EECS 1710
Programming for Digital Media

Drawing in Processing

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Co-ordinate System in Processing

Cartesian Co-ords (typical)

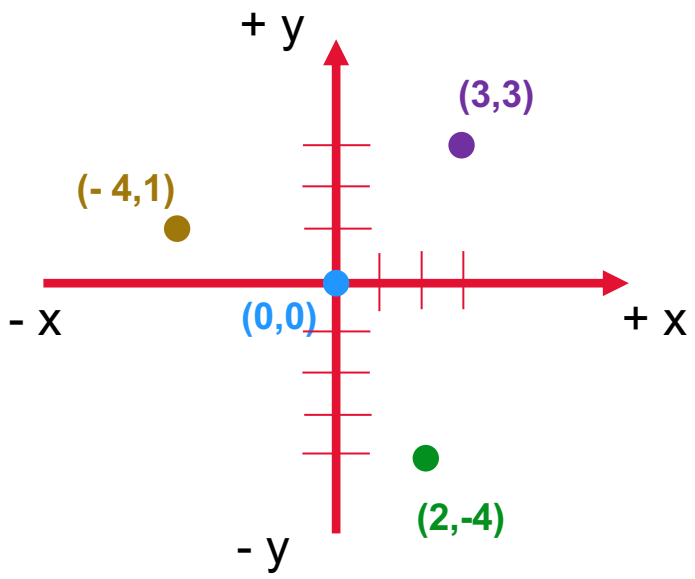
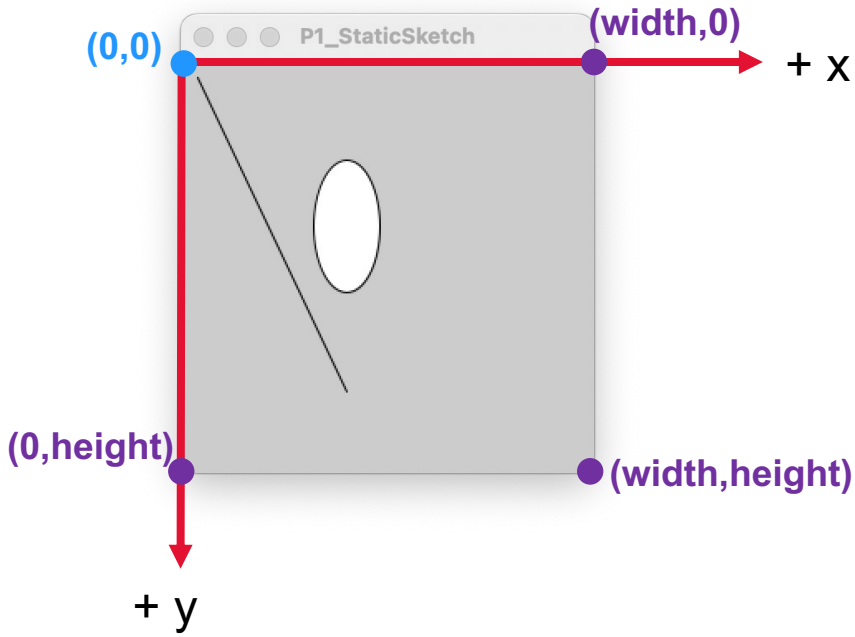


Image Co-ords (Processing)



Some useful drawing commands

`arc()`	Draws an arc in the display window
`circle()`	Draws a circle to the screen
`ellipse()`	Draws an ellipse (oval) in the display window
`line()`	Draws a line (a direct path between two points) to the screen
`point()`	Draws a point, a coordinate in space at the dimension of one pixel
`quad()`	A quad is a quadrilateral, a four sided polygon
`rect()`	Draws a rectangle to the screen
`square()`	Draws a square to the screen
`triangle()`	A triangle is a plane created by connecting three points

https://processing.org/reference/#shape

line()

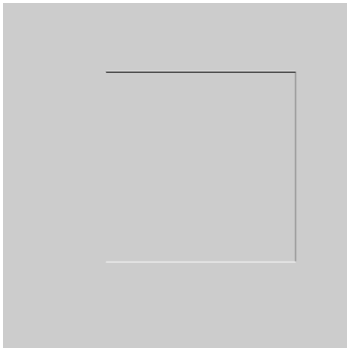
Syntax

```
line(x1, y1, x2, y2)
line(x1, y1, z1, x2, y2, z2)
```

Parameters

x1	(float)	x-coordinate of the first point
y1	(float)	y-coordinate of the first point
x2	(float)	x-coordinate of the second point
y2	(float)	y-coordinate of the second point
z1	(float)	z-coordinate of the first point
z2	(float)	z-coordinate of the second point

```
//Example
size(400, 400);
line(120, 80, 340, 80);
stroke(126);
line(340, 80, 340, 300);
stroke(255);
line(340, 300, 120, 300);
```



https://processing.org/reference/line_.html

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int, float ?? → numeric data types

- int = integers
- (whole numbers)

Can be positive/negative

No decimal places

e.g. 1
-15
189

- float = floating point
- (type of real number)

Can be positive/negative

Decimals allowed

e.g. 0.4
-1.45
189.2411

More on data types next lecture

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stroke()

- sets colour of a stroke

Syntax

```
stroke(rgb)
stroke(rgb, alpha)
stroke(gray)
stroke(gray, alpha)
stroke(v1, v2, v3)
stroke(v1, v2, v3, alpha)
```

Parameters

rgb	(int)	color value in hexadecimal notation
alpha	(float)	opacity of the stroke
gray	(float)	specifies a value between white and black
v1	(float)	red or hue value (depending on current color mode)
v2	(float)	green or saturation value (depending on current color mode)
v3	(float)	blue or brightness value (depending on current color mode)

More on colour later, but usually specified as 3 values (red,green,blue)

Where each value (0-255)
0=no colour, 255 = full colour

i.e.

red = (255,0,0)
blue = (0,0,255)
green = (0,255,0)
purple = (255,0,255)
white = (255,255,255)
black = (0,0,0)

** many colours from mixing these

https://processing.org/reference/stroke_.html

strokeWeight()

- sets width of a stroke

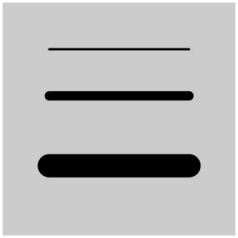
Syntax `strokeWeight(weight)`

Parameters

`weight` `(float)` the weight (in pixels) of the stroke

Examples

```
size(400, 400);
strokeWeight(4);  // Default
line(80, 80, 320, 80);
strokeWeight(16);  // Thicker
line(80, 160, 320, 160);
strokeWeight(40);  // Beastly
line(80, 280, 320, 280);
```



stroke() controls outline of a shape

fill() controls the space within a shape

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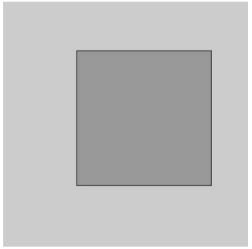
fill()

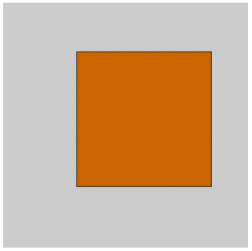
Syntax

```
fill(rgb)
fill(rgb, alpha)
fill(gray)
fill(gray, alpha)
fill(v1, v2, v3)
fill(v1, v2, v3, alpha)
```

```
size(400, 400);
fill(153);
rect(120, 80, 220, 220);
```



```
size(400, 400);
fill(204, 102, 0);
rect(120, 80, 220, 220);
```



Parameters

rgb	(int)	color variable or hex value
alpha	(float)	opacity of the fill
gray	(float)	number specifying value between white and black
v1	(float)	red or hue value (depending on current color mode)
v2	(float)	green or saturation value (depending on current color mode)
v3	(float)	blue or brightness value (depending on current color mode)

https://processing.org/reference/fill_.html

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This week, goal is to create a 2D cartoon/graphic/logo with two/three of these!

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