Intro to Generative Art
Assignment 1

Harvard University

1 A (Random) Walk Down Memory Lane

In lecture, we covered just how powerful and fun stochastic processes can be using random walkers. Time to put your own twist on it! *Create a random walker (or walkers!) that does something interesting.* They might fight for territory, change colors depending on where they are on your canvas, make noises, be 3D, or even just walk in 8 directions (consider diagonals) instead of 4.

To get started, recall the `Walker` object we created during lecture:

```
class Walker {
  protected int x, y;

  public Walker(int initX, int initY) {
    //set initial x and y values to given parameters
    x = initX;
    y = initY;
  } //Walker

  public void move() {
    //generate random num between 0 - 3 (inclusive) to determine next direction
    int nextDir = int(random(4));

    if (nextDir == 0) {
      //move right
      x += 1;
    } else if (nextDir == 1) {
      //move left
      x -= 1;
    } else if (nextDir == 2) {
      //move up
      y += 1;
    } else {
      //move down
      y -= 1;
    } //else

    x = constrain(x, 0, width-1);
    y = constrain(y, 0, height-1);
  } //move

  public void display() {
    point(x,y);
  } //display
} //Walker
```

2 What's All That Noise!

Randomness comes in all shapes and sizes. One interesting type of randomness is Perlin noise, which is implemented directly in Processing as `noise()`, and can be used for all sorts of interesting stuff from terrain generation to smooth and flowy (but still random!) walks. *Develop an interesting visualization using Perlin noise.*