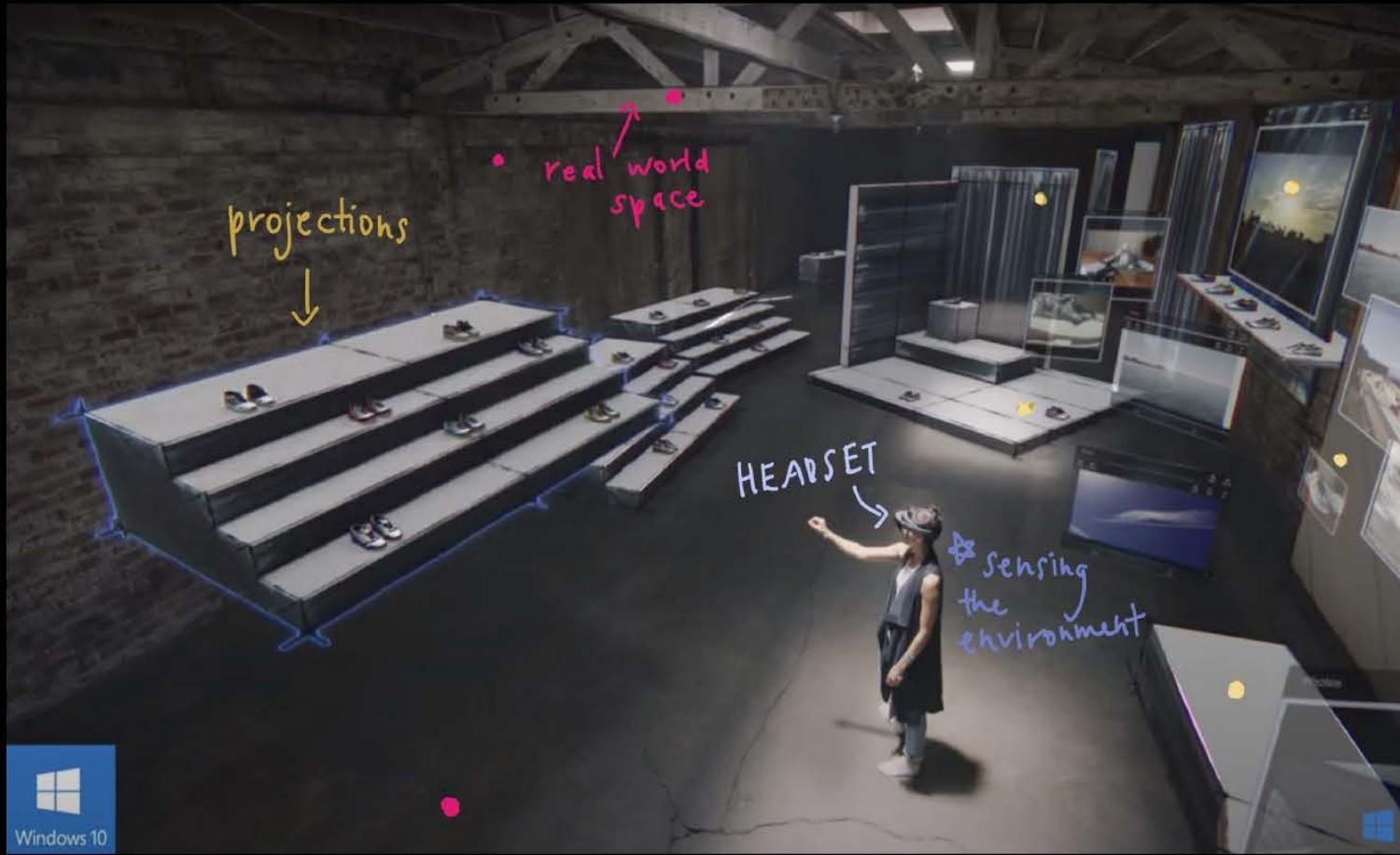


You Are Your Memories



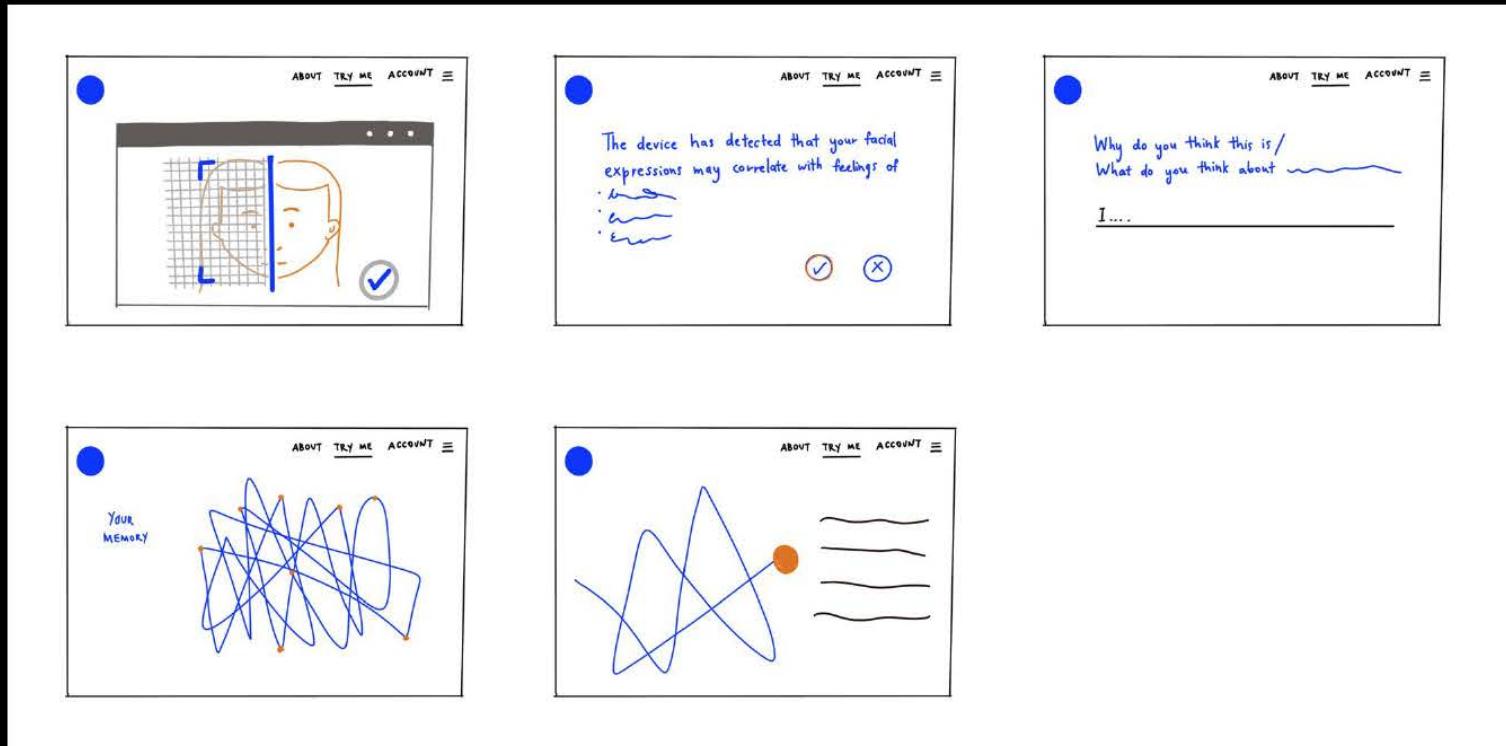
For my pitch, I speculated on a project about a multi-dimensional memory bank that would be projected through a mixed reality headset. The main idea was for the users to recall a memory through sensory experiences and for the machine to generate visuals through detected data from an EEG sensor.

As I was looking at the time frame and possibility of the project, I decided to brainstorm a few more ideas on how I could possibly carry out the idea without the use of the VR tool and the EEG sensor. Essentially, the project still has to

1. Trigger memories through sensory experiences.
2. Generate an artwork/ visual output based on the experience.

Brainstorming

Week 6 & 7

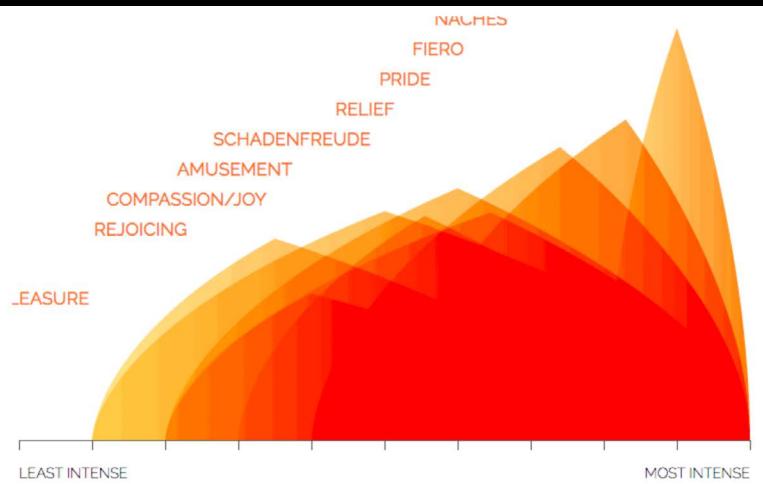
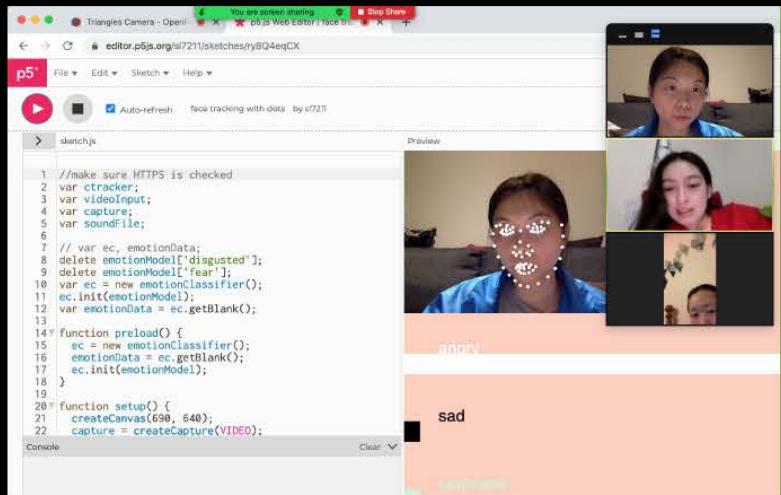


The initial idea was a web-based project that would help with memory building. The project will first allow users to trigger a memory through their own sensory experiences, followed by a facial tracking tool that will guess their emotions. After, the machine will prompt a series of open-ended questions that will guide them through the process of remembering and essentially generating a 3D visualised trail of thought, or even a digital data sculpture based on the emotional memory.



However after doing some research, I feel like there would be too much to do within the time frame, and had to think realistically.

The new idea would consist of the user triggering a memory through their own sensory experiences and the tool would essentially track the facial expression and translate it to emotions. The data for that could then generate a digital model to visually represent the emotional memory.



I decided to research online and in Open Processing to look at projects that might have had emotion tracking or have generated visuals through tracking.

I was also looking at an article that talked about the shape of emotions and how shapes can represent emotions depending on the colour, shape, intensity in height and texture. This gave me a few ideas for the generated visual.

Pseudocode . Week 6 & 7

```
INPUT face tracking
IF face is detected
    THEN start emotion tracking
IF face is not detected
RETURN

INPUT emotion tracking
IF eyes && mouth are smiling
    THEN detect feeling as happy
ELSE IF eyes && mouth are frowning
    THEN detect feeling as sad
ELSE IF eyebrows frown && mouth is slightly opened
    THEN detect feeling as anxious
ELSE IF eyebrows are furrowed && mouth is opened wide
    THEN detect feeling as anger
ELSE IF nose is scrunched && mouth is twitched
    THEN detect feeling as disgusted
ELSE IF there is no change
    THEN detect feeling as neutral
ELSE IF eyes expand && mouth is wide open
    THEN detect feeling as surprised

INPUT generated visuals
IF happy
    THEN spheres will appear
        FOR every percentage of happiness DO increase intensity of yellow colour && amount of spheres

ELSE IF sad
    THEN cylinders will appear
        FOR every percentage of sadness DO increase intensity of blue colour && amount of cylinders
ELSE IF anxious
    THEN wavy shapes will appear
        FOR every percentage of anxiousness DO increase intensity of purple colour && amount of shapes

ELSE IF angry
    THEN cross 'x' shapes will appear
        FOR every percentage of anger DO increase intensity of red colour && amount of shapes

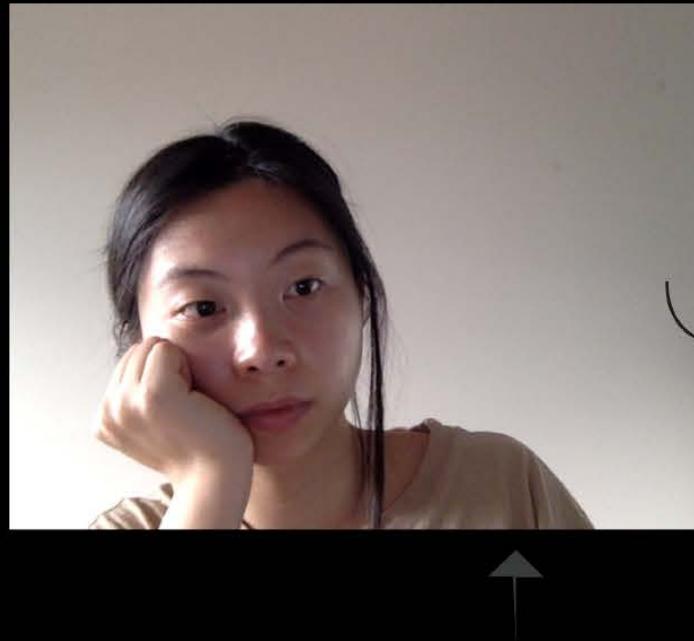
ELSE IF disgusted
    THEN triangular prisms will appear
        FOR every percentage of the feeling DO increase intensity of green colour && amount of shapes

ELSE IF feeling neutral
    THEN cubes will appear
        FOR every percentage of the feeling DO increase intensity of green colour && amount of shapes

ELSE IF feeling surprised
    THEN sparklers shape will appear
        FOR every percentage of the feeling DO increase intensity of bright pink colour && amount of shapes

END IF
```

Trial & Error . Week 8



Text supposed to appear here

Following the pseudocode I made, I wanted to explore the different ways I could go about the project. I found a few different resources to help with facial/ emotion tracking ([GitHub which explained more about using Face API to track facial expressions](#), & [this one](#) that used the API in ml5 instead of TensorFlow.js.).

I then stumbled across [The Coding Train's learning playlist on machine learning](#), and this helped me further understand how machine learning works.

To start understanding machine learning, I tried an image classifying through the webcam code but I couldn't get the image uploader to work as well as the text to display on the webcam screen.

Some of the tutorials or codes that I have found were from a few years back and haven't been updated as well, so I had to find ways to work around it which to be honest, was a good learning curve for myself. It was also extremely hard to find a code for facial/ emotion tracking that worked.

In-Class Feedback & Rethinking . Week 8

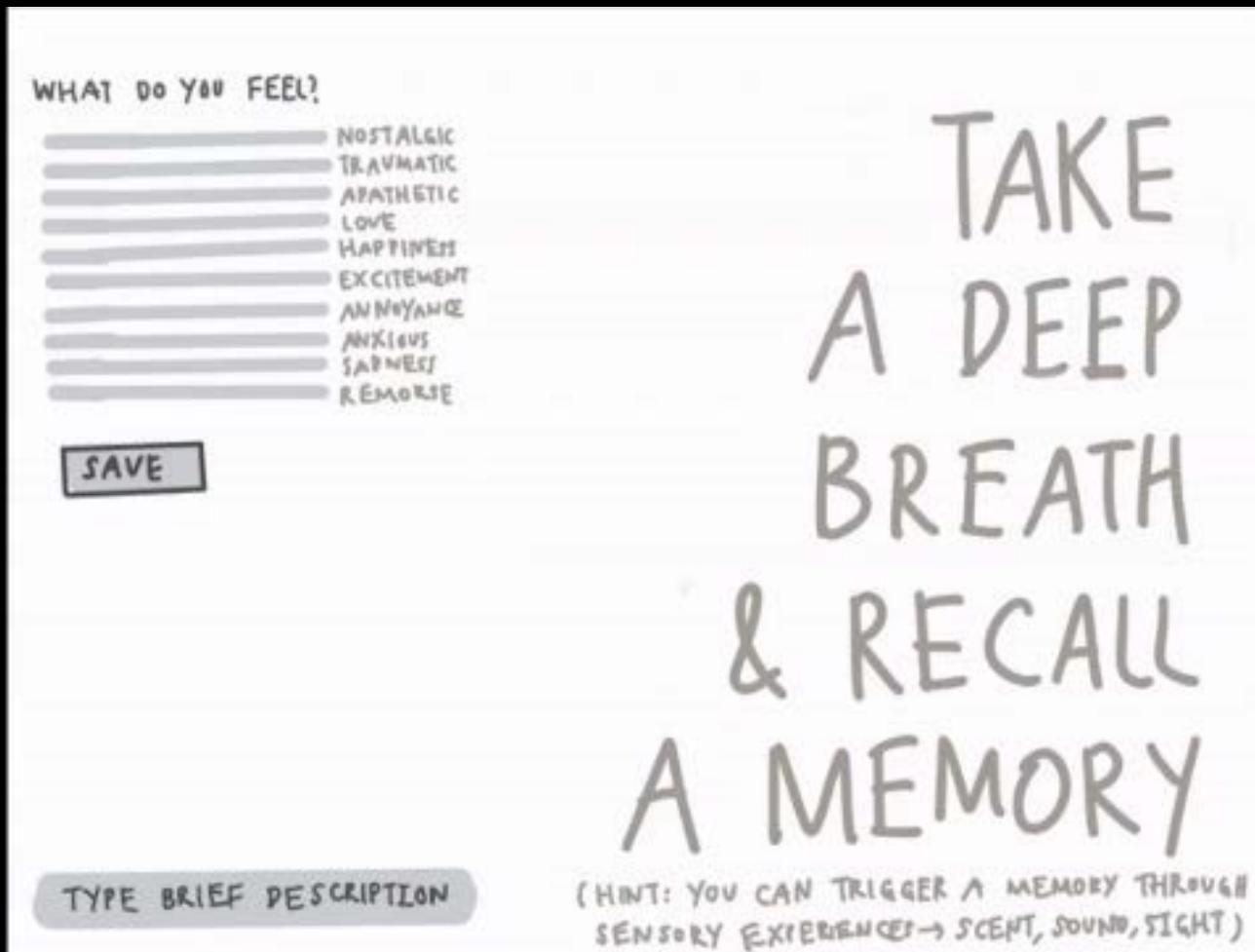
I decided to rethink the input for the project, after processing the feedback Karen gave in class last week about potentially having an image uploader as an alternative, and then having a prompt to ask the user if the feelings detected were right.

I agree that it's a better way to process a memory compared to facial tracking, but that got me thinking about how not all memories are photographed, and how everyone can perceive an image differently, so having an image uploader might not be the best input. I was also thinking about how emotion tracking through facial expressions might not work as well, as most people don't have exaggerated facial expressions when thinking of a memory.

So I was thinking of using the slider tool that the users can adjust themselves based on what they feel from the recalled memory. That way, there would be a more accurate user experience as it would depend more on the user's recollection of the memory instead of what the machine perceives, and I would also be able to include feelings such as nostalgia, trauma, warmth, etc rather than just facial expressions.

Prototype & Pseudocode (2) . Week 9

So my current idea consists of an interactive website that prompts users to recall a recent memory, and it allows users to create their own visual based on what they remember feeling from the memory. It involves sliders which determines the feelings as well as a text input, if they want to include a brief description. Users can also choose to save the image for keepsake.



```
FUNCTION text
INPUT text before start
WHEN Start
THEN remove text

FUNCTION slider
INPUT slider = nostalgic
INPUT slider = traumatic
INPUT slider = apathetic
INPUT slider = love
INPUT slider = happiness
INPUT slider = excitement
INPUT slider = annoyance
INPUT slider = anxious
INPUT slider = sadness
INPUT slider = remorse

FUNCTION generated visual
IF slider = nostalgic
THEN sepia filter will overlay
FOR every percentage of nostalgia DO increase intensity of filter

IF slider = traumatic
THEN b&w filter will overlay
FOR every percentage of trauma DO increase intensity of filter

INPUT slider = apathetic
THEN fade
FOR every percentage of feeling DO increase intensity of fade

INPUT slider = love
THEN include pink blob
FOR every percentage of feeling DO increase size of blob shader

INPUT slider = happiness
THEN include yellow round blob
FOR every percentage of feeling DO increase size of blob shader

INPUT slider = excitement
THEN include orange blob
FOR every percentage of feeling DO increase size of blob shader

INPUT slider = annoyance
THEN include red fiery blob
FOR every percentage of feeling DO increase random amount blob

INPUT slider = anxious
THEN include dark purple sharp blob
FOR every percentage of feeling DO increase random amount blob

INPUT slider = sadness
THEN include dark blue droopy blob
FOR every percentage of feeling DO increase random amount blob
```

Progress of Code . . . Week 9

The beginning of my coding process starts with me playing around with the random function as well as the slider & button function.

The image displays two side-by-side screenshots of the p5.js code editor interface. Both windows have a yellow header bar with the 'p5' logo and a title bar indicating the sketch name and author.

Left Window (sketch.js):

- Title:** sketch.js
- Code:**

```
23 background(0);
24 }
25
26 function draw() {
27   noStroke();
28   col.r= random(0,255);
29   col.g= random (100,200);
30   col.b= random (20,250);
31   dot.x= random(0,600);
32   dot.y=random (0,400);
33   tri.x1= random(0,600);
34   tri.y1=random (0,400);
35   tri.x2= random(0,600);
36   tri.y2=random (0,400);
37   tri.x3= random(0,600);
38   tri.y3=random (0,400);
39   fill(col.r,col.g,col.b);
40   ellipse(dot.x, dot.y, 24, 24);
41   triangle(tri.x1,tri.y1, tri.x2,tri.y2, tri.x3,
42   tri.y3);
```
- Preview:** Shows a colorful abstract composition with various shapes like triangles and ellipses.

Right Window (sketch.js):

- Title:** sketch.js
- Code:**

```
1 var bgcolour;
2 let Slider;
3 var input;
4
5 function setup() {
6   createCanvas(windowWidth, windowHeight);
7   bgcolour = color();
8   button = createButton('I am Feeling..');
9   button.mousePressed(changeColour);
10
11   input = createInput("Type brief description
12   of memory");
13
14   //create sliders
15   Slider = createSlider(0, 100, 0);
16
17
18   button = createButton('SAVE');
19   button.size(60, 30);
20   button.mousePressed(save);
21
22 }
23
24 
```
- Preview:** Shows a text input field with placeholder text "WHAT DO YOU REMEMBER FEELING?" and a slider below it.

Text Overlay: The text "Type brief d" is overlaid on the right side of the image.

Progress of Code . Week 9

Then, I learnt how to position the sliders and customise the text input and buttons.

```
> sketch.js
41 //create sliders (min, max, current)
42 Slider1 = createSlider(0, 100, 0);
43 Slider1.position(30, 110);
44 Slider2 = createSlider(0, 100, 0);
45 Slider2.position(30, 140);
46 Slider3 = createSlider(0, 30, 0);
47 Slider3.position(30, 170);
48 Slider4 = createSlider(0, 100, 0);
49 Slider4.position(30, 200);
50 Slider5 = createSlider(0, 1500, 0);
51 Slider5.position(30, 230);
52 Slider6 = createSlider(0, 50, 0);
53 Slider6.position(30, 260);
54 Slider7 = createSlider(0, 100, 0);
55 Slider7.position(30, 290);
56 Slider8 = createSlider(0, 4, 0);
57 Slider8.position(30, 320);
58 Slider9 = createSlider(0, 4, 0);
59 Slider9.position(30, 350);
60
61 //create text box
62 let col = color(194, 197, 204);
63 input = createInput("");
64 input.position(30, 500);
65 input.size(230, 10);
66 //input.style('background-color', col);
67
68 //create save function
69 button = createButton('SAVE');
70 button.position(30, 600);
71 button.size(60, 30);
72 button.mousePressed(save);
73 button.style('background-color', col);
74
75 }
76
```

Console Clear ▾

Progress of Code . Week 9

Then, I had to understand how to use the mapping & noise() function to create certain animations as well as connecting the sliders to the loop function to move the circles.

WHAT DO YOU REMEMBER FEELING?

- NOSTALGIA
- TRAUMA
- LOVE
- HAPPINESS
- EXCITEMENT
- ANNOYED
- ANXIOUS
- SAD
- REMORSE



SAVE

```
//slider4- happiness
let x1 = width / 2;
let y1 = height / 2;

//make a for loop to move the shape
for (let happy = 0; happy < Slider4.value(); happy++) {

    noFill(); // no fill
    strokeWeight(0.5);
    stroke(255, 255, 0); // fill yellow

    //use the value of happy to change the scale of each
circle
    ellipse(x1, y1, happy * 10, happy * 10);
}
```

```
//slider6 - annoyed
fill(255);
//map x value of noise from current range with range of
page
var x = map(noise(xoff1), 0, 1, 0, width);
var y = map(noise(xoff2), 0, 1, 0, width);

xoff1 += 1;
xoff2 += 1; //offset two x values by adding 1 each time

ellipse(x, y, Slider6.value(), Slider6.value());
```

Progress of Code . . . Week 9

So I also checked out the examples in the p5js reference library & tested out the “wavemaker” animation. I still have to figure out how I can create the trails as seen in the wavemaker code. Also, I integrated the random function sketch I made earlier into the anxious slider.



```
let t = 0; // time variable

function setup() {
  createCanvas(600, 600);
  noStroke();
  fill(40, 200, 40);
}

function draw() {
  background(10, 10); // translucent background (creates trails)

  // make a x and y grid of ellipses
  for (let x = 0; x <= width; x = x + 30) {
    for (let y = 0; y <= height; y = y + 30) {
      // starting point of each circle depends on mouse position
      const xAngle = map(mouseX, 0, width, -4 * PI, 4 * PI, true);
      const yAngle = map(mouseY, 0, height, -4 * PI, 4 * PI, true);
      // and also varies based on the particle's location
      const angle = xAngle * (x / width) + yAngle * (y / height);

      // each particle moves in a circle
      const myX = x + 20 * cos(2 * PI * t + angle);
      const myY = y + 20 * sin(2 * PI * t + angle);

      ellipse(myX, myY, 10); // draw particle
    }
  }

  t = t + 0.01; // update time
}
```

Progress of Code . Week 9

I also created an interactive function which sets a landing introduction page to create a setting for the user, and then allowing the next page to appear after key is pressed.

```
//landing page
if (mode == 0) {
  fill(255);
  text1 = text('TAKE A DEEP BREATHE. RECALL A MEMORY. PRESS ENTER  
TO START', 400, 400);
  Slider1.hide();
  Slider2.hide();
  Slider3.hide();
  Slider4.hide();
  Slider5.hide();
  Slider6.hide();
  Slider7.hide();
  Slider8.hide();
  Slider9.hide();
```

```
//next web page
if (mode == 1) {
  text1 = clear();
  Slider1.show();
  Slider2.show();
  Slider3.show();
  Slider4.show();
  Slider5.show();
  Slider6.show();
  Slider7.show();
  Slider8.show();
  Slider9.show();
  input.show();
  button.show();
  background(bgcolour);

//when enter, page changes
function keyPressed() {
```

```
  if (keyCode === ENTER) {
    mode = 1;
  }
}
```

TAKE A DEEP BREATHE. RECALL A MEMORY. PRESS ENTER TO START
→

This is my current progress. My main idea was to experiment with the different forms of animations and to figure out the code from scratch. I do want to explore more dynamic animations, but of course, keeping the shape of emotions in mind as well.

As for next steps, I will have to

1. Create more dynamic animation by learning the particles and noise function.
2. Improve the text design for the text input function.
3. Possibly using sound to enhance the mood.