

Lab 2

CST 205

Background

There are a number of mathematical color space models. One such system, RGB, represents colors as combinations of red, green, and blue. Each color channel is allocated one byte and is thus represented by a decimal value between 0 and 255. (An unsigned integer containing n bits can have a value between 0 and $2^n - 1$.)

Python tuples are a common way to store RGB colors. Tuples are similar to Python lists, but they use parentheses (instead of brackets) and are *immutable*. For example, we can represent a nice shade of red as follows: `vermilion = (227, 66, 52)`

We can access individual values as we would a Python list. For example, if we want to know the “greenness” of our color, we can use: `vermilion[1]`

Preliminary Task

Make sure you have a working installation of Python 3.6.2+ (preferably 3.8+) and that you know how to run programs with this version of Python. Make sure that you have a plain text editor, such as Microsoft Visual Studio Code. For installation instructions, please refer to the lecture slides.

Task 1

Write Python code that takes an RGB tuple and provides some insight into the color. Assume the tuple has a dominant color (i.e., one of the color channels is strictly greater than the other two). Based on the dominant channel, print one of the following:

- “The color is reddish.”
- “The color is greenish.”
- “The color is bluish.”

A few colors to try out:

- (205, 96, 144)
- (28, 134, 238)
- (72, 209, 204)
- (237, 145, 33)

Task 2

Now, assume that two of the channels dominate with the same intensity. If the green and blue channels dominate with the same intensity, print out, “The color is a shade of cyan.” If the red and blue channels dominate with the same intensity, print out, “The color is a shade of magenta.” If the red and green channels dominate with the same intensity, print out, “The color is a shade of yellow.”

A few colors to try out:

- (250, 250, 70)
- (245, 50, 245)
- (100, 231, 231)

Deliverable

- Briefly summarize how far you got on the lab and any challenges you may have faced.
 - Use complete sentences for your summary.
 - If you did not complete the lab, please provide a longer, more detailed summary.
- For each task you completed, provide the colors you tried and your results.
- Use iLearn to submit your work.

If you finish early, please help others in your group.