Assignment-1
CS419/619: Computer Vision (Spring 2025)
Submission Deadline: 30 Jan 2025

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1. **Find** out the **position** of connected components in a given image (an example is given below) by implementing the procedure discussed in Tutorial 2.

   Draw a **bounding box** and **region boundary** around each component as well.

   (Input images are available in a folder named "**Question 1**").

   Note: Use of the predefined / library functions for computing the connected component is not allowed; however, you can compare your outputs with those functions.

2. **Find** the **label** of a given image out of four labels- missing bottle, proper label, missing label, and white label (example images are given below).

   (Dataset is available in a folder named "**Question 2**" and images inside the train folder can be used to set the threshold for different categories).

Proper Label

White Label

Missing Bottle

Missing Label

3. **Find** the **label** of a given image out of four labels - Obj_1, Obj_2, and Obj_3 (example images are given below).

   (Dataset is available in a folder named **"Question 3"** and images inside the train folder can be used to set the threshold for different categories).

Obj_1

Obj_2

Obj_3

4. Implement Histogram Specification for images stored in folder **HistSpec**. (Use of the predefined / library functions is **not allowed**; however, you can compare your outputs with those functions).

Note-

1. Store the codes in the folders named “1”, “2”, “3” & “4” for problems - 1, 2, 3 & 4.
2. Store result images of problem - 1 in a folder named “1”.
3. For problem - 2, create four folders with class names inside the folder “2”. Then, store the images based on the class labels and also assign the image’s names according to their class such as ML_01 (1st image in the missing label), WL_01 (1st image in the white label), PL_01 (1st image in the proper label), MB_01 (1st image in the missing bottle), and so on.
4. For problem - 3, create three folders with class names inside the folder “3”. Then, store the images based on the class labels. Also assign the image’s names according to their class such as Obj_1_01 (1st image of class Obj_1), Obj_2_01 (1st image of class Obj_2), and Obj_3_01 (1st image of class Obj_1), and so on.
5. Store result images of problem - 4 in a folder named “4”.

How to Submit

To submit the assignment, please follow these steps:

1. Store your code and output images in a folder named **"<Enroll.no.>_<Name>_A1"** and upload the zip file of this folder through the Google form link given below.

2. Google form link: https://forms.gle/zBfwUKK5zXzLz1bG8