

Creative Coding

Shape Properties, RGBA, Variables, 🐛 Debuging, Case Study

COD 207 - Week 04 Class →



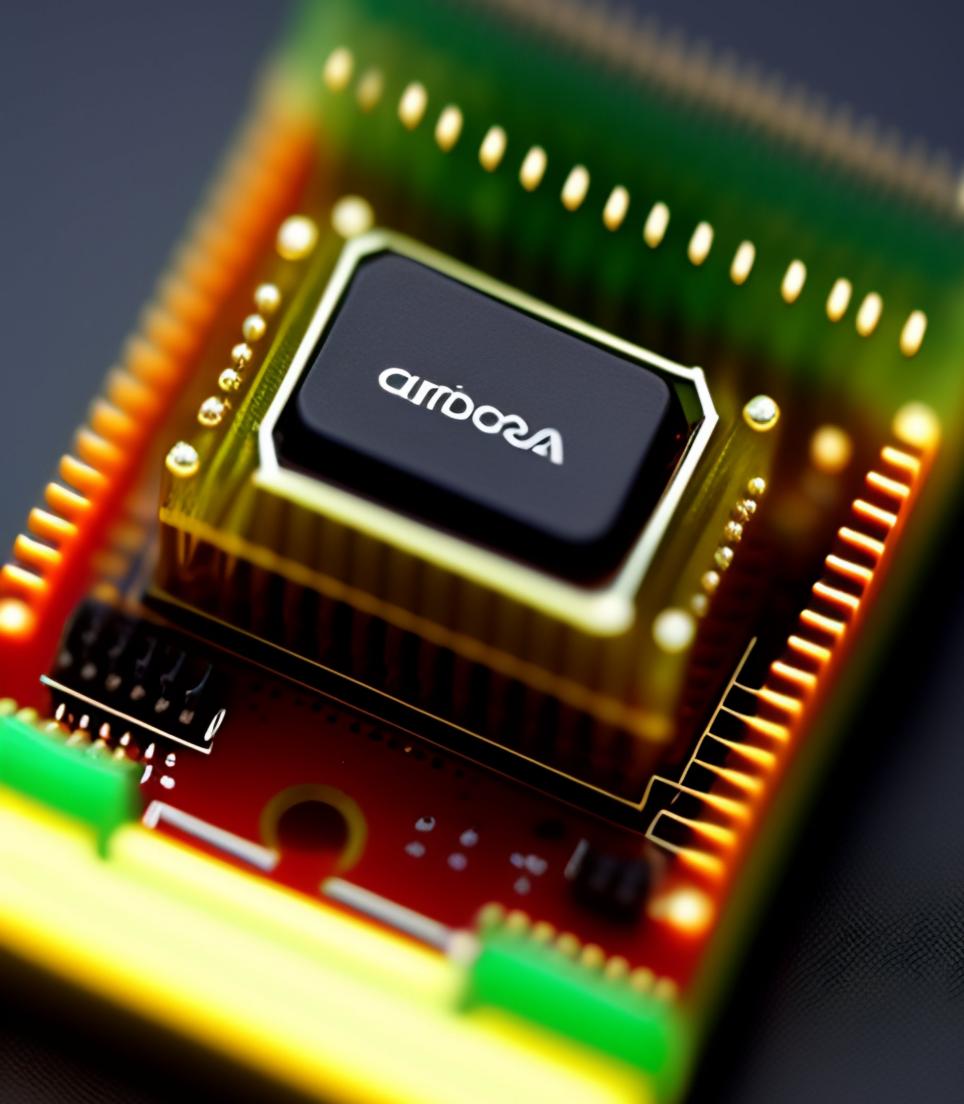
- 1. Creative Coding
- 2. Survey
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- 6. Computational Thinking Practice
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- 10. Variables
- 11. BREAK
- 12. *"First, solve the problem.*
- 13. Assignments

Survey

Please answer the questions shortly.



Open the survey



Wrap-up (Summary)

Things we learn about P5JS programming language.

- Basic drawing and styling
- External Libraries (p5.Utils)
- Computational Thinking Framework

Import p5_Utils using OpenProcessing IDE

Detailed instructions are in the following link.

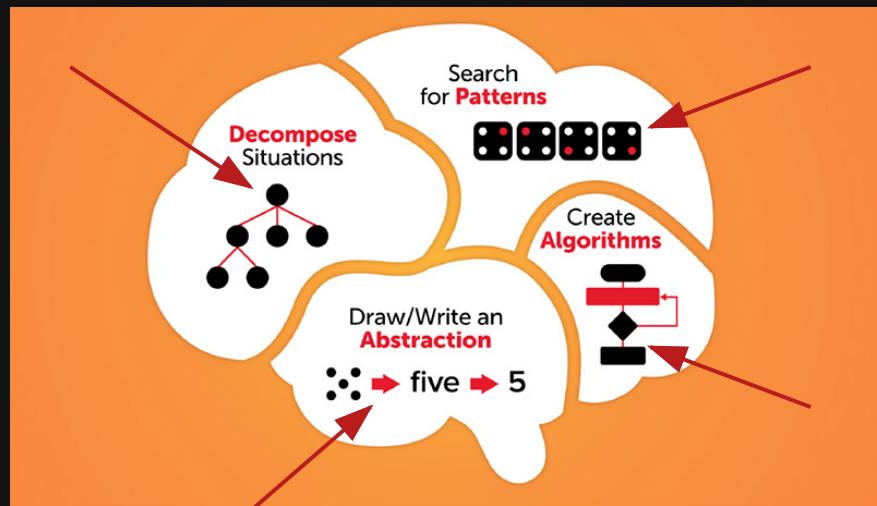
👉 Download the tutorial pdf

```
1 // Declare p5_Utils library
2 // It must be outside of setup() and draw() functions.
3 let utils = new p5_Utils();
4
5 function setup() {
6   createCanvas(600, 600);
7
8   // Comment out the following line to Activate Ruler
9   // utils.enableRuler();
10 }
11
12 function draw() {
13   background(150);
14   rect(200, 200, 300, 150);
15 }
```

Computational Thinking

1. Decomposition (Create Chunks; Break down problems into manageable parts)
2. Pattern Recognition (Identify similarities; Find recurring sequence or structure)
3. Abstraction (Summarize; identify useful elements, ignore irrelevant)
4. Algorithm (Realize; Create step by step instructions for the computer)

Test -> Refine -> Polish -> Look at the pieces



Computational Thinking Practice

Forward, Downward, Forward, Downward, Forward, Downward...

Write down the next 4 steps using arrows.

Functions

Functions represents action, calculations. They are micro algorithms in your computer programs. E.g. Setting the image size in photoshop.

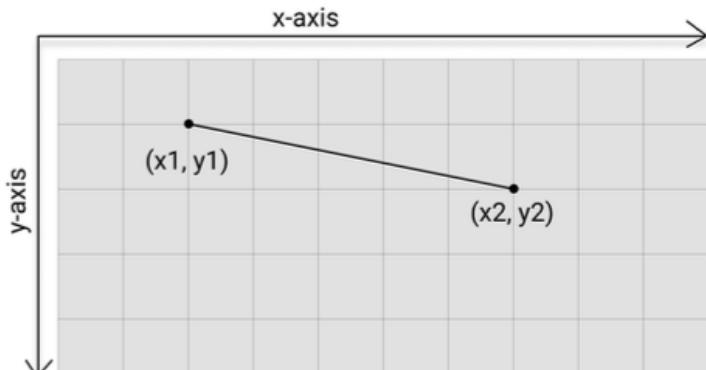
```
1 // Runs once at the start of the program
2 function setup() {
3     // Creates the application window params: width=600, height=600
4     createCanvas(600, 600);
5 }
6
7 // Loops infinitely after setup() runs
8 function draw() {
9     // Set the background color of the window params: Red: 100, Green: 20, Blue: 20
10    // R,G,B values must be between 0 - 255
11    background(20, 20, 20);
12 }
```



The line() Function

The `line()` function draws a line between two points and requires four arguments: the `x` and `y` positions for each endpoint.

The width of the line can be set with the `strokeWeight()` function and the color of the line can be set with the `stroke()` function.



`line(x1, y1, x2, y2);`

```
1  function setup() {
2    createCanvas(480, 120);
3  }
4
5  function draw() {
6    background(10, 0, 0);
7    // Uncomment the following line to adjust stroke thi
8    // strokeWeight(4);
9    // Uncomment the following line to adjust stroke col
10   // stroke(200, 20, 20);
11   line(100, height / 2, width - 100, height / 2);
12 }
```

Opacity and Color Blending

```
1  function setup() {
2    createCanvas(300, 600);
3  }
4
5  function draw() {
6    background(10, 0, 0);
7    // Draws a circle with blue fill color and no stroke/outline
8    // noStroke();
9    fill(0, 0, 255);
10   circle(50, 50, 25);
11
12   // Draw another circle collapsing with upper one
13   // Add the 4th argument in fill() function and make transparent color
14 }
```



Variables

A variable stores a value in memory so that it can be used later in a program. A variable can be used many times within a single program, and the value is easily changed while the program is running.

Reuse the Same Values (If you are typing the same number more than once, consider using a variable instead so that your code is more general and easier to update.)

Updating existing values



BREAK

10 mins.

"First, solve the problem.

Then, write the code."

John Johnson

Assignments

1. Analyze the artwork using the Computational Thinking Framework that you started working on in class. Note down each step in the LMS. (10 pts) 
2. Finalize the algorithmic art sketch that you started working on in class. (50 pts) 
3. You must use variables in your code. (10 pts) 
4. You must use comments in your code. (10 pts) 
5. Submit the openProcessing link. (10 pts) 
6. Submit the sketch source code as well. (10 pts) 
7. Read the attached document before class. 
8. Watch the tutorial video on Variables and Randomness. 