

## Report Q3 (Part-1):

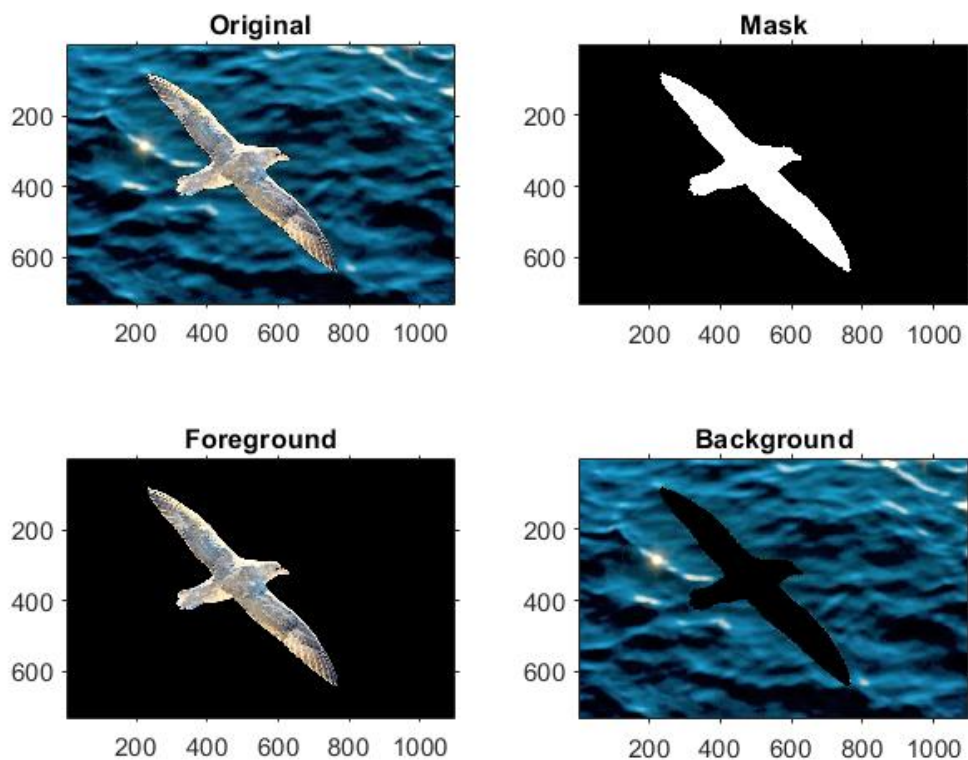
### Mask for Bird:

For calculating mask of bird image, a simple canny edge detection for three channels separately R, G, B has been implemented.

The main motivation behind this algorithm is that most of the information about the bird must be contained in the Red channel as it is a white bird flying over the blue sea. And blue sea will contain little Red pigment in it.

There was a problem with this as bird's lower end of the wing as gradients there were not strong enough. So, Green and Blue channel was also taken, and edges were extracted so as to make the detection more robust.

- Red channel parameters: Min: 0.05 Max: 0.5
- Green channel parameters: Min: 0.15 Max: 0.5
- Blue channel parameters: Min: 0.15 Max: 0.5



Mask for flower:

Canny edge detection cannot be used here directly as it detects too much noise in the flower image as the leaves behind the flower also get picked up and also it tends to pick up the blurred flower in the bottom left corner.

So, here first Mean Shift was performed on the image to get better segmentation and then canny edge detection was performed on the Red channel as the flower is the object in the image that contains the most amount of Red pigment.

- Mean Shift Parameters:
  - Bandwidth for color feature: 250
  - Bandwidth for spatial feature: 100
  - No. of iterations: 50
  - No. of Nearest Neighbors: 150
- Red channel canny parameters: Min: 0.1 Max: 0.7

