DL-CV4: Metric Learning and Few shots Assignment.

You will be using AT&T faces dataset which we have posted along with the assignment . The end goal of this assignment will be to create a face recognition system that works on metric learning. The assignment will have the following subparts:

i) Create a dataloader that can create pairs of images with label equal to 1 when the images are from the same person and label 0 when the images are from different person.

ii) Create a Siamese network and use contrastive loss function in training the network. You can set aside any 3 person photos for testing purposes. Observe in the testing phase how images have lower distance metric for the same person and high distance between the encodings of different persons.

Iii) Finally after modelling the system, you may try to take a couple of your own photos into the format of the AT & T dataset (92x112 pixels, with 256 grey levels per pixel) to test in the siamese model framework.

About the dataset:
There are 10 different images of each of 40 distinct subjects. For some subjects, the images were taken at different times, varying the lighting, facial expressions (open / closed eyes, smiling / not smiling) and facial details (glasses / no glasses). All the images were taken against a dark homogeneous background with the subjects in an upright, frontal position (with tolerance for some side movement)."