COLOR-BASED OBJECT DETECTION

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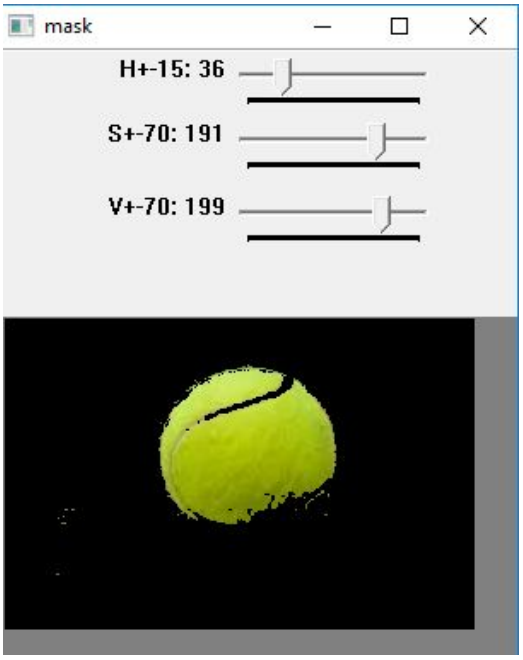
Exercise 3.

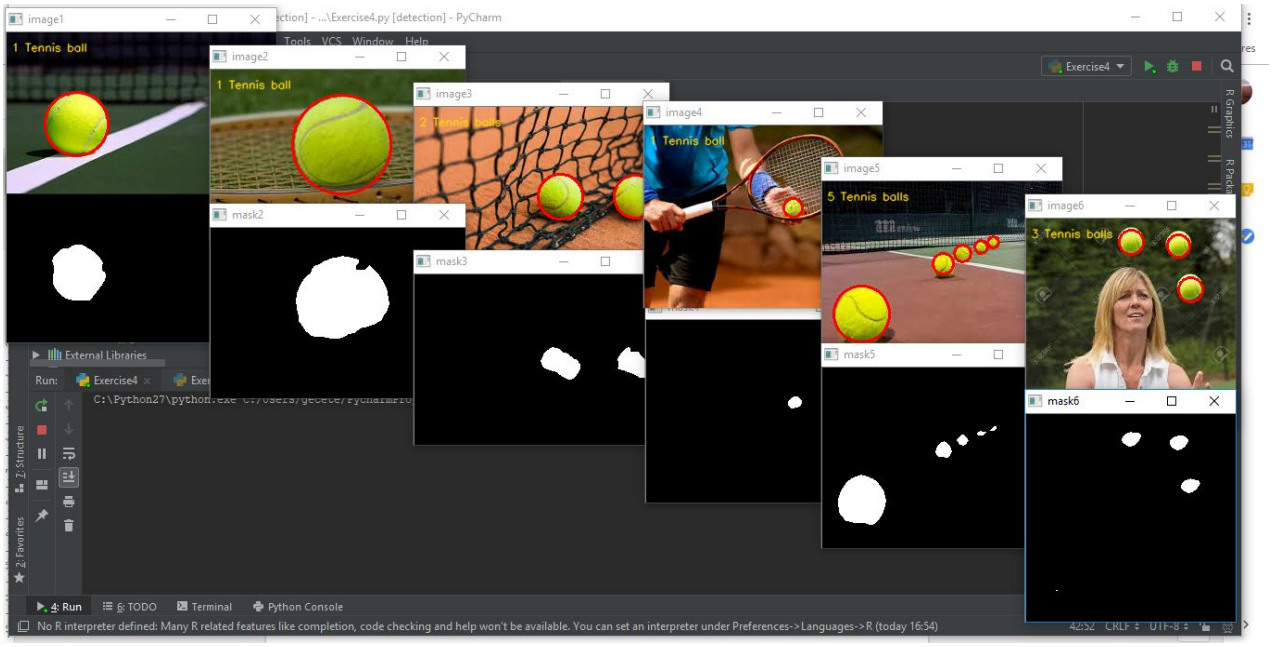
Best mask for image 2 is hsv range low(-) and high(+) =(39±15,191±70,199±70)



Exercise 4 and 5.

For this exercise I created a loop to get the detection over a bunch of images and adjust the mask to get better results on the new images, because from the previous exercise, the mask was over-adjust to that sample.

Now the new setting for the hsv filter is: (35±7,185±70,186±70)



Exercise 6.
Color-based object detection works fine for the tennis ball detection. What do you think may be the main limitations of this method?

The tennis ball has a really characteristic feature which is the color, is always the same color, easy to filter from the background elements, and in a quite narrow hue range, as I calculated, the detector works pretty well with a range in hue of 14º (35±7).

The main limitation is that this method works well when the object you want to detect has always the same color, with small variations in hue. If the object can have different colors, you may need to use other methods related with shape, texture, etc.

Of course! another limitation is if we have to detect the tennis ball out of a gray scale image.