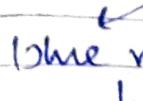


# Search and Rescue [PROBLEM]

Date: \_\_\_\_\_  
Page No.: \_\_\_\_\_

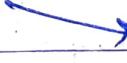
Input Image :-

(1)  blue region  
 Ocean  brown/green region  
 land

(2) Passengers :  (Stars) → Children  
 (Squares) → Adults  
 (Triangles) → elderly

(3) Severity : red → severe  
yellow → mild condition  
green → safe

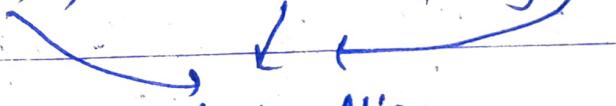
(4) 3 Rescue Pads

 2 on land  1 on water

\* Priority order of casualties

(i) Casualties : Star-3 > Triangle-2 > Square-1  
(ii) Emergency : Severe-3 > Mild-2 > Safe-1  
(3, 2, 1 → ~~Casualty Scores~~)

\* Max capacity of  → Pink (3), Blue (4), Grey (2)

 Casualties,

$$\text{Priority} = \frac{\text{Casualty Score}}{\text{Score}} \times \frac{\text{Emergency Score}}{\text{Score}}$$

→ In case of similar priority score, a casualty with higher emergency will be given more importance

### Output

- (1) Output image for each input image, that clearly shows difference between ocean and land by overlaying 2 unique colors on top of each other.
- (2) (a) No. of casualties assigned to each of the three camps
  - (b) Details of casualties assigned to each of the three camps
    - (i) Age Group } in the order
    - (ii) Medical Emergency } blue, pink, grey
    - (iii)
- (3) (a) Total priority of each of the camps stored in a list
  - (b) Average priority of the image ( $P_r$ )
 
$$= \frac{\sum \text{priorities of the camps}}{\text{No. of casualties}}$$
- (4) A list of the ~~images~~ names of input images, arranged in descending order of their rescue ratio ( $P_r$ )

## PROBLEM APPROACH

HSV much better than RGB  
for color separation

- (1) Image Segmentation
  - Converting Image from BGR to HSV
  - Thresholding
  -
- (2) Shape detection using no. of vertices and shape colors using HSV detection
- (3) Finding centroid and calculating distance between shapes
- (4) Base Priority =  $\frac{\text{Shape Priority} \times \text{Emergency Priority}}{\text{Distance from Rescue Camps of casualties}}$

$$\text{Actual Score} = \frac{\text{Base Priority Score}}{\text{Distance from Rescue Camps of casualties}}$$