Programming assignment 3.

Due date: Wednesday, October 13, 2021 at 11:59pm

Remember:

- ✓ You can look up all the functions in MATLAB by typing help/doc in the command window. (e.g. doc imread)
- ✓ "clear": removes all the variables from the workspace
- ✓ "who": gives the list of variables
- ✓ "whos": gives the list of variables, their sizes, and types

---

In this lab, assume the built-in 'edge' and 'imfilter' functions are **not** available to detect edges. Define the kernel you want to use and then write a code to perform a convolution with your image.

1. Read "balloons.jpg" image. Find the outer edges (not the patterns inside) of the air balloons.
2. Count the total number of the balloons.
3. Plot the resulting image from step 1, and as a title of your image, write the total number of the balloons you found in step 2. (No hard coding please) and then save the resulting image as a png.
4. Choose a random air balloon in your binary image, change the pixels inside to white. Explain how you did that.
5. Plot the result and then save the resulting image as a png.
6. Move the balloon 20 pixels in any direction of 45-degree angle. Explain how you did that.
7. Plot the result and then save the resulting image as a png.
8. Upload your code (.m/.py files) and one pdf file that contains your code, your answers to questions, and the resulting images.

Extra Credit: Rotate the air balloon 60 degrees clockwise after step 6.

Image taken from:
Griffin, G. Holub, AD. Perona, P.
The Caltech 256.,
Caltech Technical Report.