MP#1

In this homework, I implemented connected component labeling and size filtering function in python and tested the function on three binary images.

In the connected component labeling function, the code scan through all pixel start from up left corner. For each pixel, the function will compare the label of the pixel located at the top and left of current pixel. If both pixels are not labeled, current pixel will be assigned to a new label. If both pixels are labeled the same, or only one pixel is labeled, current pixel will be assigned to the same label. If pixels have different labels, current pixel will be assigned to the smaller label and the function will save the relation of the two labels to mark them as same label in the future. After go though all the pixels, the function will reassign labels according to the previously saved label relationships.

In size filtering function, the code count pixel numbers of each labeled cluster and remove the label if the cluster size is smaller than threshold.