

Creative Coding

How do computers work?, P5JS Setup, Hello World

COD 207 - Week 02 Class →



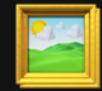
- 1. Creative Coding
- 2. Table of contents
- 3. Overview
- 4. Terminology
- 5. "Whenever the speech is corrupted so is the mind"
- 6. Computers
- 7. Programming
- 8. Programming Language
- 9. Types of Programming Language
- 10. P5JS Overview
- 11. OpenProcessing
- 12. Create a sketch
- 13. Save the Sketch
- 14. Set Title for The Sketch
- 15. Default Sketch Presentation
- 16. Setup and Draw Function
- 18. Cartesian Coordinate System
- 19. Coordinate System
- 20. Shapes - Ellipse
- 21. Shapes - Rectangle
- 22. Shapes - Lines
- 23. Shapes - Triangle
- 24. Shapes - Arc
- 25. Styling - Fill/noFill
- 26. Styling - Stroke/noStroke
- 27. Combine Everything
- 28. BREAK
- 29. How to Submit Assignments 1
- 30. How to Submit Assignments 2
- 31. How to Submit Assignments 3
- 32. Submit the Link & your sketch to LMS
- 33. Tutorial Coordinate System



Overview



Terminology



P5JS sketch



openProcessing

Terminology

Why terminology matters?

"Whenever the speech is corrupted so is the mind"

- *Lucius Annaeus Seneca*

Speech is made of words, and the words have meaning. These are grouped together to form thoughts or ideas and to move them from one person to another. If you can corrupt the speech, by banning words or concepts, everything else is corrupted as well.



Computers

Runs instructions by humans

Power supply

Processor

Memory (RAM)

Hard drive (Harddisk)

Video Card (GPU)

Peripherals (IO, Keyboard, mouse)

Programming

> _ <

Programming is the process of creating a set of **instructions** that tell a computer how to perform a task.

Instructions are made up of written **codes**.

Codes are written according to a specific Programming Language.

Programming Language

A system of notation (syntax) used communicate with computers and tell them what to do.

Types of Programming Language

Textual Programming Languages

E.g. Javascript, C++, Python...

Graphical Programming Languages (*a.k.a Node-based*)

E.g Scratch

Mixed-Programming Languages

E.g TouchDesigner, MAX



P5JS Overview

A dedicated creative coding framework/library for artists & designers.

Main Elements;

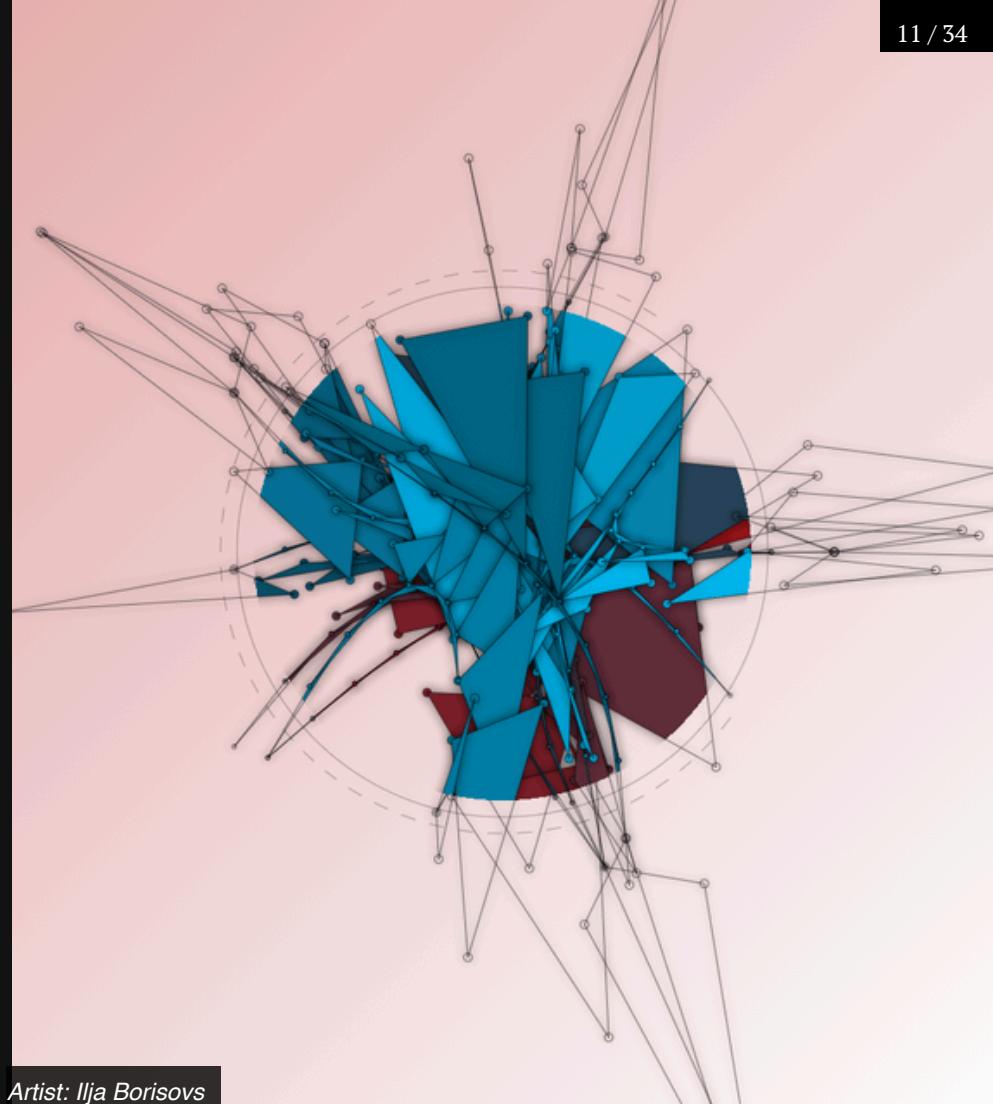
- Javascript
- Canvas
- Functions
- Libraries
- [P5JS Website](#)

OpenProcessing

P5JS Programming interface

Features;

- Text Editor
- Online IDE (Integrated Development Environment)
- OpenProcessing Editor



Artist: Ilja Borisovs



alptugan

sociotechnology, algorithmic art, live coding

Turkey

alptugan.com

Activity

88 Sketches

61 Hearts

2 Curations

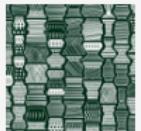
Edit Profile

24/9



New sketch submitted to 3 colors #WCCChallenge

Color Print



New sketch submitted to 3 colors #WCCChallenge

Vases



New sketch submitted to 3 colors #WCCChallenge

Battery Tesselation

Supported by You

21 Plus+ Members

OpenProcessing needs 30 new members every 30 days to host your sketches and improve the site.

For the price of a coffee a month, get 1GB space, private sketches, unlimited version history, live collaboration, and more.

[GET PLUS+ MEMBERSHIP](#)



SAVE

13 / 34

mySketch

```
1 function setup() {  
2     createCanvas(windowWidth, windowHeight);  
3     background(100);  
4 }  
5  
6 function draw() {  
7     circle(mouseX, mouseY, 20);  
8 }
```

SKETCH

FILES

EDITOR



MODE

P5js

HTML/CSS/JS

Pjs

Select mode or a template

TUTORIAL MODE

Write step-by-step tutorials. [Learn more](#)

SHOWCASE SKETCH



Centers sketch and matches the background color.

LOOP PROTECTION



Prevents infinite loops that may freeze the sketch.

LIBRARIES - SHOW ALL



p5.sound



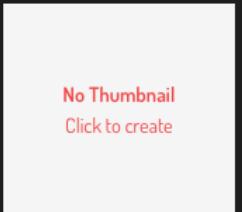
OP Configurator 3000

Join Plus+ for private sketches, version history,
and more!



SUBMIT

14 / 34



week02_assignment01

TITLE

No Thumbnail
Click to create

DESCRIPTION**HOW TO
INTERACT WITH
IT**

e.g., mouse, keyboard

TAGS

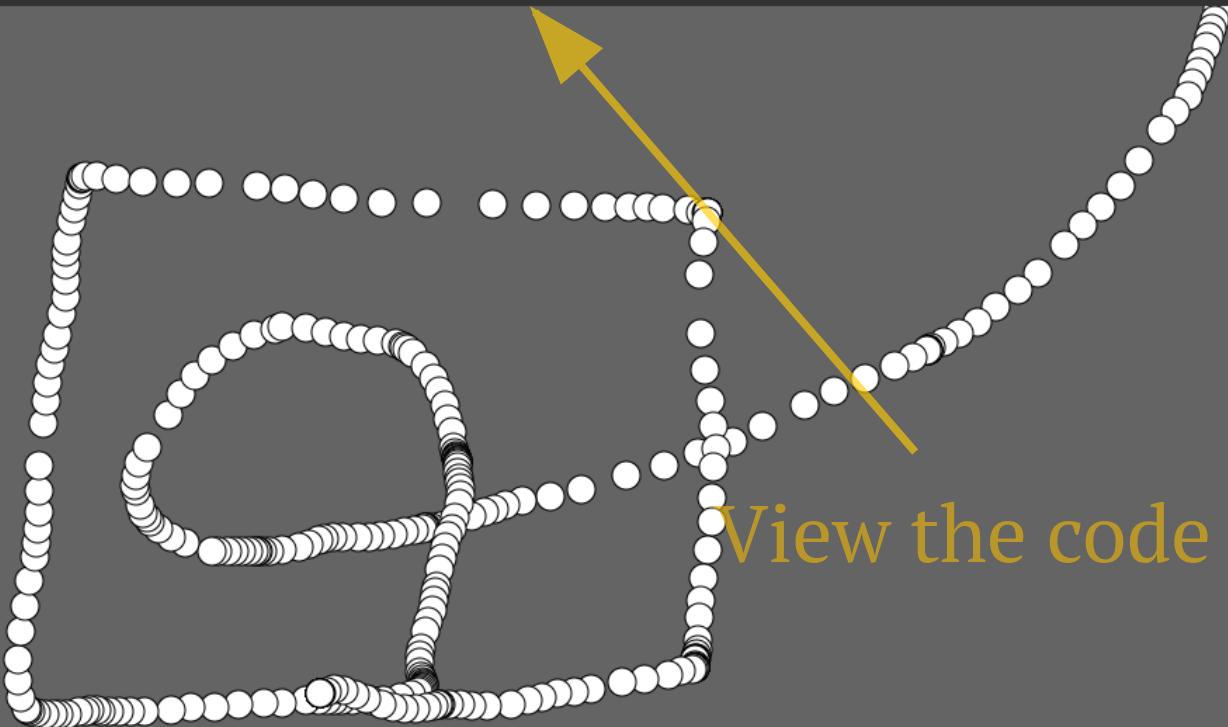
e.g., visualization, fractal, mouse

LICENSE

Attribution NonCommercial ShareA... ▾

Learn more about [Creative Commons](#)

DRAFT**ADD TO MY TEMPLATES**





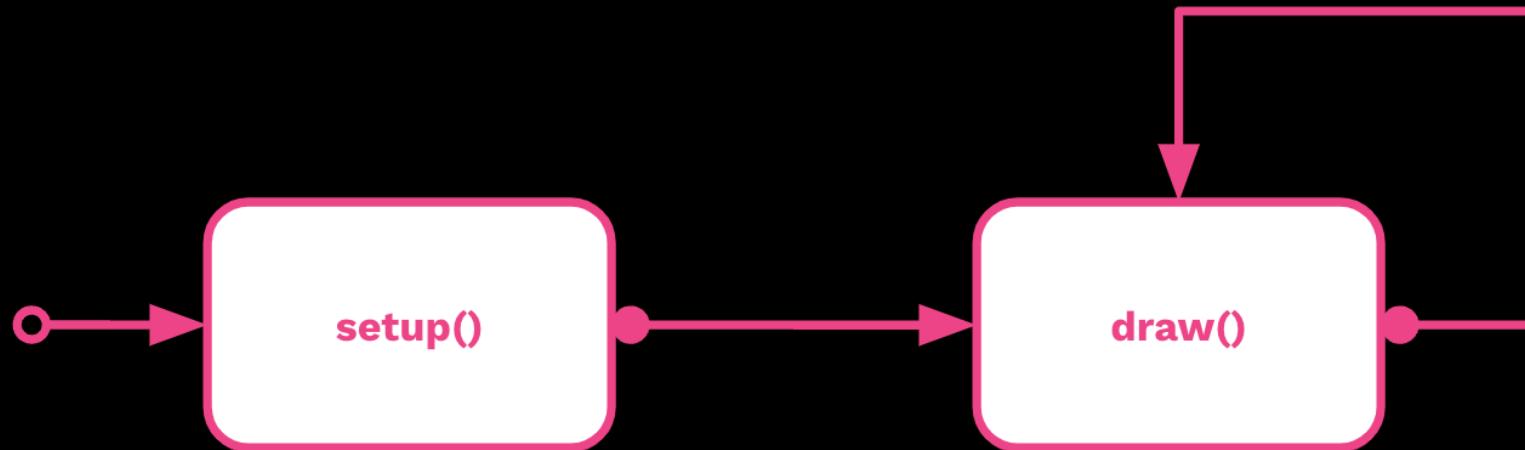
mySketch

```
1 function setup() {  
2     createCanvas(windowWidth, windowHeight);  
3     background(100);  
4 }  
5  
6 function draw() {  
7     circle(mouseX, mouseY, 20);  
8 }
```



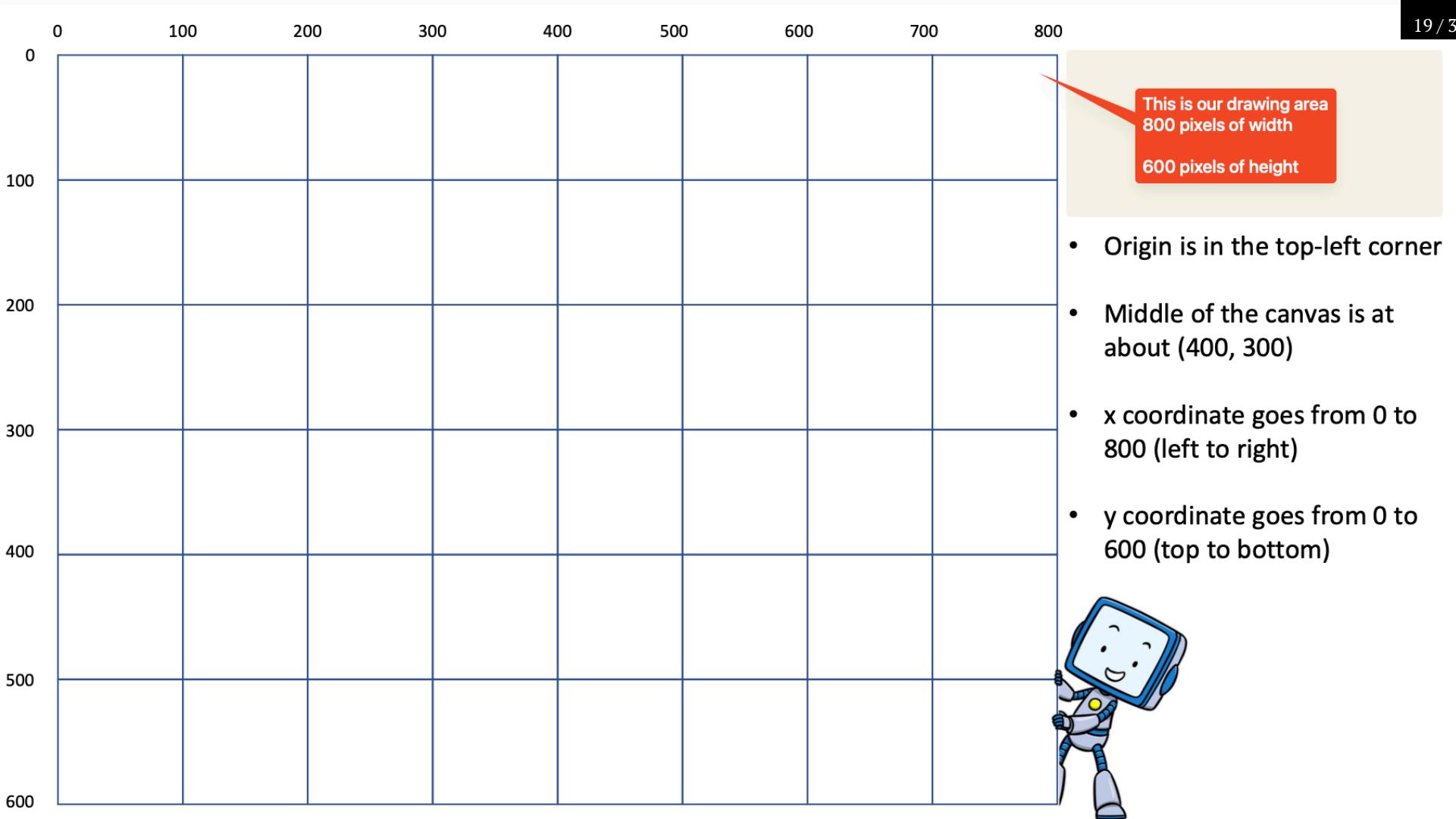
Change Layout

Anatomy of a p5 sketch

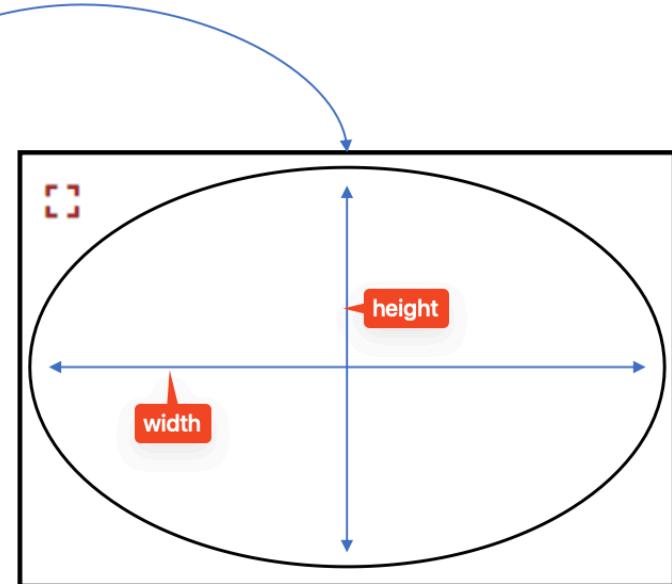
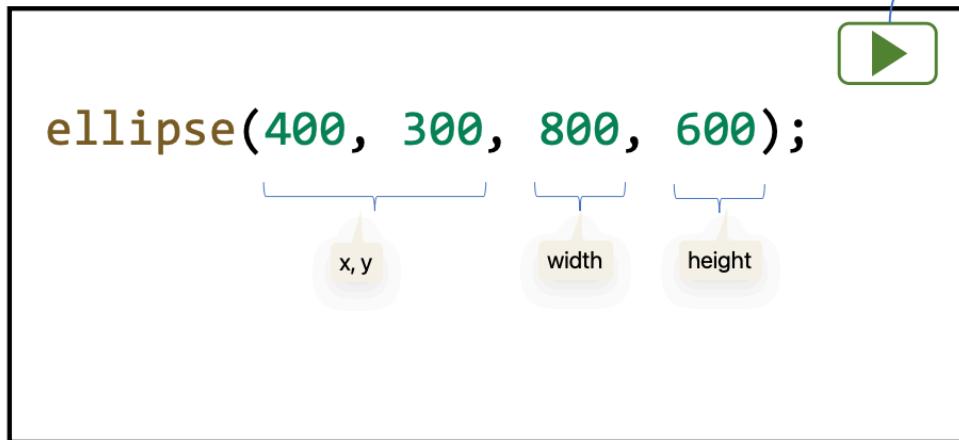


Cartesian Coordinate System

- Horizontal Axis X starts from 0
- Vertical Axis Y starts from 0
- To move objects to right  & left  & up , increase-decrease the Y value



Let's draw an ellipse



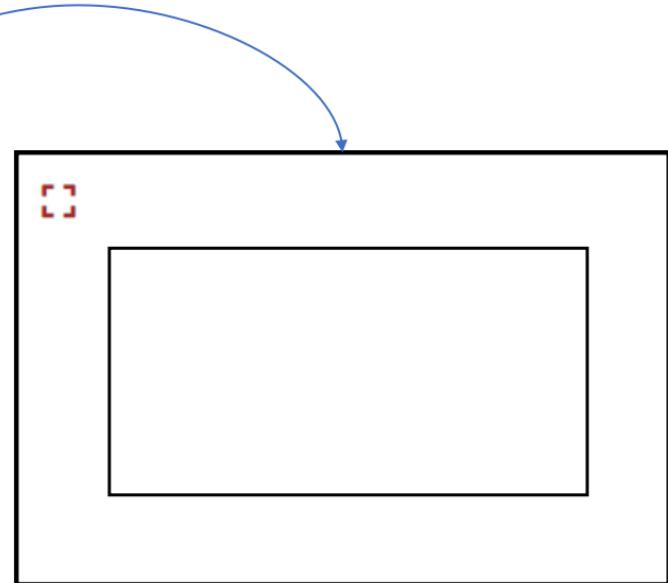
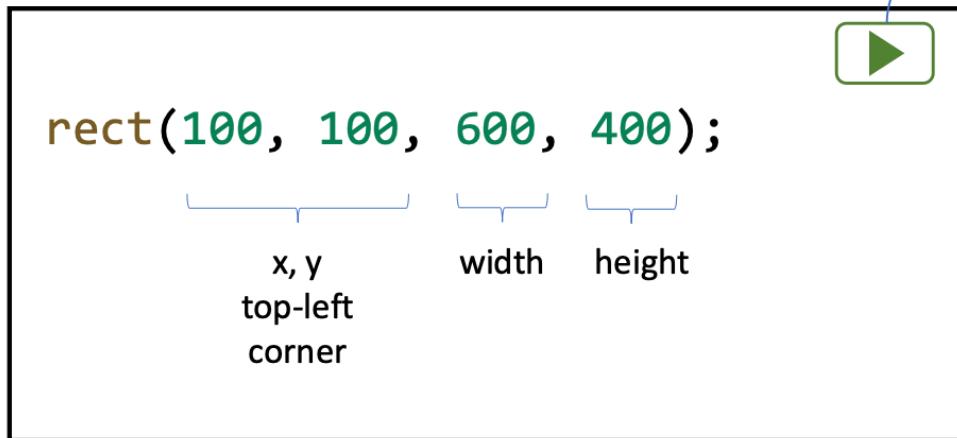
To draw an ellipse (aka an *elongated circle*), you use the instruction “ellipse” with 4 parameters:

- First 2 parameters: coordinates of the ellipse
- Third parameter: width of the ellipse
- Fourth parameter: height of the ellipse

This ellipse is big as the entire canvas!
This is because:

ellipse width = 800 (same as canvas width)
ellipse height = 600 (same as canvas height)

Let's draw a rectangle



To draw rectangle, you use the instruction “`rect`”:

- First 2 parameters: top-left corner coordinates
- Third parameter: width of the rectangle
- Fourth parameter: height of the rectangle

The rectangle from this example is nicely centered on the canvas.

Can you tell why?

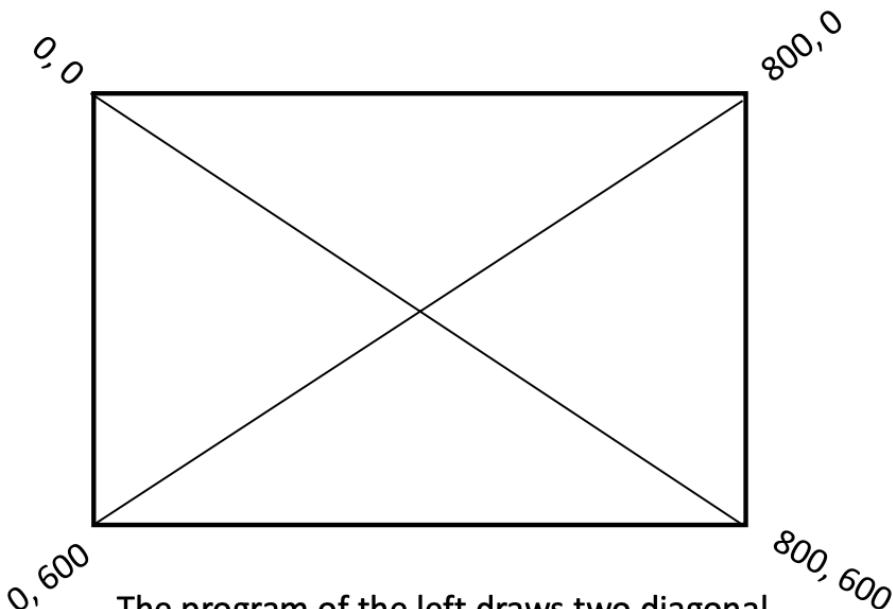
Let's draw some lines

```
line(0, 0, 800, 600);  
line(0, 600, 800, 0);
```



x1, y1 x2, y2
coordinates coordinates
of line start of line end

To draw rectangle, you use the instruction “**line**” and specify the coordinates x1, y1 and x2, y2 of the line points.



The program of the left draws two diagonal lines. Watch carefully and see that two opposite corners of the canvas are used as arguments in each instruction.

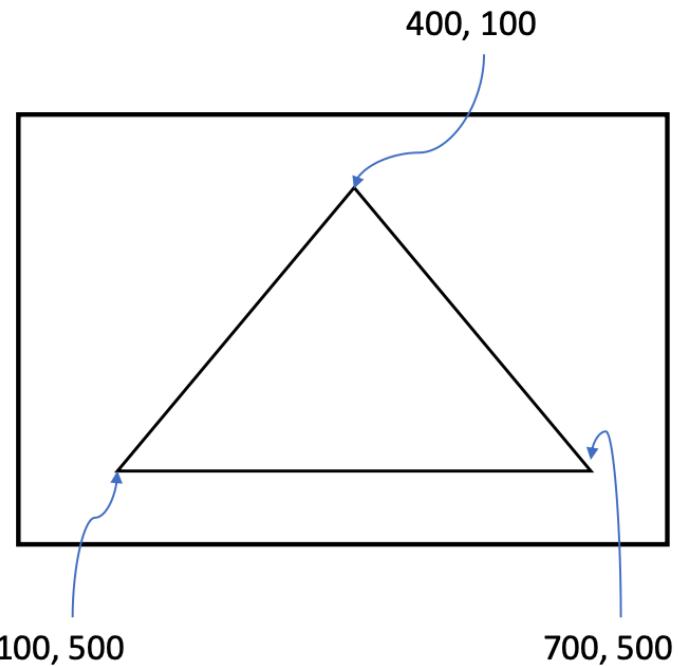
Let's draw a triangle

```
triangle(400, 100, 100, 500, 700, 500);
```

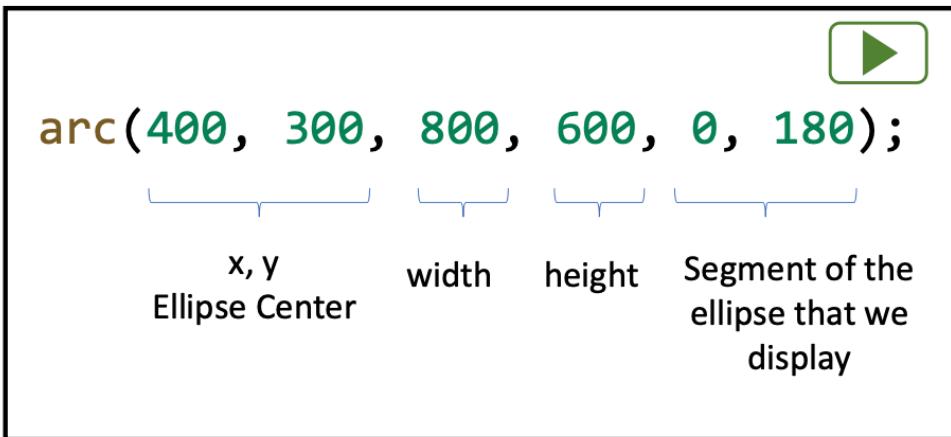
x1, y1 x2, y2 x3, y3
First corner Second corner Third corner

Triangle is an instruction that takes lots of parameters!

But they are very simple: they are the x, y coordinates of the 3 corners of the triangle. In total 6 numbers!



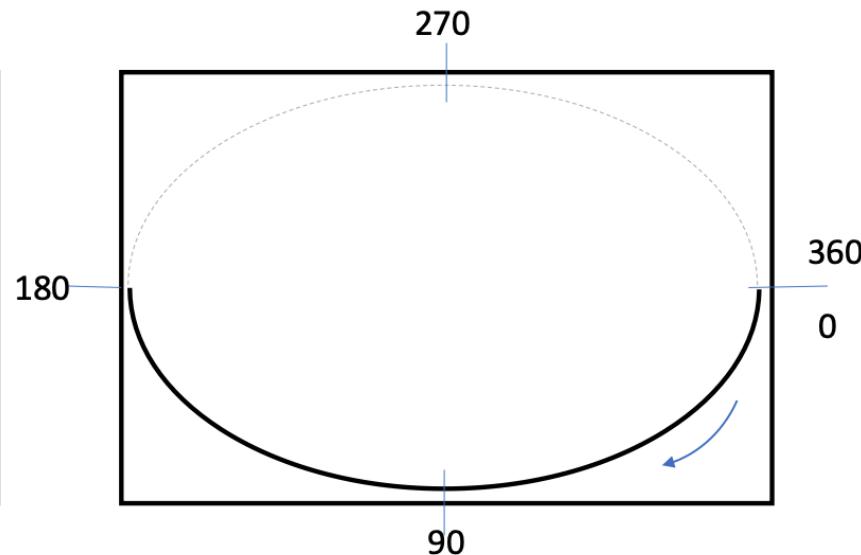
Let's draw an arc



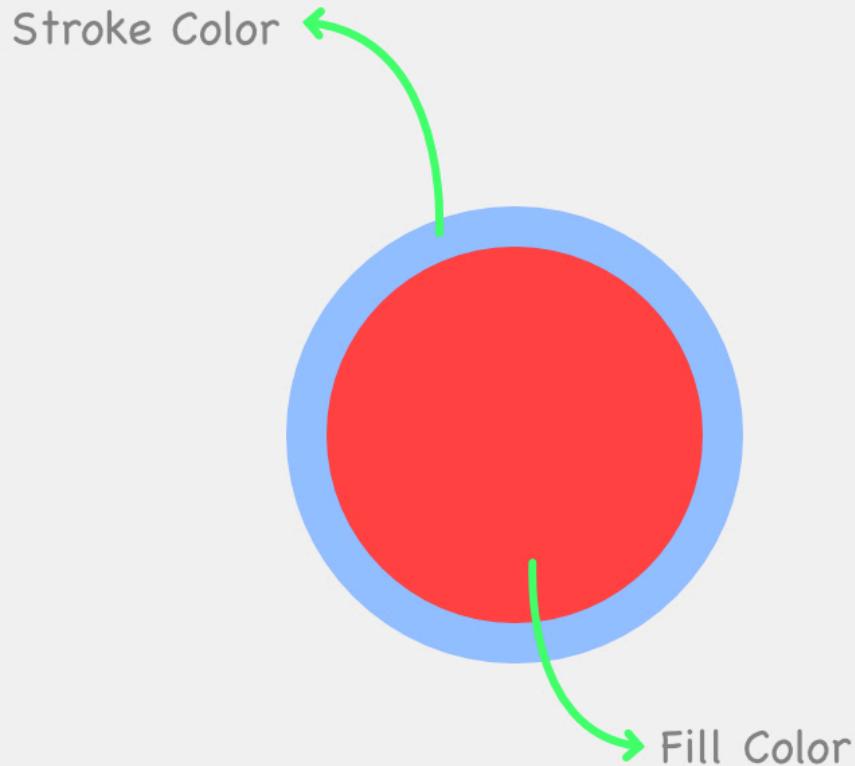
To draw an arc, you need to imagine an ellipse!

The first 4 parameters of “arc” instructions are defining the virtual ellipse. The ellipse is just imaginary.

Then the last two parameters are specifying what *segment* of the ellipse to be displayed. Here the numbers are from 0 to 360 -- and are trigonometric degrees!



If you run the program, you'll see an arc that looks like the bottom half of the ellipse (see numbers 0, 180)



RGB Values

fill() Reference

- Max value 255
- Min value 0
- fill(**Red**, **Green**, **Blue**)

Hexadecimal Codes

- fill(**#ffcc00**)

Disable Fill

- noFill();



```
function setup() {
  createCanvas(100, 100);

  background(200);

  // R, G & B values.
  stroke(255, 204, 0);
  strokeWeight(4);
  square(20, 20, 60);

  describe('A white square
with a yellow outline.');
}
```



RGB Values

stroke() Reference

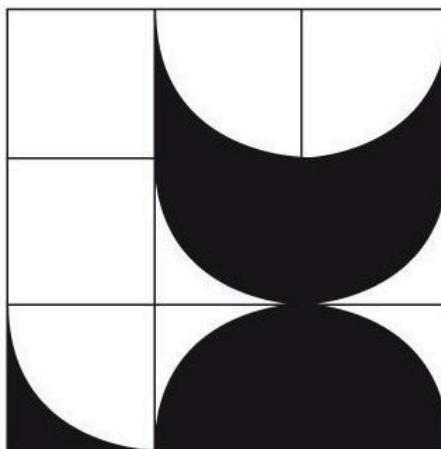
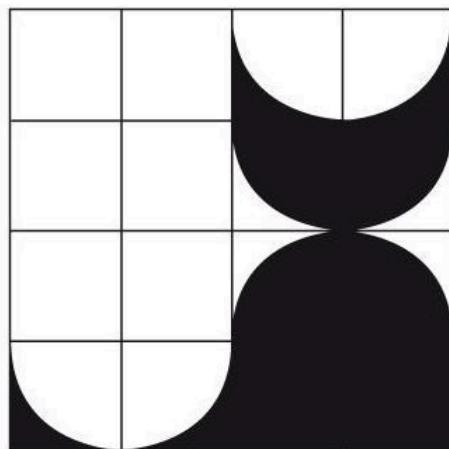
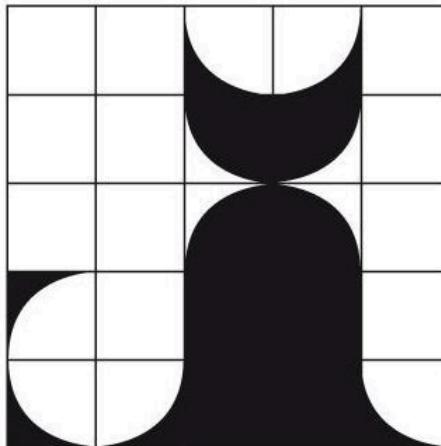
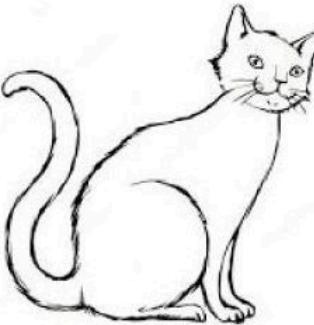
- Max value 255
- Min value 0
- stroke(Red, Green, Blue)

Hexadecimal Codes

- stroke(#ffcc00)

Disable Fill

- noStroke();



Abstraction

- Line Art
- Split into grids
- Analyze each grid
- Negative & Positive Space
- Shape Combinations (rect and arc)



BREAK

10 mins.



mySketch



```
1 function setup() {  
2     createCanvas(windowWidth, windowHeight);  
3     background(100);  
4 }  
5  
6 function draw() {  
7     circle(mouseX, mouseY, 20);  
8 }
```

Share Your Sketch





mySketch

```
1 function setup() {  
2     createCanvas(windowWidth, windowHeight),  
3     background(100);  
4 }  
5  
6 function draw() {  
7     circle(mouseX, mouseY, 20);  
8 }
```

Download Your Sketch



Fullscreen

Record

Share

DOWNLOAD

sketch2037505.zip

ADD TO CURATION

Select ▾

PRIVATE URL

opp.org/s/XXXXXXX

Join Plus+ to share your sketch with private URL

</> EMBED

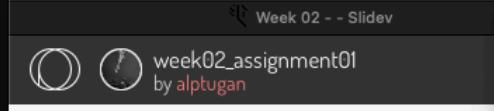
<iframe src="https://openprocessing.org/sketch/2037505" ...>

Get Plus+ to access embedding options ?

ATTRIBUTE

"week02_assignment01" by alptugan
<http://openprocessing.org/sketch/2037505>
License Creative Commons Attribution
<https://creativecommons.org/licenses/by/>

REPORT SKETCH



Favorites

W T filika Turkcell filika mali tablo filika cloud Brew

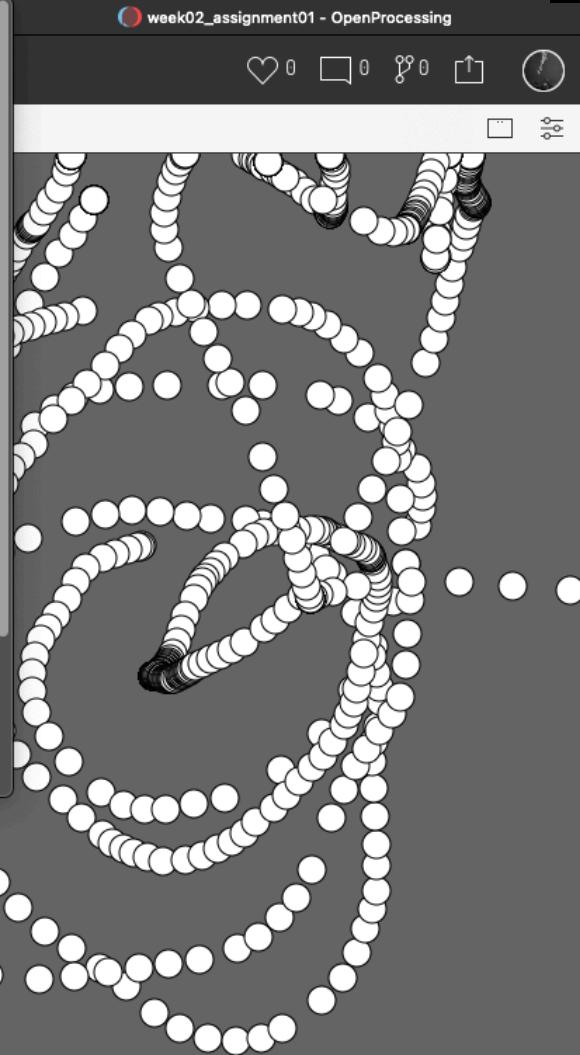
ÖZÜ Google Dr... Filika Google Dr... ÖZÜ email email YouTube Vim Awesome

Frequently Visited

Copy the sketch link

Startpage Search Re... Inbox - apltugan... YouTube Week 02 - Slidev Poe - Empty Sp... breakbeats Breakbe...

WhatsApp Instagram openFrame works GitHub Home / X FullHDFilmi zlesene ...



Submit the Link & your sketch to LMS





Pixel & Coordinate System - Creative Coding with p5.js

Creative Coding

Paylaş

2

Pixel & Coordinate System

İzlemek için: YouTube





Assignments

1. Create an abstract composition using simple shapes. Inspiration:
 - Usamo Sato: [The Art of Computer Designing](#)
 - Russian Constructivism
 - Abstract Shapes
 - Computational Abstraction
 - Tangram Art
2. You can use different colors of your choice.
3. Upload the sketch to your openProcessing account.
4. Submit the openprocessing link.
5. Submit the sketch source code as zip file as well.
6. Chapter 3/ Drawing Order, Color (pg. 19-27)
7. Chapter 3/ Variables (pg:46-53)
8. Check loops on [brilliant.org](#)