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APCSP, Period 1

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## Lab 130: ArtTwo Code

### Index

```
<!DOCTYPE html>

<html>

  <head>

    <meta charset="UTF-8">

    <title>Art Two</title>

    <script src="libraries/p5.js"
type="text/javascript"></script>

    <script src="libraries/p5.dom.js"
type="text/javascript"></script>

    <script src="libraries/p5.sound.js"
type="text/javascript"></script>

    <script src="sketch.js" type="text/javascript"></script>

    <script src="boids.js" type="text/javascript"></script>

    <style> body {padding: 0; margin: 0;} canvas
{vertical-align: top;} </style>

  </head>

  <body>
```

```
</body>

</html>
```

### Sketch

```
// Ziggy Sheynin

// Lab 130- Art Two

// This is a comment

// The setup function function is called once when your program
begins


var circle = 100;

var rot;

var color;

var freq = 0.000001;

var cont = 0;

var r;

var boids = [];

function setup() {

  var cnv = createCanvas(800, 800);

  cnv.position((windowWidth-width)/2, 30);

  background(5, 5, 5);

  loadBoids(30); //calls function loadBoids
}

// The draw function is called @ 30 fps
```

```

function draw() {
  background(5);

  translate(width/2, height/2);

  rotate(radians(rot));

  ellipseMode(CENTER);

  for (var i=0; i<500; i++){

    circle = 50 + 85*sin(millis()*freq*i);

    color = map(circle,150,250,255,60);

    r = map(circle,150,250,5,2);

    fill(color,0,74);

    //noStroke();

    ellipse(circle*cos(i), circle*sin(i),r,r);

    rot=rot+0.00005;

  } //end for loop

  runBoids();

} //end draw

function loadBoids(n){

  for (var i =0; i< n; i++){

    boids[i] = new Boid(5,5,5,5); //initializes and declares boid
objects

  }

}

function runBoids(){

```

```

    for (var i =0; i<boids.length; i++){

        boids[i].run();

    }

} //+++++++end sketch

```

## **Boids**

```

//Ziggy Sheynin

//Lab 130 Art Two

//This is a comment

//

//

class Boid{

    constructor (x, y, dx, dy, clr){

        this.loc = createVector(x, y);

        this.vel = createVector(dx, dy);

        this.acc = createVector(0, 1);

        this.clr = color(random(255), random(255), random(255));

    } //end Boids constructor

    run(){

        this.render();

        this.checkEdges();

        this.update();

    } //end run function

```

```
update() {  
    this.vel.limit(3);  
    this.loc.add(this.vel);  
    this.vel.add(this.acc);  
} //end update  
  
checkEdges() { //keeps boids on screen  
    if(this.loc.x<0) {  
        this.loc.x=width;  
    }  
    if(this.loc.x>width) {  
        this.loc.x=0;  
    }  
    if(this.loc.y<0) {  
        this.loc.y=height;  
    }  
    if(this.loc.y>height) {  
        this.loc.y=0;  
    }  
} //end checkEdges  
  
// Either warp or bounce  
  
render() {  
    for (var i=boids.length-1; i >0; i--){ //for loop to  
traverse array
```

```
        if(this.loc.dist(boids[i].loc)<200){ //checks the distance
between two boids

            stroke(255);

            fill(30, 40, 150, 40); //gives the squares a color

            ellipse(random(0,800), random(0,800), 10, 10); //draws
square

        }

    }

    }//end render

//This method will draw a line between its location and the
location of any other boid object within 200px.

}//+++++End Boid Class
```

