Lab 06: Images

Learning Objectives
Upon completion of this lab, the student shall be able to:
- Explain the key concepts covered in the eighth chapter *More about Iteration*.
- Use the Python Interactive Shell and the IDLE editor to enter and execute Python code that defines and uses functions and selection.

Evaluation
Your Python solution shall be evaluated and graded. The instructor will be looking at the following:
- Does the code adhere to separation of concerns, design for reuse, and design only what is needed?
- Does each function, with the exception of `main()`, have comments for purpose, assumptions, inputs, and post-conditions?
- Does the code produce the correct results?

Description
Follow the steps below to complete this assignment.

1. Create a Python source code file that solves the following problem statement.

    a. Create a `main()` function that will call the functions to perform the processing described in step 1.d.

    b. Download both the `08-lcastle.gif` image file and the `image.py` module. ***Put these in the same folder you store your source code file***.

    c. Read section 8.11 *2-Dimentional Iteration: Image Processing* in the textbook.
        i. https://runestone.academy/runestone/books/published/thinkcspy/index.html

    d. Using the `08-lcastle.gif` image file and the `image.py` module, display the following information:
        i. The total number of pixels in this image file.
        ii. The number of pixels in this image file where the red intensity is larger than both the green and blue intensities.
        iii. The number of pixels in this image file where the green intensity is larger than both the red and blue intensities.
        iv. The number of pixels in this image file where the blue intensity is larger than both the red and green intensities.
        v. The number of pixels in this image file where none of the three colors have an intensity that is larger than the other two intensities.

    e. For testing purposes, the `08-lcastle.gif` image file contains:
        i. 17864 total pixels.
        ii. 1631 pixels with a larger red intensity.
        iii. 8441 pixels with a larger green intensity.

        iv.   3587 pixels with a larger blue intensity.

        v.   4205 pixels have two or three colors with the same larger intensity.

What to Submit for this Assignment

- Use Canvas to submit your one Python source code file.