Robert Schreibman Assignment 2 Questions
SEED Lab

1. How is an OpenCV image stored?
    - These are stored in plain number text having 3 dimensions. row_number, column_number, and a 3 numbered RGB Value

2. What does image.shape return? Here image is the variable name that stores the image you are referring to.
    - image.shape returns the length of each axis of the image. so this would tell you the number of columns, rows, and color elements.

3. What do the parameters, fx and fy refer to in cv2.resize?
    - These refer to the aspect ratio of the original image. so if fx = 2, then the new image would have a width that is twice as long.

4. What would happened if, cols/2, and rows/2 in the following function were changed to cols/4 and rows/4? M = cv2.getRotationMatrix2D((cols/2,rows/2),90,1)
    - The matrix received would have ¼ as many rows and columsn so there would be be 1/16th as many entries in the matrix.

5. What function must be used after cv2.getRotationsMatrix2D to actually perform the rotation? What parameters do you pass to this function?
    - The cv.GetQuadrangleSubPix() function must be used afterwords
    - the parameter passed in would be (image, dst_image, transl)

6. What are the different morphological transformations that can be performed on an image?
    - Erosion, dilation, opening, closing, Morphological Gradient, top hat, black hat

7. What effect does the morphological transformation, “opening” have on an image?
    - Same things as erosion followed by dilation. basically it decreases white space then increases the size of all of the pixels.

8. What effect does the morphological transformation, “closing” have on an image?
    - It closes small holes inside the foreground object

9. What does HSV stand for?
    - Hue Saturation Value

10. What do the upper and lower bounds in exercise 4 represent?
    - These bounds represent the minimum and maximum pixel values for the HSV values in order to considered blue, yellow, green, or red in that example.

11. A kernel of ones was created before performing morphological transformations. What is the effect of changing the size of the kernel?
    - The kernel size determined the range of pixels that the kernel worked on simultaneously. So a larger kernel size would potentially pixelate the image worked on.

12. How would you use the simpleblobdetector functions if you only wanted to detect the circular blob while ignoring the rest? Save a copy of your well documented code and results (i.e., image files, etc) so that you can refer to these later. On your group page on Canvas, under Files, create a folder called “Project 2 Computer Vision”. Upload your code, results and document with answers to the questions above to that folder.
    - I would use search for circularity without convexity in order to eliminate the packman figure.