EECS 297/397 Special Topics: C/C++ Programming Spring 2020

Assignment 3: Pointers and References, Functions

Instructor: Orhan Özgüner Due: February 27 before 11:59 PM

This assignment involves three regular components and one bonus, building off of the simple random "images" you generated in the in-class assignment.

Part 1

Write a function that calculates and returns the average brightness of a specific image (i.e. the sum of all of its pixels divided by 100×100). Like the `diag` function you wrote in class, it should be given a pointer to the start of an image in order to determine which image to work on:

```
double img_avg(int * img_in);
```

Part 2

Write a function that returns a pointer to the image with the highest average brightness, out of the entire 10-image "block" whose starting location is passed to it:

```
int * brightest_of(int * img_set);
```

Part 3

Create function which returns an *array* of pointers to all of the images, sorted from brightest to darkest:

```
void sort_brightness(int * img_set, int * * output);
```

Part 4 (Bonus)

Create another function which sorts the actual images from brightest to darkest in-place (that is, within the same block of memory they were in originally).

```
void sort_brightness_internal(int * img_set);
```