

6.914 Homework 1

Assigned 1/10 - due 1/15 by 3pm to mish@mit.edu

0) Send a program of any length that demonstrates the most interesting concept (or combination of concepts) that you think we learned.

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.

Sending your homework sooner means you'll get comments earlier.

1) Using the distance formula ($dis^2 = x^2 + y^2$) and the fact that the distance from the mouse to the center of a circle must be smaller than the circle's radius if the mouse is inside the circle, create a circular button that, when pushed, prints out "congratulations!"

2) Create an interesting series of beziers that connect to one another, using at least three different bezier() statements. Alternatively, use curveVertex.

3) Using Boolean(s), create a shape that moves up and down the window, moving twice as quickly upwards as downwards. When "s" or "S" is typed, have it move the same rate downwards that it used to move upwards, and vice-versa.

4) Make a window where the background color is dependent on the mouse position (red set at some constant; green increasing with mouseX; blue increasing with mouseY) that contains a shape whose color is always the *inverse* of the background color. (Hint: use additive inverses in RGB notation. I'll post how to do this on the website sometime this weekend for people who haven't figured it out yet.)

5) Create a drawing tool that makes a line with red level dependent on mouseX, green level dependent on mouseY, and blue level dependent on a non-linear function of the two. Make the strokeWeight dependent on a different non-linear function mouseX and mouseY, and invert the color of the line whenever the mouse is held down.

6) Divide the screen into quadrants. Whenever a quadrant is clicked, have the color of that quadrant change 5 random colors (using "for") with .1-second delays between each color change. Leave the quadrant the final color chosen.