



Homework 7: Homage to a Square

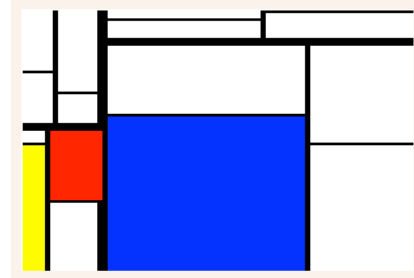
Goal: The purpose of this is to practice with Processing, and to lay the foundation for our future discussion of Artificial Intelligence, an important branch of computer science. You will gain some experience studying someone else's Processing code to figure out what it is doing.

Art In A Click

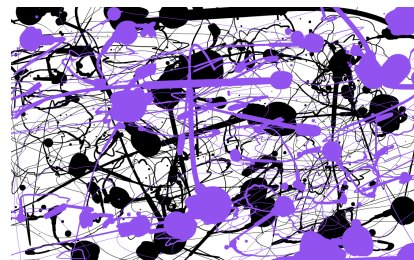
Computer art, that is, art generated by computers, not art created by people using computers, leads to some fun Web sites. We will try two of these before getting started on our own computer art project.

Instructions: Click around on the Web to familiarize yourself with various artists' work. (You will want to save a screen shot of your work in Steps 1 & 2 to be turned in later.)

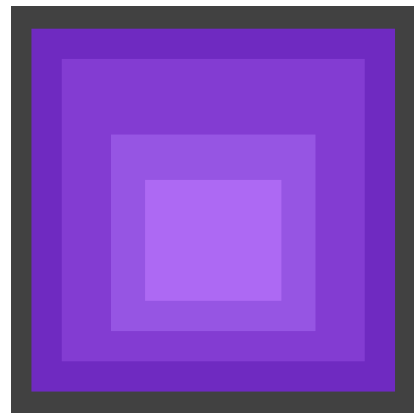
Step 1: Perform a Google search on "piet mondrian" and then click the Images link at the top of the returned hits list. Scroll through the images to get an idea of his work. He was a cubist and created pictures that look like the one at right. This, however, was a computer generated "Mondrian" ... try creating some yourself at <http://www.netlabs.net/hp/richieb/java/Mondrian.htm>. Take a screenshot of one of your creations



Step 2: Perform a Google search on "jackson pollock" and then click on the Images link at the top of the returned hits list. Scroll through the images to get an idea of his work. He was an abstract expressionist and created paintings that look like the one at right. This, however, was a computer generated "Pollock" ... try creating some yourself at <http://www.jacksonpollock.org>. Take a screenshot of one of your creations



Step 3: Perform a Google search on "josef albers" and then click on the Images link at the top of the returned hits list. Scroll through the images to get an idea of his work. He was an abstract painter, and created works that look like the one at right. This, however, was a computer generated "Albers" ... try creating some yourself at ... Oops! First you'll have to write the *Albers In A Click* program!



Albers In A Click

The program shown at right draws an “Albers” picture, but in gray.

It starts by declaring some variables. In the `setup()` it initializes the canvas, and then it picks two random gray colors – these are the outer color of the Albers image and the inner color. In the `draw()` component, the program picks two “in between” colors using a math function called interpolation (`lerpColor`). We don’t worry about how that works, but it’s discussed below. Then it draws the rectangles, outer to inner. Finally, `mousePressed()` picks two more random colors, which will be redrawn.

Assignment: Type this program into Processing, and as you do so, *understand what each statement is doing*. (It is purposely “under commented.”) Then change the program so that it draws the “Albers” pictures in color.

```
homageGray
float c;
color outer, inner, intOut, intIn;

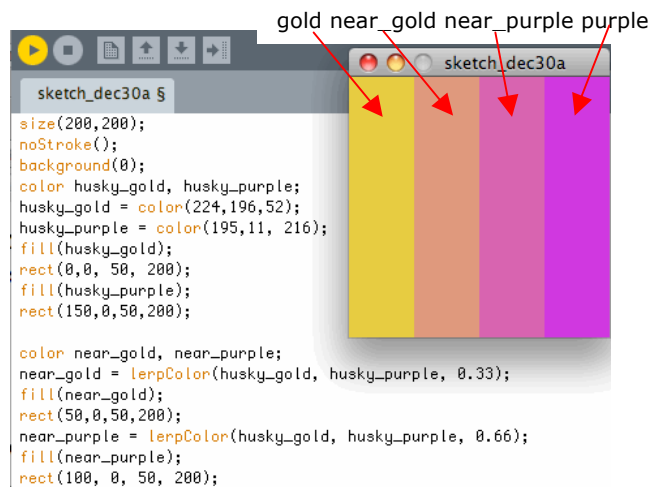
void setup( ) {
  size(600,600);
  background(51);
  noStroke();
  c = random(255);
  outer = color(c,c,c); // generate random outer gray
  c = random(255);
  inner = color(c,c,c); // generate random inner gray
}

void draw( ) {
  intOut = lerpColor(outer, inner, .33);
  intIn = lerpColor(outer, inner, .66);
  fill(outer);
  rect(60, 60, 480, 480);
  fill(intOut);
  rect(100, 100, 480, 480);
  fill(intIn);
  rect(165, 200, 270, 260);
  fill(inner);
  rect(210, 260, 180, 160);
}

void mousePressed() {
  c = random(255);
  outer = color(c,c,c);
  c = random(255);
  inner = color(c,c,c);
}
```

A Color Tool

There is a very interesting function in Processing called `lerpColor()`. It uses a mathematical idea (that we don’t need to know about) called *linear interpolation* to pick intermediate colors. What we do is give it two colors, say `husky_gold` and `husky_purple`, and it finds a color in between. Where in between? We also give it a fraction between 0 and 1 that tells. So, look at my program at right. I have drawn the two Husky colors, and then filled in the region in the middle with two colors between gold and purple. On the left I picked a color “close” to gold, which is 1/3 of the way between gold and purple, and on the right, I picked a color “close” to purple, which is 2/3 of the way between the two. It’s kind of attractive, no?



To Turn In

Put your name on your two screen shots and on your `.pde` file, and submit to the class drop box.