Documentation of the ML Challenge:

Requirement: You are provided with a dataset of ~5k 512x512images, your program should accept an 512x512 input image and return N images from the provided dataset similar to the input image.

Libraries and variable declaration:

Importing the deep learning libraries, loading the root directory of the images and variables, which is easily accessible for the rest of the project

Input data pipeline:

A classifier is created with 12 classes with each of 600 images are segregated by the human.

Creating the image data generator, with the batch- size is 6, with class-mode categorical and color-mode ‘RGB’ image are feed to the model(7200) images .

Model development:

Resnet architecture is taken as the reference and added two custom layers to the model which are improved the performance in recognizing the images features. A resnet architecture has been down sampled to the image to the shape(4\*4\*2048) and added three dense layers. Final layer is softmax activation function with 12 filter

Optimizer: Adam with learning rate – 0.0001

Loss Function: Categorical cross entropy

CSV- store: (all\_results\_outputs.csv)

Each image in the entire dataset of (4738) is classified to the model, prediction values and the results are stored in the csv on the image name.

Requirement solving:

Arguments (inputs of t:

Input of the image file path

Number of the images to be returned (n)

The input image is read, based on the prediction class of the image from the model. From the predicted class all\_results\_outputs.csv is the images falling under the class prediction image is taken and returns the highest probability of the n images.