2021

ART384 Creative Coding

Exercise 1

P5.js – responsive graphics

This first exercise asks you to experiment with the P5.js Javascript library to create a compelling responsive graphic display that responds to the beat of a song.

Here is how you load and play an audio file in P5:

```
var song;

function preload() {
 song = loadSound('dreamingbabylon.mp3')
}

function setup() {
  song.loop();
}

function draw() {
 print('audio playing...');
}
```

Note: You have to load the .mp3 file into your project space prior to running the code. Click on the '>' symbol next to the term 'sketch.js' on the far left, below the 'play' button.

Here is a basic example of a graphic element responding to the information in an audio file. The code loads an audio file, plays it in a loop and creates a pulsating circle in response to the amplitude through the built-in function *getLevel().*

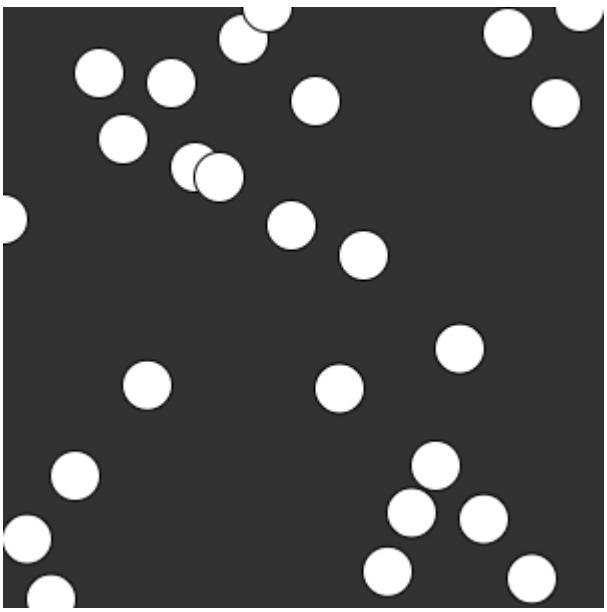
```
var song, analyzer;
//preload the audio file
function preload() {
   song = loadSound('Eddies_Twister.mp3')
}

function setup() {
 createCanvas(300, 300);
 song.loop();
 // create a new Amplitude analyzer
 analyzer = new p5.Amplitude();
 // Patch the input to an volume analyzer
 analyzer.setInput(song);
}
```

```
function draw() {
 background(255);
 // Get the average (root mean square) amplitude
 var rms = analyzer.getLevel();
 fill(127);
 stroke(0);

 // Draw an ellipse with size based on volume
 xsize = rms*400;
 ysize = xsize;
 ellipse(width/2, height/2, xsize, ysize);
}
```

Your task it to pick an interesting audio track and to create a compelling graphic movement that makes use of some of the information present in the audio file.

To make things easy, you have a working base program that you can modify. Here is the code, Falling Circles, (assignment1.js, in UBlearns / assignments) that creates circles and plays a song.

```
//Falling circles
//change the display in response to the information in a streaming audio file


var circleY = [];
var mheight = 300;
var mwidth = 300;

var song, analyzer;

function preload() {
 song = loadSound('dreamingbabylon.mp3')
}

function setup() {
  createCanvas(mheight, mwidth);
  for (let i = 0; i < 25; i++) {
    circleY[i] = random(mheight);
  }

  song.loop();
 // create a new Amplitude analyzer
 analyzer = new p5.Amplitude();
 // Patch the input to an volume analyzer
 analyzer.setInput(song);
}
```



*Falling circles created with the P5.js **ellipse** function*

```
function draw() {
  background(50);
   // get the average (root mean square) amplitude... use this as a dynamic input !
  var rms = analyzer.getLevel();
  print(rms)

  for (let i = 0; i < circleY.length; i++) {
    var circleX = mwidth * i / circleY.length;
    circle(circleX, circleY[i], 25);              //draw the circles

    circleY[i]++;

    if (circleY[i] > mheight) {
      circleY[i] = 0;
    }                                             //end if
  }                                               //end for

}                                                 //end draw
```

Check out these additional resources:

https://p5js.org/reference/#/p5.Amplitude
https://p5js.org/reference/#/p5.FFT

DELIVERABLE

A P5.js program that visualizes in an interesting way the auditory dynamics of a sound file. You may use the 'Falling Circles' code as a starting point if you like.

POINTS 15 points. See syllabus.

DEADLINE Tuesday, September 28th. noon

FORMAT and DELIVERY

- Send the code as a .txt file (yourname_CC2021_E1.txt) to the instructor before the deadline.
- Demonstrate the code in class.