Lab Assignment – 1 (Part 2)

Objective: To learn Image Data Pre-processing operations involved in a machine learning tasks.

1. **Home Appliance dataset** To Build a Home Appliance dataset for two classes: LCD TV vs REFRIGERATOR. Download 25 images of TV and REFRIGERATOR for each class, keep in separate folders. Note: Images can be in any format (.png,.jpg, jpeg, tiff etc).
2. **Read** the images from two different folders. Automate the process. Avoid mentioning the paths of the images manually. Use built in functions of popular libraries for reading images.
3. **Standardize** all the images into standard square size (for example 100*100*3). Use the following strategies and leave the choice to users.

4. **Stack** all the image data into a single array of size 20*100*100*3. Now this array is now the dataset we wanted to build.
5. **Create** different variants of the dataset we created in the previous step.
   ➤ Convert all images into grey scale and create a grey scale dataset.
   ➤ Convert all images into binary image and create a binary image dataset.
   ➤ Flatten all images into 1D vector and create a dataset
6. **Store** the datasets physically into disks numpy array files (in npy format) and also hdf5 format.

Suggested Platform: Python: Azure Notebook/Google Colab Notebook, packages such as numpy, Skimage, opencv

Marking: Marking is based on both **performance during the lab hours** as well as **complete submission**.