COM322 HW2

P1. A framework for evaluation of code you will write to analyze images is given in the file **eval_framework_singe_object.zip**. When you extract this folder you will find a file called **start_code.m** and a folder with images of objects, accompanying background images and a ground truth file for each pair. The code will fetch the images in the folder one by one, display them, fetch the ground truth and evaluate the success of the output of the code you will develop. You will write code to find whether there is an object in the image, and if so, find the area in pixels, and find the coordinates of the center of the object. The rest of the code given to you will calculate the accuracy over all images in the folder and report three numbers after processing the images.
You will need to write the estimation functions below. Currently, the functions are returning random values to retain functionality of the framework.

```
%--------------------------------------------------------------------------------
% -------------------- ESTIMATION FUNCTIONS ---------------------------------------
%--------------------------------------------------------------------------------
% Example function that checks if there is at least one object in the image
% Images are RGB
function isObj = estimate_object_present(I_FG, I_BG, threshold)
end
%--------------------------------------------------------------------------------
% Example function that finds the area of the single object in the image
% Images are RGB images in this example
function obj_area = estimate_object_area(I_FG, I_BG, threshold)
end
%--------------------------------------------------------------------------------
% Example function that finds the object center in the image
% Images are RGB images in this example
function [obj_x, obj_y] = estimate_object_center(I_FG, I_BG, threshold)
end
```

P2. Similar to P1 you are given a framework in **eval_framework_multi_object.zip** that tests the estimation accuracy of code that will count objects in images. Using the pseudocode for counting multiple objects discussed in class, develop code to estimate the number of objects in the given pairs of images. For each image display a figure that shows the number of the object in the count (either on the original image or its black and white binarized image).
You will only need to write code to produce an estimate of the count, the rest is handled by the code provided.

```
% ------------------------------------------------------------------------------------------------
% INSERT OBJECT COUNTING CODE HERE - COULD BE A CALL TO A FUNCTION THAT RETURNS THE OBJECT COUNT
% this is temp code that randomly assigns a number to count
count = randi( 12 );
% ------------------------------------------------------------------------------------------------
```