

## 6.914 Homework 3

Assigned 1/17 - due 1/22 by 3pm to [mish@mit.edu](mailto:mish@mit.edu)

0) Send a program of any length that demonstrates the most interesting concept (or combination of concepts) that we've learned so far.

*Please write 4 out of the following 6 programs. Make sure to comment your code so it's readable. Copy and paste each of your solutions into your email, and let me know which questions you're answering. Also, if you haven't already, please take the class survey at <http://tinyurl.com/3436zy>.*

*Solutions to HW2 will go up around Friday night. Please send me your best attempt at those three problems before that point.*

- 1) Create a “collage” using a series of semi-transparent images related to a topic of your interest. Consider creating a tint gradient (darker blue tinting for images on the left side of the window, for instance, fading to white/no tint for images in the middle and darker red on the other side) from one side of the screen to the other.
- 2) Using coordinate transformations, have an irregular object (try a quad, triangle, or custom shape) move slightly erratically around the user's mouse, both rotating and changing shape. Hint: think about where to place the origin. Remember that you want to remove and redo that transformation every time your mouse moves.
- 3) Create a rainbow gradient across the window, from red to purple horizontally and from brightest color to black vertically. If a pixel is within a circle of radius 10 around the mouse, though, make its hue the HSB inversion of the original hue.
- 4) Using an array of char type, have the letters that the user types scroll *to the left* – like a stock ticker – across the screen. There should be only one line, and the most recent character typed should be in the rightmost place, with the previous character to the left of that one, the previous previous character to the left of THAT one, and so forth. Your letters should eventually start to disappear off the left side of the screen. I recommend using Courier, which is monospaced. (Bonus if you can figure out how to do this on multiple lines.)
- 5) Using coordinate transformations, create a “flower” shape in the middle of the window with quads for petals. Write the word “turn” in the corner of your window (use the Courier font again) and, each time it is clicked, have the entire flower rotate 45 degrees, with the origin at the middle of your window. (You'll probably want to keep track of the number of rotations so far.) Make sure the word “turn” is at the bottom right of your window, regardless of what other coordinate transformations have been applied.
- 6) Create a series of differently hued concentric circles with radial saturation gradients, i.e., gradients that begin at the center. Bonus: have them independently change size over time.