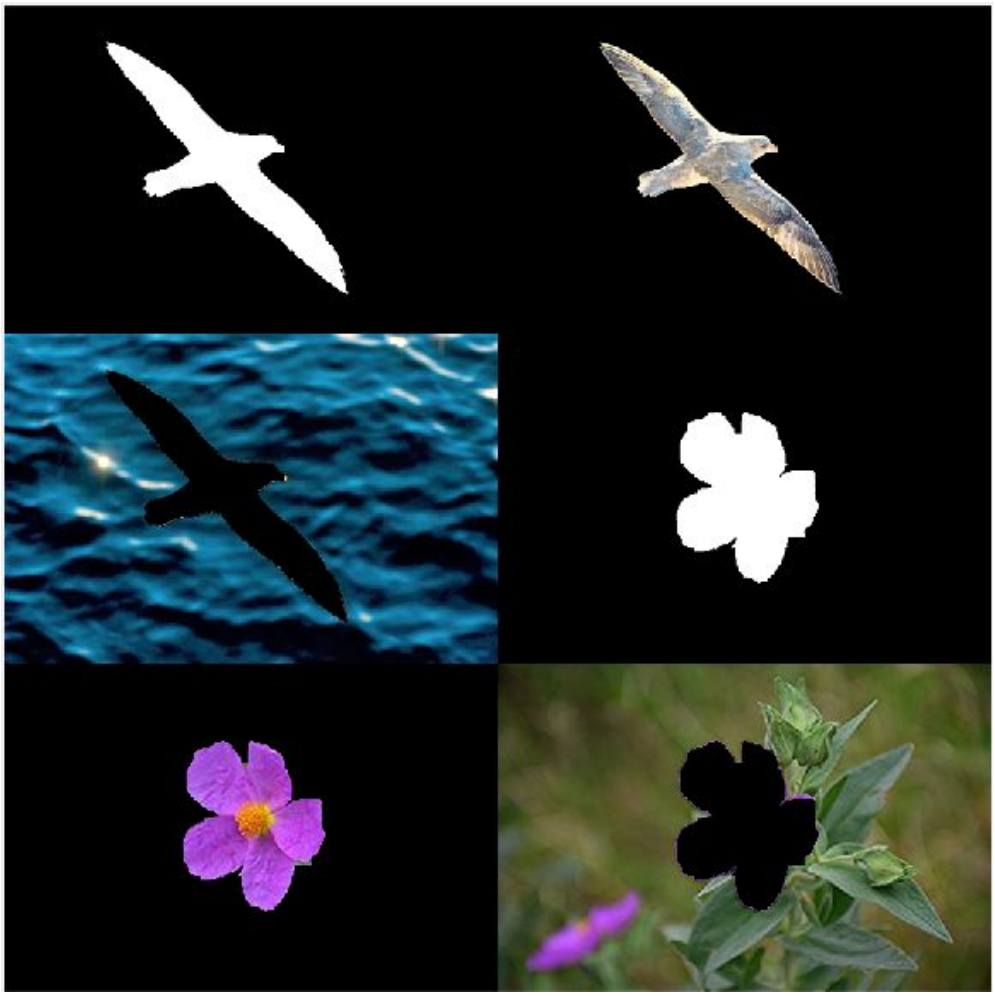
Question 1

The image bird.jpg was downscaled by a factor of 2. The masks generated are saved as mask1_reduced.bmp and mask2.bmp in the images folder. They are masks respectively for bird.jpg and flower.jpg.

Part C

Sub-part i

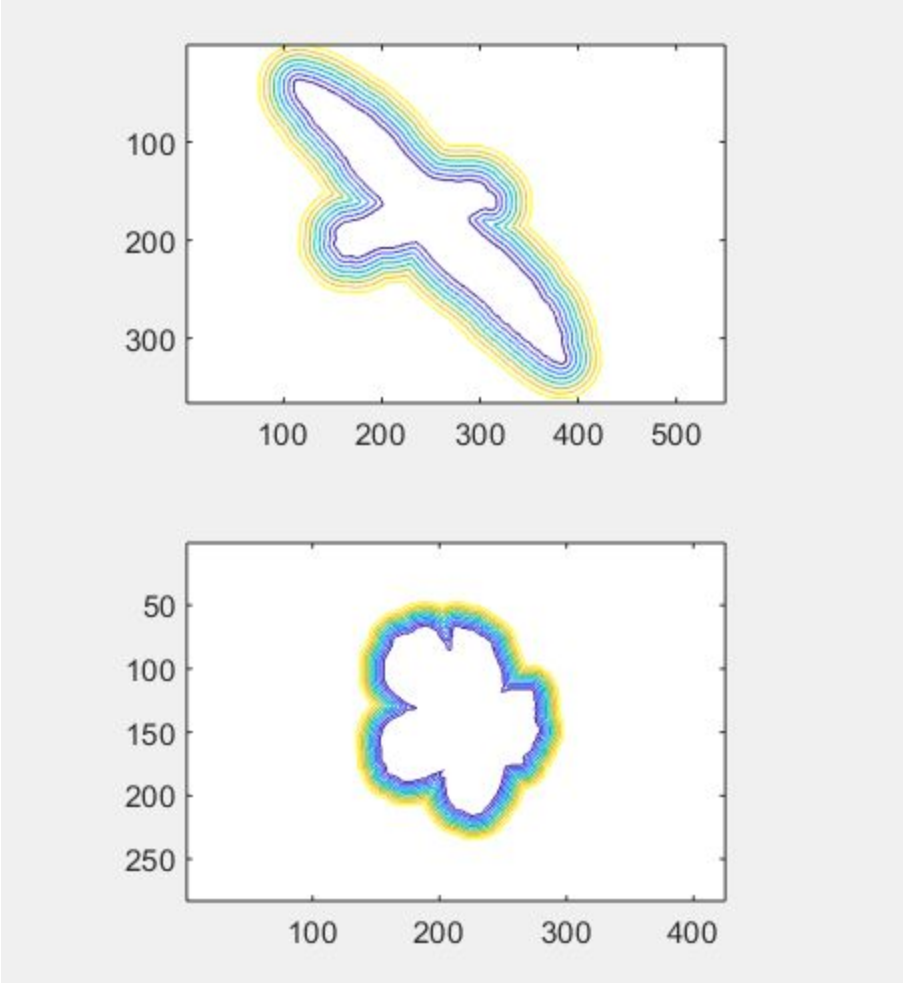


The images are as asked displaying the mask followed by foreground followed by background. The code used to generate this is generate_mask_bird.m and generate_mask_bird.m and are present in the code folder.

The process used to generate the masks is roughly the same and is as follows:

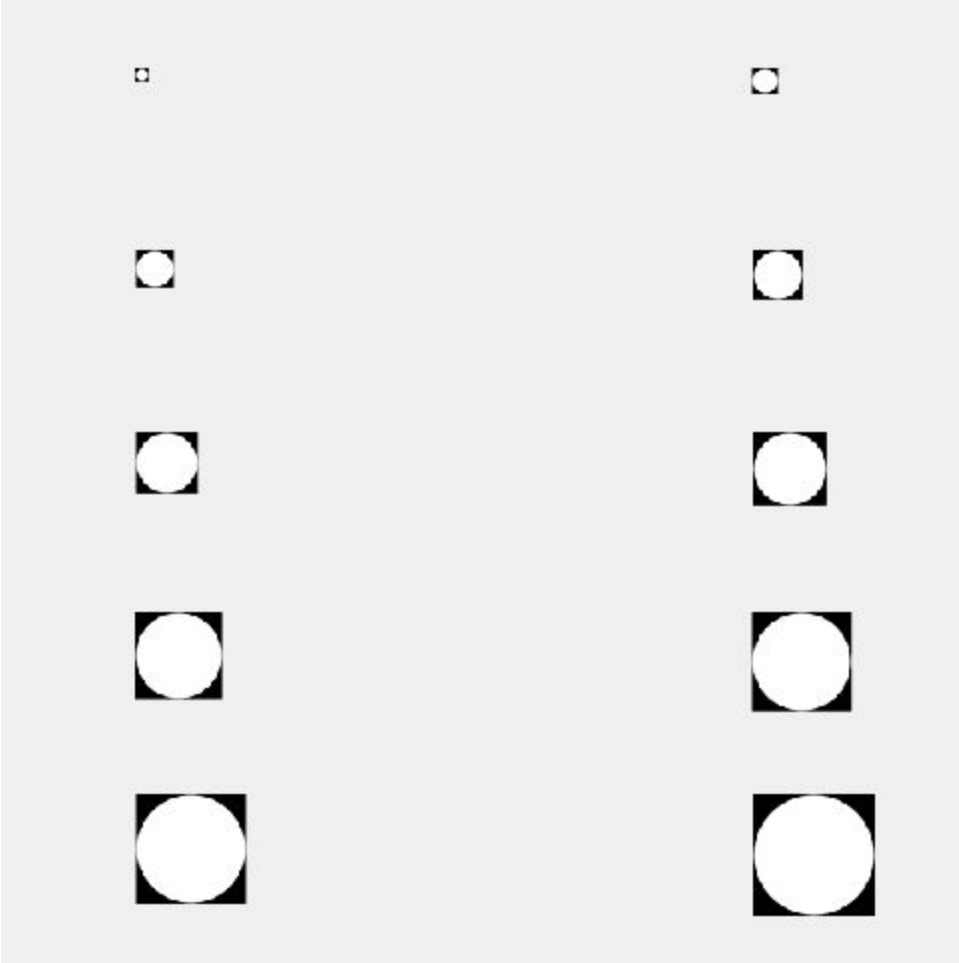
I noticed that the foreground and background have visibly different colors. Therefore, one of the components of RGB must show a stark difference in the images. The image was made two dimensional along this component which showed a great difference between foreground and background. Then I thresholded images based on a manually selected value. This process was followed by drawing a rough polygon around the region of interest and then employed the grabcut algorithm using the matlab function grabcut. For the bird.jpg figure I additionally employed the LoG filter on the picture for better results by fine tuning size and sigma.

Sub-part ii



The images show the contour plot of the kernel function.

Sub-part iii



The first five images are corresponding to flower.jpg and the next five for bird.jpg

Sub-part iv