

# Creative Coding

Shape Properties, RGBA, Variables,  Debuging, Case Study

COD 207 - Week 04 Class →



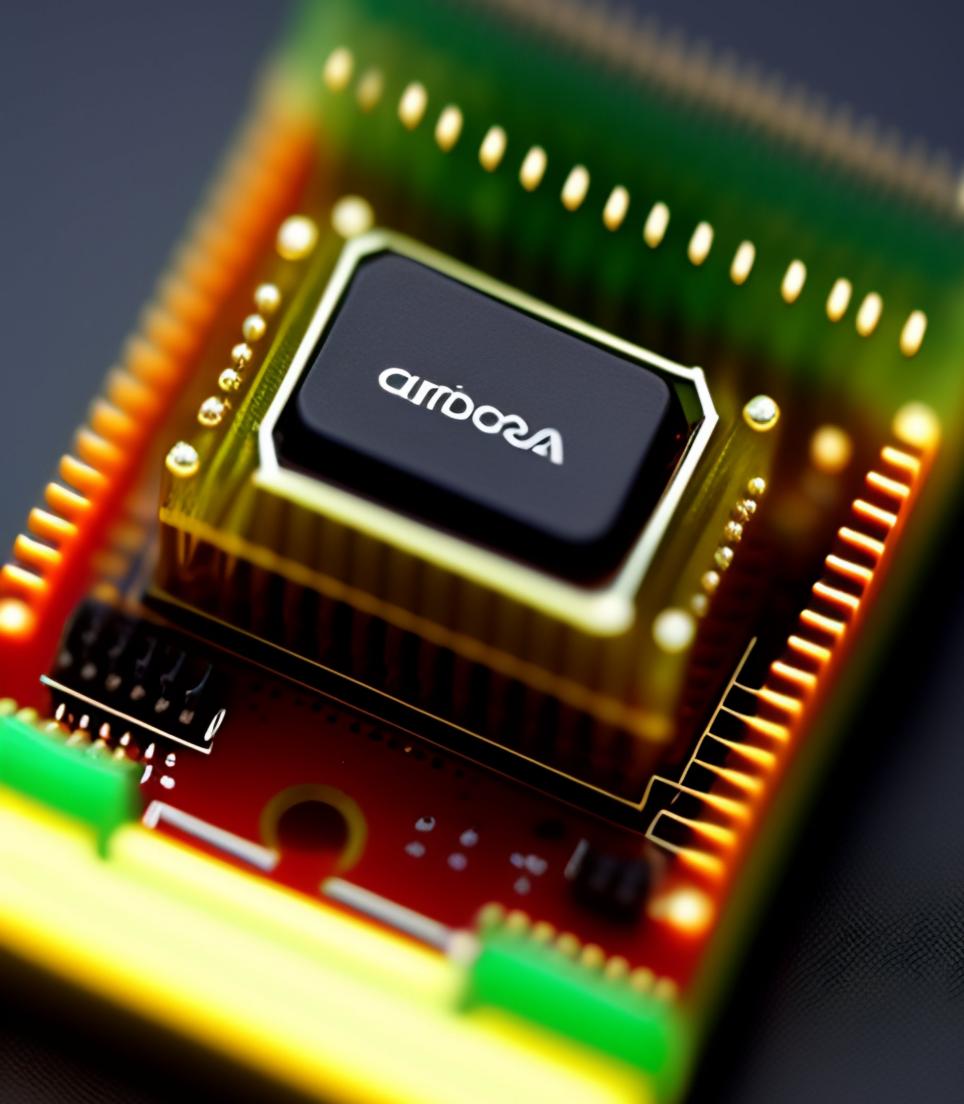
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# Survey

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.

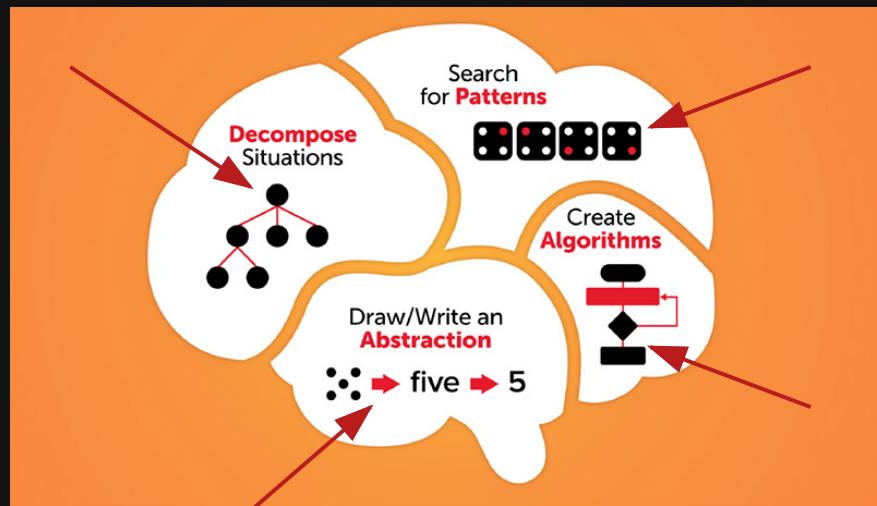
👉 Download the tutorial pdf

```
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.

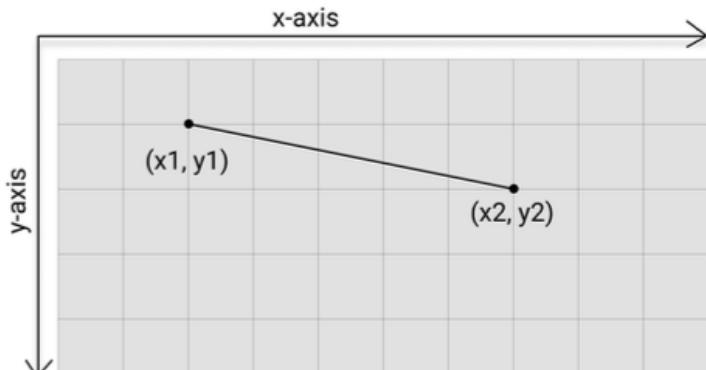
```
1 // Runs once at the start of the program
2 function setup() {
3     // Creates the application window params: width=600, height=600
4     createCanvas(600, 600);
5 }
6
7 // Loops infinitely after setup() runs
8 function draw() {
9     // Set the background color of the window params: Red: 100, 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.

# After Break

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. 🎥

