Search and Rescue [PROBLEM]

Input Image :-

(1) blue region → Ocean
brown/green region → land

(2) Passengers : ✡ (Stars) → Children
□ (Squares) → Adults
Δ (triangles) → elderly

(3) Senerity : red → senere
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 : Senere-3 > Mild-2 > Safe-1
(3, 2, 1 → ~~casualty~~ scores)

* Max capacity of Rescue Camps → Pink (3), Blue (4), Grey (2) → Casualties.

Priority (Score) = Casualty Score × Emergency Score

Date :
Page No. :

→ 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 campus

(b) Details of casualties assigned to each of the three campus

(i) Age group
(ii) Medical emergency
(iii)

} in the order blue, pink, grey

(3) (a) Total priority of each of the camps saved 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 (Hue, Saturation, Value)
→ Thresholding
→

(2) Shape detection using no. of vertices and shape colour using hsv detection

(3) Finding centroid and calculating distance between shapes

(4) Base Priority Score = Shape Priority × Emergency Priority

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