CSE463 Assignment 1 (30 marks)

Submission Link: https://forms.gle/AXbdW3gk3CpeM5DF7

SUBMISSION instructions:

- Open a folder in Google Drive and name it as- ID_Name_Lab1
    a. Create subfolders for each task. Ie. Task1, Task2, Task3
        i. Upload the images you collected (where applicable, ie. task 2 and3)
        ii. Upload a PDF consisting of the codes & screenshots of the outputs of each code.
        iii. Use of AI or any form of plagiarism will result in 0 for the entire assignment.
    b. Share the link of the folder in the submission form. (Make sure the folder is accessible to anyone **with the link**.)

Reference Video Link for multiple file handling in tasks 2 and/or 3:
https://www.youtube.com/watch?v=2sUO8iE-jZs&list=PL7da2kG_V7RIIf_HXQdmMzwj4bQVEeSuh

Task 1: Create your own grayscale letters and numbers! (10)

- Take the first two letters of your name and the last two digits of your ID to create a code. For example, a student named “Batman” who has the ID “12345678” will create BA78 as his code.
- Use a numpy array to create a grayscale image of this code.

Task 2: Create your own dataset. (10)

1. Choose a specific subject (eg. cat, dog, horse, tree, car, etc) and collect 10 random images from the internet (Dataset1).
2. Perform 5 different transformations shown in class on each of them. In your code, you must explain the logic behind choosing any transformation you use.
3. Finally, create a dataset with Random Noise. Show before and after.
4. Plot a histogram of the result. [1 Histogram of any 1 output image]

Task 3: The Art of Image Collage (10)

Use your creativity to blend images together and create a unique collage.

Instructions:

1. Choose **5** different images that represent a theme of your choice (e.g., nature, urban, abstract). [The images should be different from Task 2] (Dataset2)
2. Blend the images together using varying alpha values to create a smooth transition between them.
3. Add Gaussian noise to the final collage to simulate a vintage or artistic effect. Show before and after.
4. Plot a Histogram. [1 Histogram of any 1 output image]