# Color Manipulation

RGB (red-green-blue) and HSV (hue-saturation-value) triples are two common ways of representing color digitally. In this project, you are asked to write Haskell code to work with these representations.

1. Write a function "rgb2hsv" that will convert an RGB triple into an HSV triple.

2. Write a function "hsv2rgb" that will convert an HSV triple into an RGB triple.

3. Write a function "name2rgb" that will convert an HTML color name into an RGB triple.

4. Write a function "hsvGradient" that will take a starting HSV color, an ending HSV color, and a number of steps, and will produce a gradient that starts from the starting color and reaches the ending color in the given number of steps. For example, if the starting color is white (HSV for white), the ending color is black (HSV for black) and the number of steps is 3, it should produce "white – light gray – dark gray – black" (the corresponding HSV values for these colors). You can generate the gradient by linearly interpolating between the boundaries in each of the hue, saturation and value dimensions. That means, you divide the hue distance according to the steps to get the hues in intermediate steps and you do the same for saturation and value separately.

5. Write a function "hsv2desc" that will take an HSV triple and print a description of the color.

6. Write a program that will take two color names and the number of steps from the user and prints the HSV gradient.

7. (Bonus) Write a function that, given an RGB or HSV triple, returns the "closest" HTML color name. Note that this problem might not always have an exact solution and you will to come up with a meaningful definition of color distance.

## References

- https://www.rapidtables.com/convert/color/rgb-to-hsv.html

- https://www.rapidtables.com/convert/color/hsv-to-rgb.html

- https://www.w3schools.com/colors/colors_names.asp

- https://github.com/vasilisvg/human-colours

## Notes

- This is an individual assignment. Collaboration is not allowed in any form.

- All the code you submit must be your own. You are not allowed to take any code from any resource.

- You cannot use any libraries. If you want to use some library, post it to the message board and ask for permission.

- You are not allowed to use any construct that was not covered in the class.