

## Lab 7 - Animating multiple characters - Tant de Forets style

### Goals

The goals for this lab are:

1. Practice writing functions
2. Practice writing loops
3. Practice using an array data structure
4. Practice using animation variables
5. *Practice using arrays*

### Modality

**This is a pair-programming lab - you are welcome to form teams of two people or to work individually**

### Overview

Animating multiple characters can help set a scene. The artists who created the animation **Tant de Forets** have a style that translate well in p5.js (artists: Burcu Sankur and Geoffrey Godet). Please watch the short film - you can find it online and mimic one of the scenes creatures and settings. Be sure your scene includes at least 5 versions of the animating character and a background with multiple elements (leaves, trees, buildings, etc.)

### Details

**Tasks:** This lab is to create an animation with multiple creatures moving across the screen each with a slightly different starting position and different



Figure 1: Five bugs (inspired by *Tant de Forêts*) .

pace (or velocity). Your program must use arrays to control the animation of the creatures.

Your ‘sketch’ of the scene must:

- Include at least 5 different creatures which head in at least 5 different directions.
- Include some difference in appearance from one another (color or scale). Please use a creature and scene that is coherent and visually interesting.
- Use arrays to represent the positions of the creatures (x and y) and the velocity the creatures are traveling (vx and vy)
- Use a function to draw one creature that uses function parameters to control the appearance of the creature (scale, rotation and location).
- Include an *update* function that updates the position of each creature
- Include a loop that draws and updates the position of the creatures per frame
- Include a simple animation (moving position (and optionally size or color)) of at least 5 creatures
- All creatures must start in a reasonable position and travel in a reasonable direction
- Several background elements (repeated) that are static - positioned using arrays

Please play with your animation and consider modifying the colors and scale of creatures to make a compelling looking sketch. Also consider playing with your background to set the scene for your animation.

## Demo:

In order to receive credit for this lab, you must demo your sketch to your instructor or TA. For every lab, your score will be broken down 75% for meeting the technical requirements and 25% for aesthetics. Be sure to add your sketch to your webpage!

- 35 points: scene that includes 5 different animating creatures (initial positions, velocities and drawing characteristics look good) - using arrays
- 20 points: scene that includes multiple background elements that vary and look good (using arrays)
- 20 points: appropriate use of functions and loops to iterate over all array elements
- 25 points: sketch is interesting and marvelous

## Resources:

<https://youtu.be/IsiGjj0ljEE>

<http://burcusankur.com/>

<http://geoffreygodet.com/index.php>

```
/*cpe 123 - fall 2016 - example of arrays for animation - ZJ Wood */
var px = [];
var py = [];
var vx = [];
var vy = [];
var ballCr = [];
var ballCg = [];
var ballCb = [];
var numBalls;

function setup() {
  createCanvas(400, 400);
  numBalls = 5;
  for (var i=0; i <numBalls; i++) {
    px[i] = random(20, 380);
    py[i] = random(300, 400);
    vx[i] = random(-0.5, 0.5);
    vy[i] = random(-1, -3);
    ballCr[i] = random(0, 255);
    ballCg[i] = random(0, 255);
    ballCb[i] = random(0, 255);
  }
}
```

```
    }  
  }  
  
function draw() {  
  background(12, 34, 56);  
  for (var i=0; i < numBalls; i++) {  
    //draw the ball  
    fill(ballCr[i], ballCg[i], ballCb[i]);  
    ellipse(px[i], py[i], 30);  
    //update position based on velocity  
    px[i] += vx[i];  
    py[i] += vy[i];  
  }  
}
```