Project 0: Using Python for Image Manipulation

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1 Questions

1. We wish to set all pixels that have a value of 10 or less to 0, to remove camera sensor noise. However, our code is slow when run on a database with 1000 grayscale images.

(a) How could we speed it up? Please include your code.

```
import numpy as np
```

(b) What factor speedup would we receive over 1000 images? Please measure it and include your code

(c) Next, we wish to operate on color images. How does your speeded-up version from 1 (a) change for color images? Please implement and measure it, report the speed factor change, and include your code.

2. Suppose we wish to reduce the brightness of an image by editing the values in its matrix. But, when trying to visualize the result, we see some errors.

(a) What is incorrect with this approach? How can it be fixed while maintaining the same intended brightness reduction? Please include your code and result image.