An Introduction to Processing

Basics of Animation

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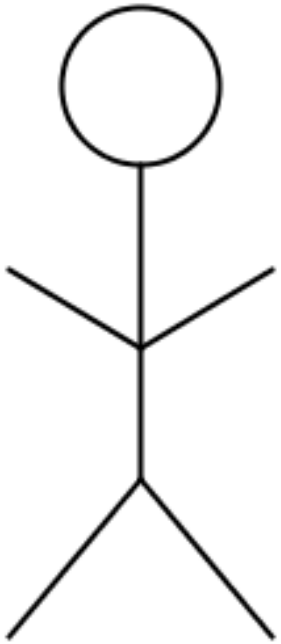
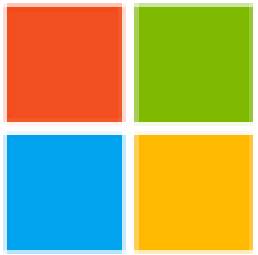




So far, all of our animations have been static.

Topics list

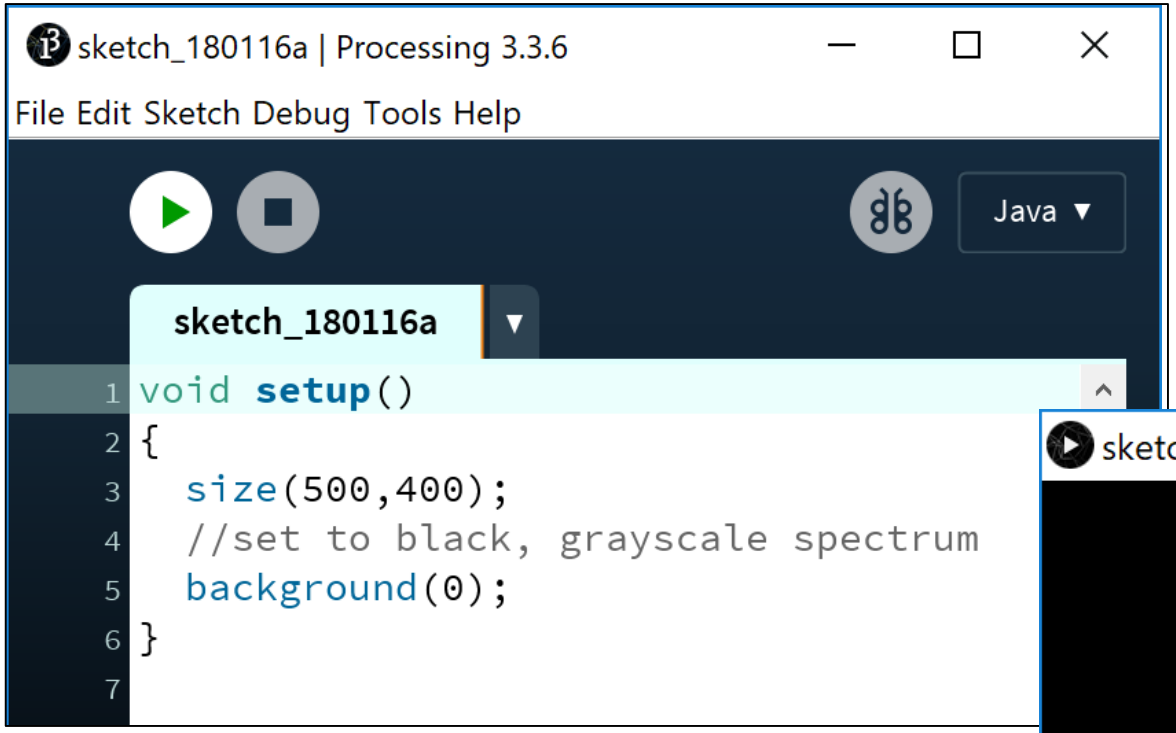
1. The **setup()** function.
2. The **draw()** function.
3. **System Variables** in Processing.

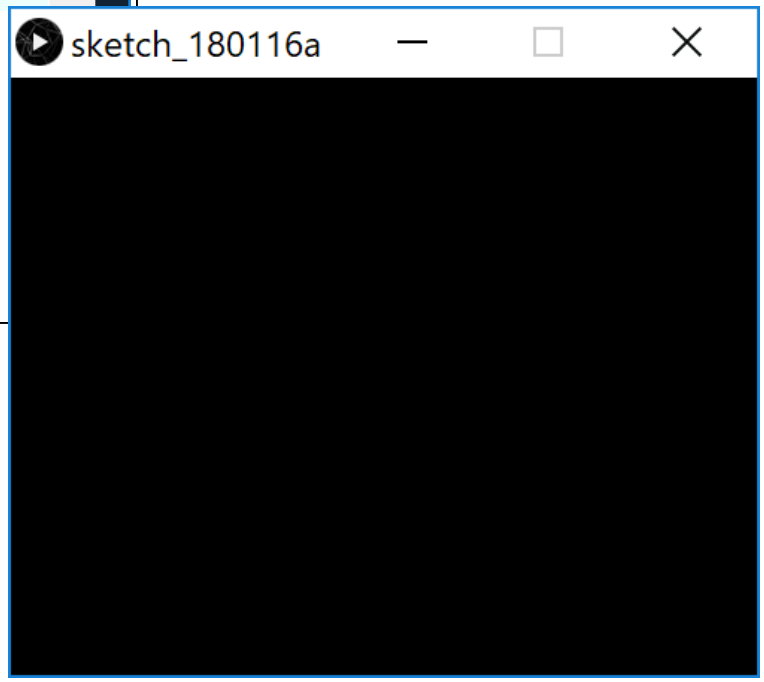
void setup()

- **setup()** is called by Processing once (when the program starts). It should not be called again.
- setup() can set the screen size and background colour.
- There can only be one setup() function for each sketch.

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

void setup() – defining a method





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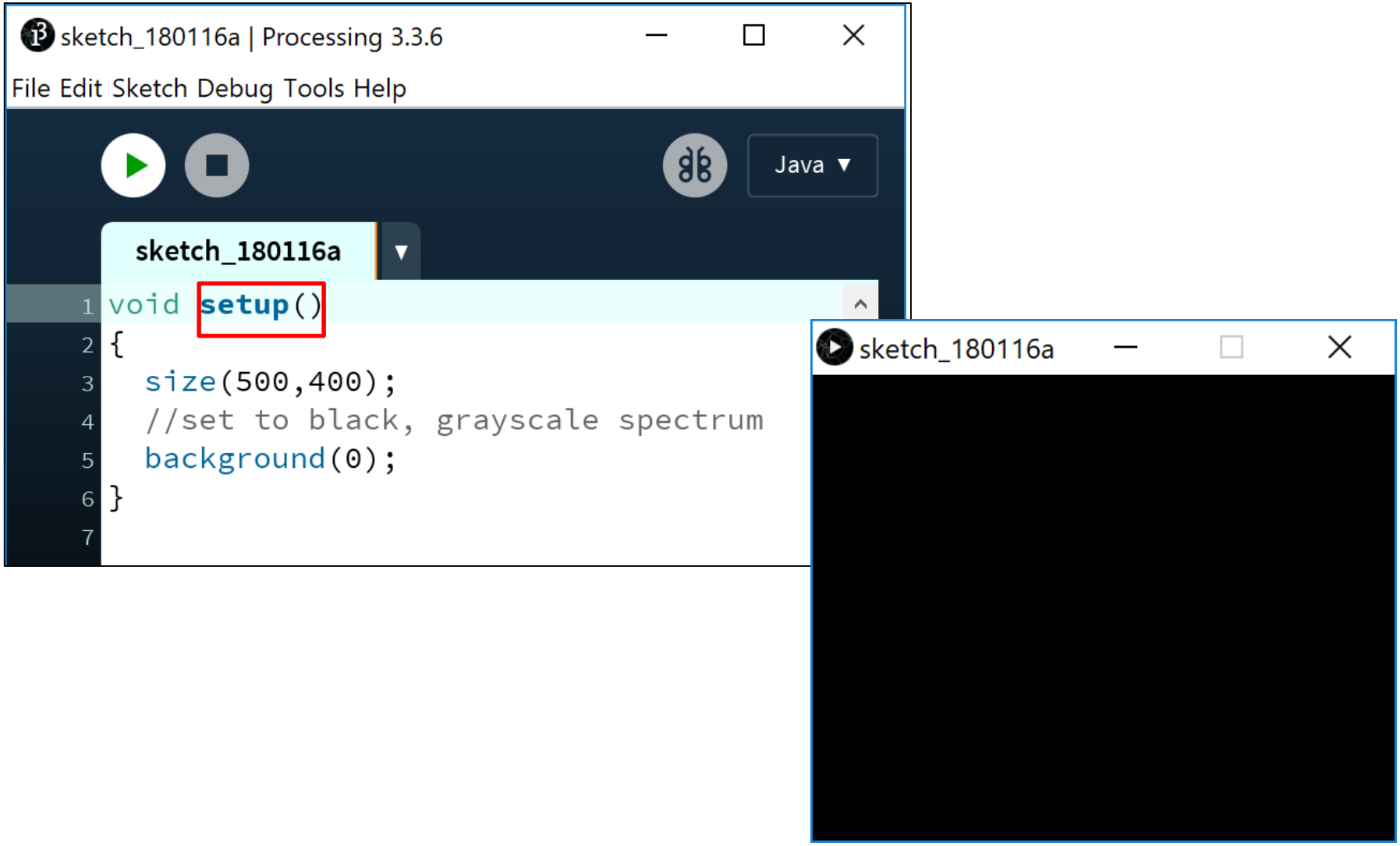

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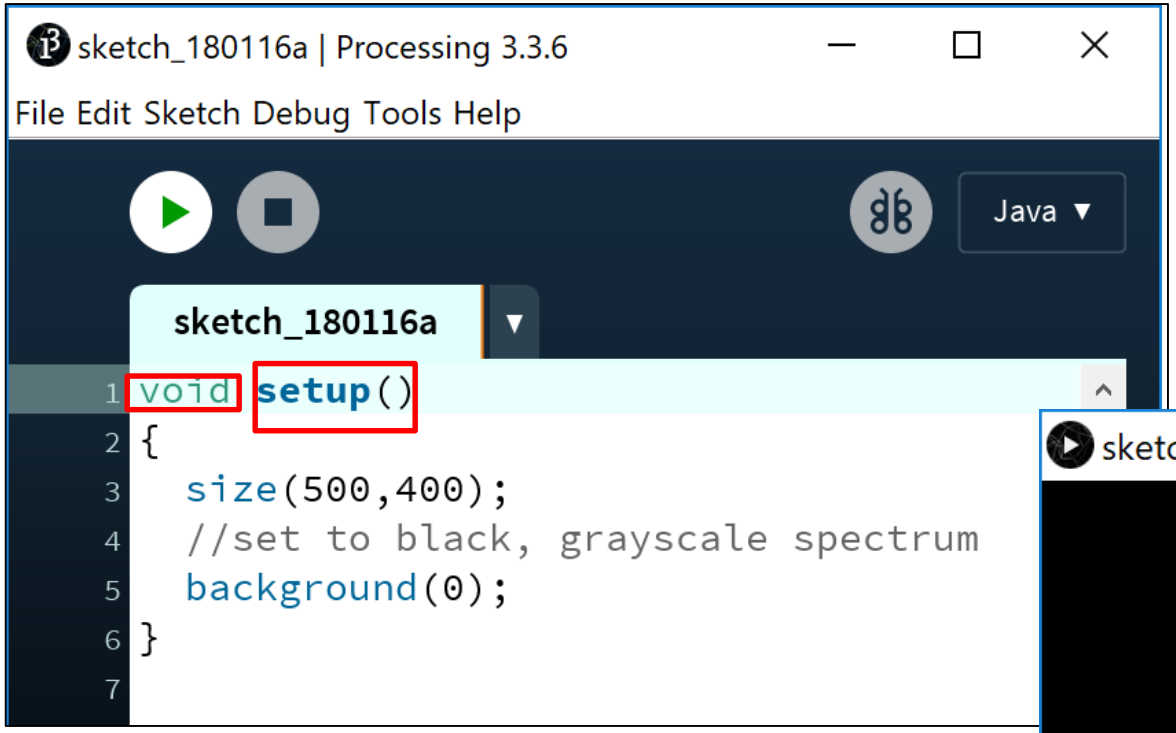

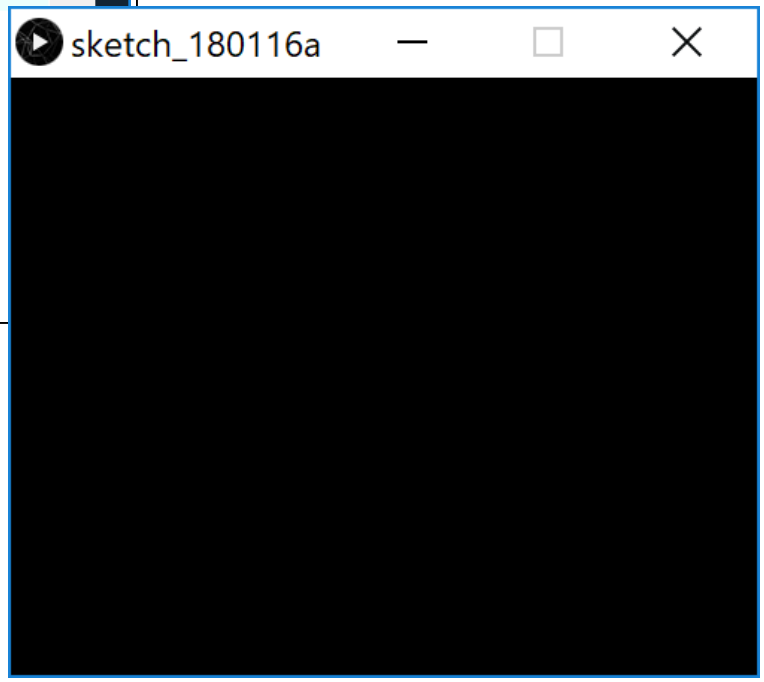

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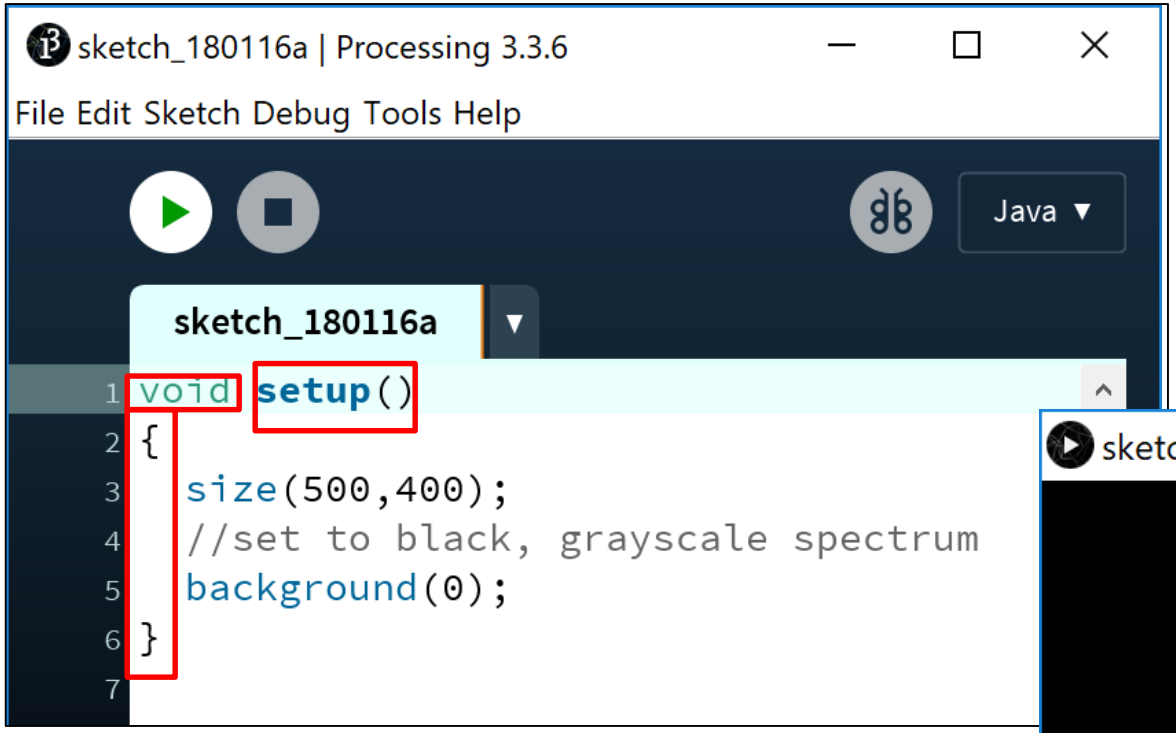

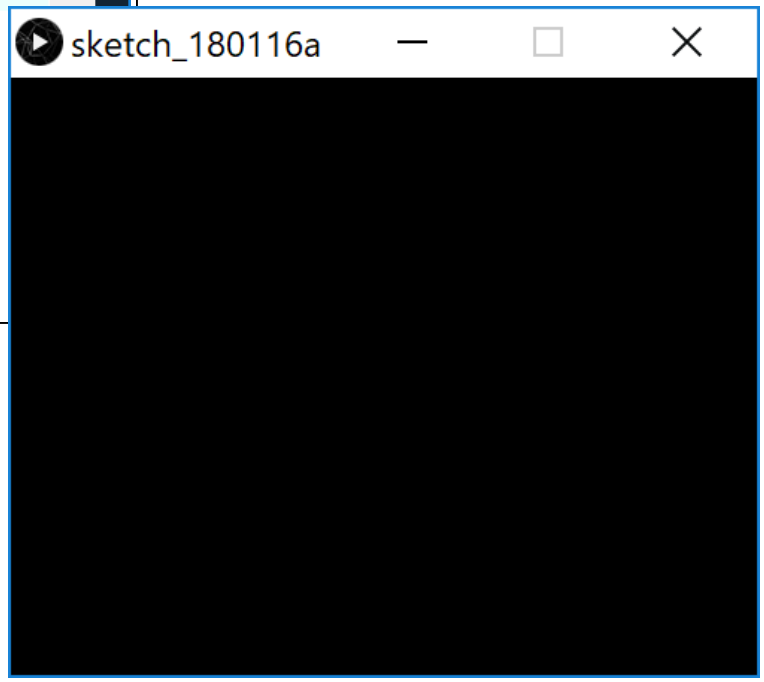

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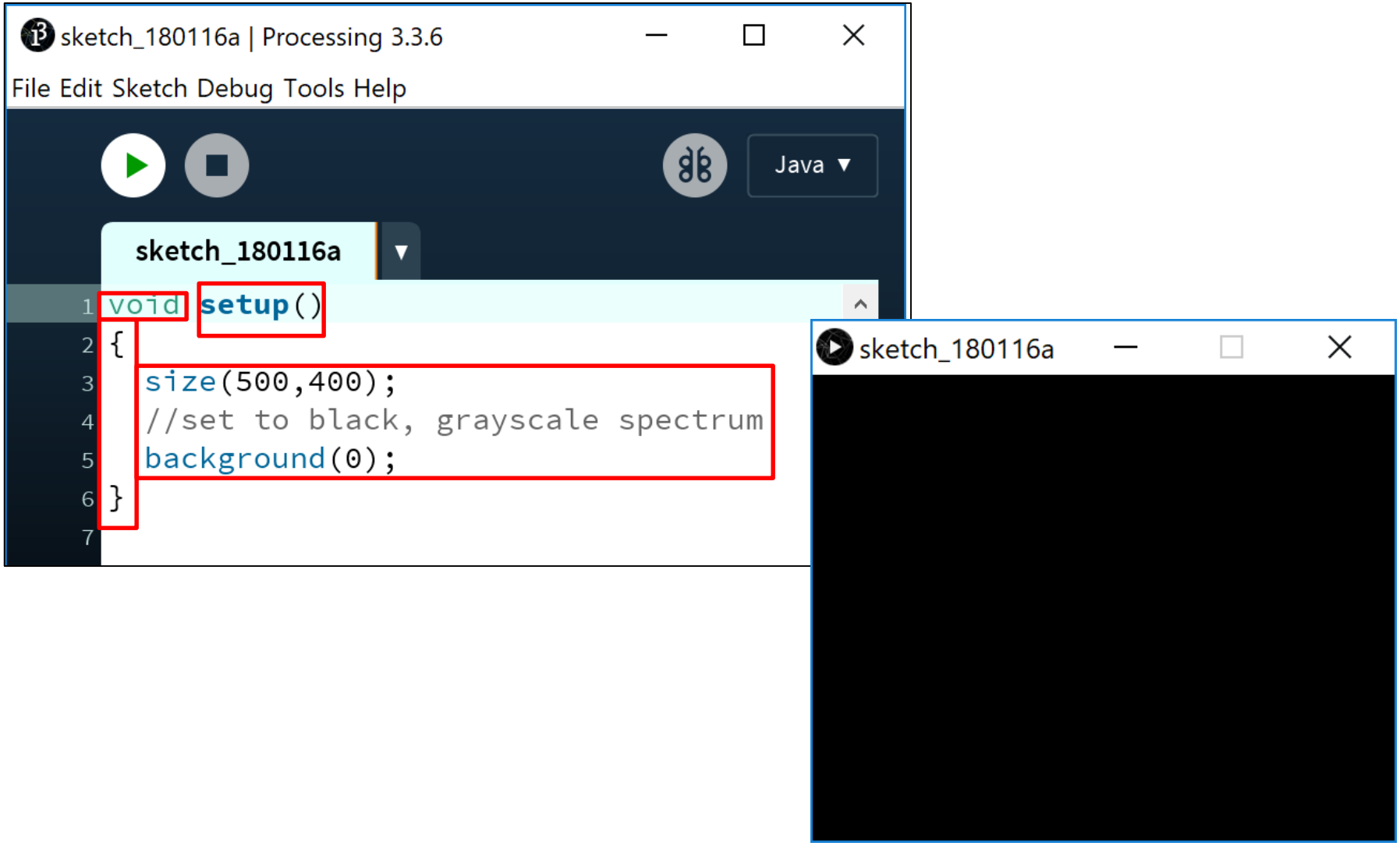


Topics list

1. The **setup()** function.

2. The **draw()** function.

3. **System Variables** in Processing.

void draw()

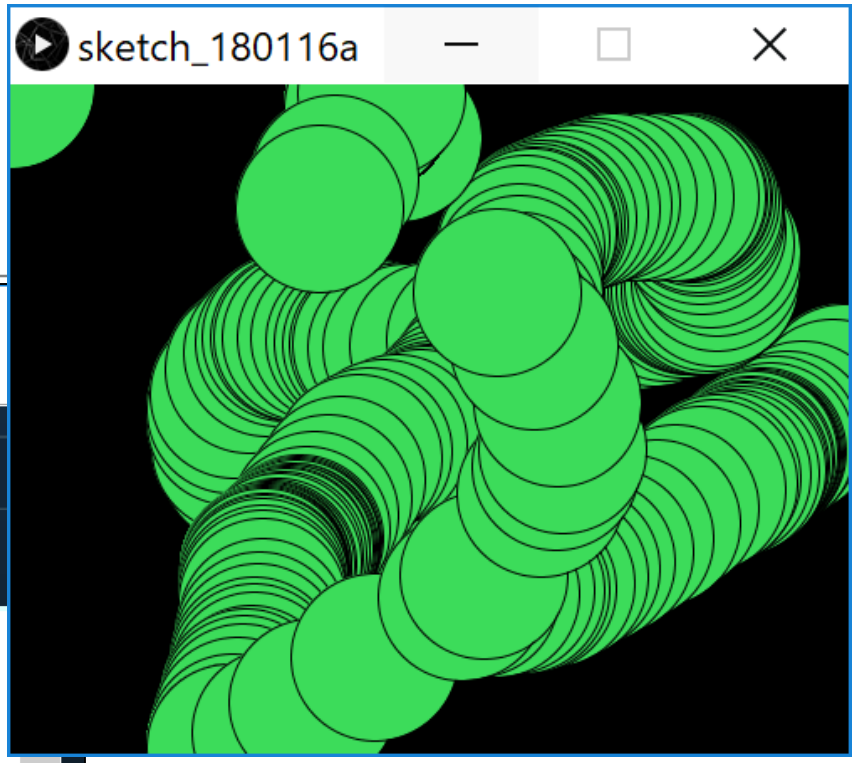
- You should never call the draw() function.
  - Processing automatically calls it straight after the setup() call.

- Draw() continuously executes the code contained inside it.
  - (60 times a second by default)

- There can only be one draw() function for each sketch.

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

void draw()



sketch_180116a | Processing 3.3.6

File Edit Sketch Debug Tools Help

Java

sketch_180116a

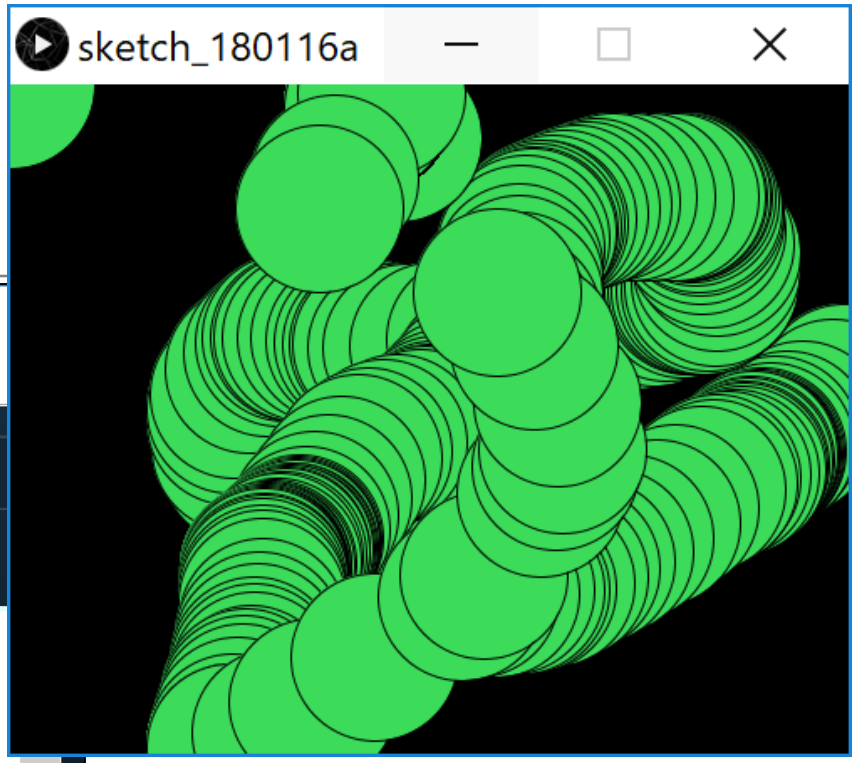
```
1  void setup()
2  {
3    size(500,400);
4    //set to black, grayscale spectrum
5    background(0);
6  }
7
8  void draw()
9  {
10   stroke(0, 0, 0);      //black outline
11   fill(60, 220, 90);    //green
12   ellipse(mouseX, mouseY, 100, 100);
13 }
14
```

System Variables

mouseX = x co-ordinate of mouse pointer

mouseY = y co-ordinate of mouse pointer

void draw()



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Q: Why many circles?

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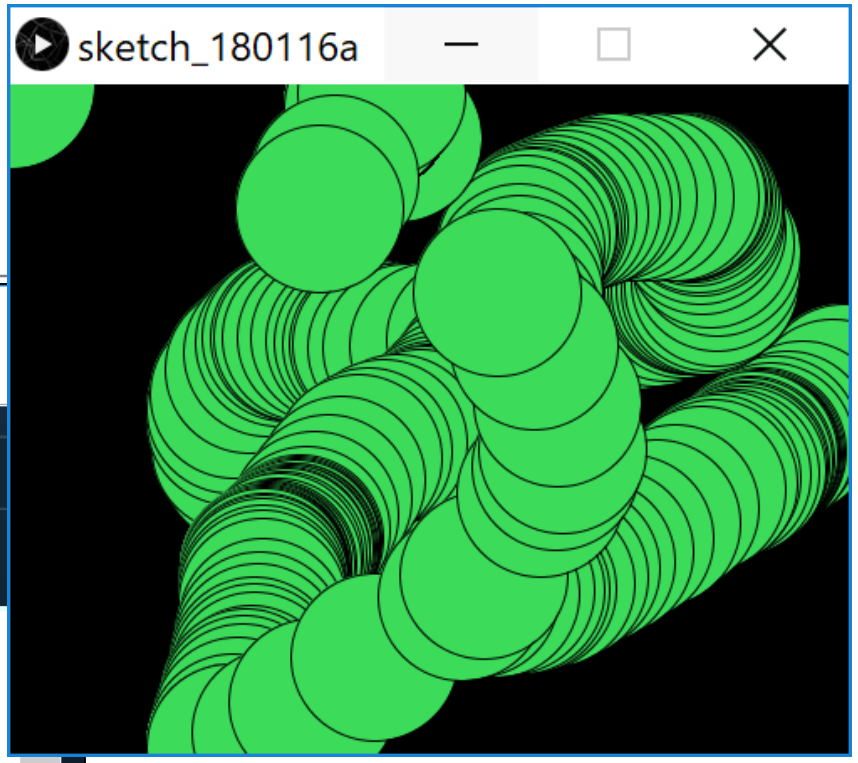

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Q: Why many circles?

A: **background(0)** is in the setup function.

System Variables

mouseX = x co-ordinate of mouse pointer

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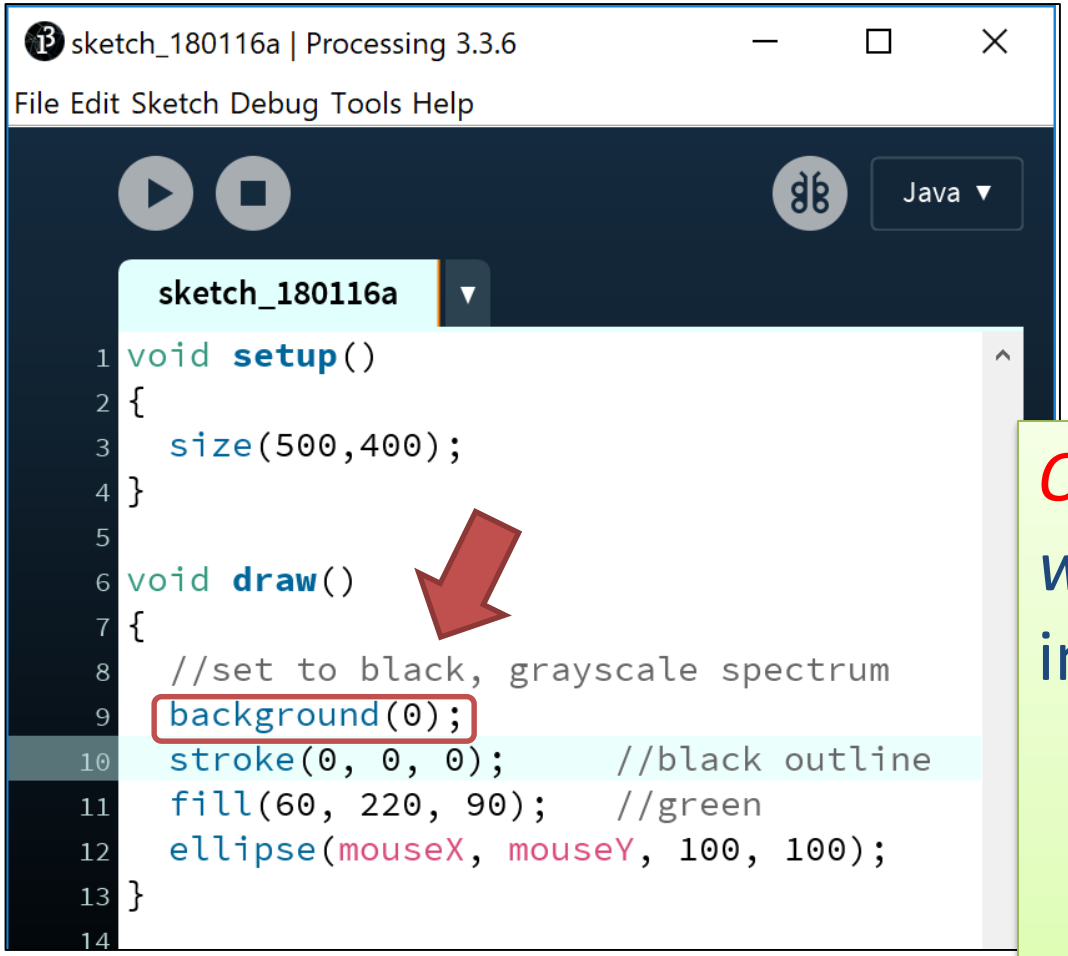
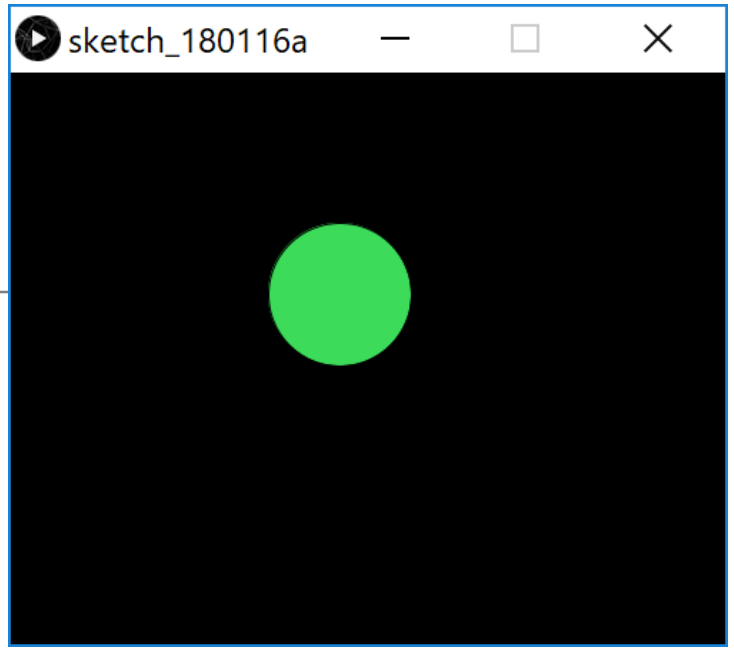
void draw()



Q: What happens when we move **background(0)** into the draw function?

void draw()



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```

Q: What happens when we move **background(0)** into the draw function?

A: Before each circle is drawn, the background is painted black, so it clears the previous circle.

Topics list

1. The **setup()** function.

2. The **draw()** function.

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System Variables in Processing

Some **examples** of system variables in Processing:

mouseX	(x co-ordinate of the mouse pointer on the display window)
mouseY	(y co-ordinate of the mouse pointer on the display window)
width	(width of the display window)
height	(height of the display window)

We **don't have to define/create** these; just use them.

System Variables in Processing

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Java

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2  {
3    size(500,400);
4  }
5
6  void draw()
7  {
8    //set to black, grayscale spectrum
9    background(0);
10   stroke(0, 0, 0);      //black outline
11   fill(60, 220, 90);    //green
12   rect(0,100,width, 15);
13   ellipse(mouseX, mouseY, 100, 100);
14 }
15
```
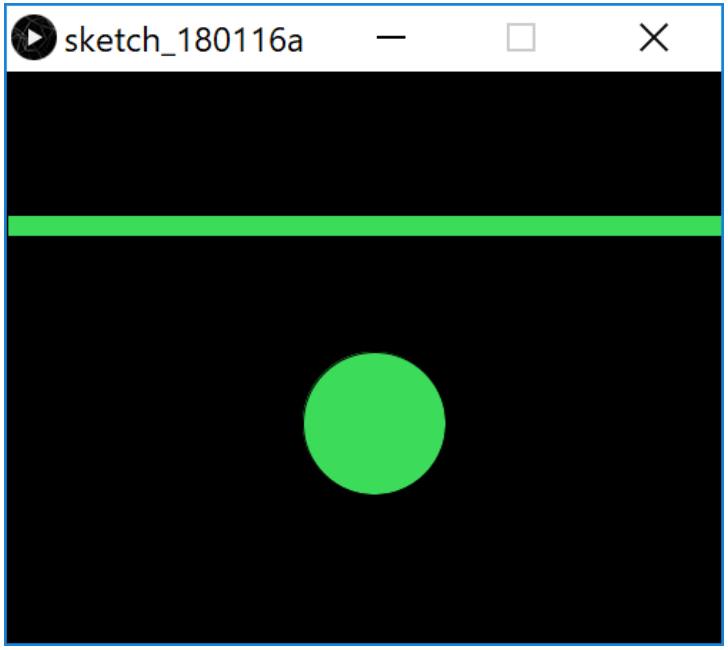
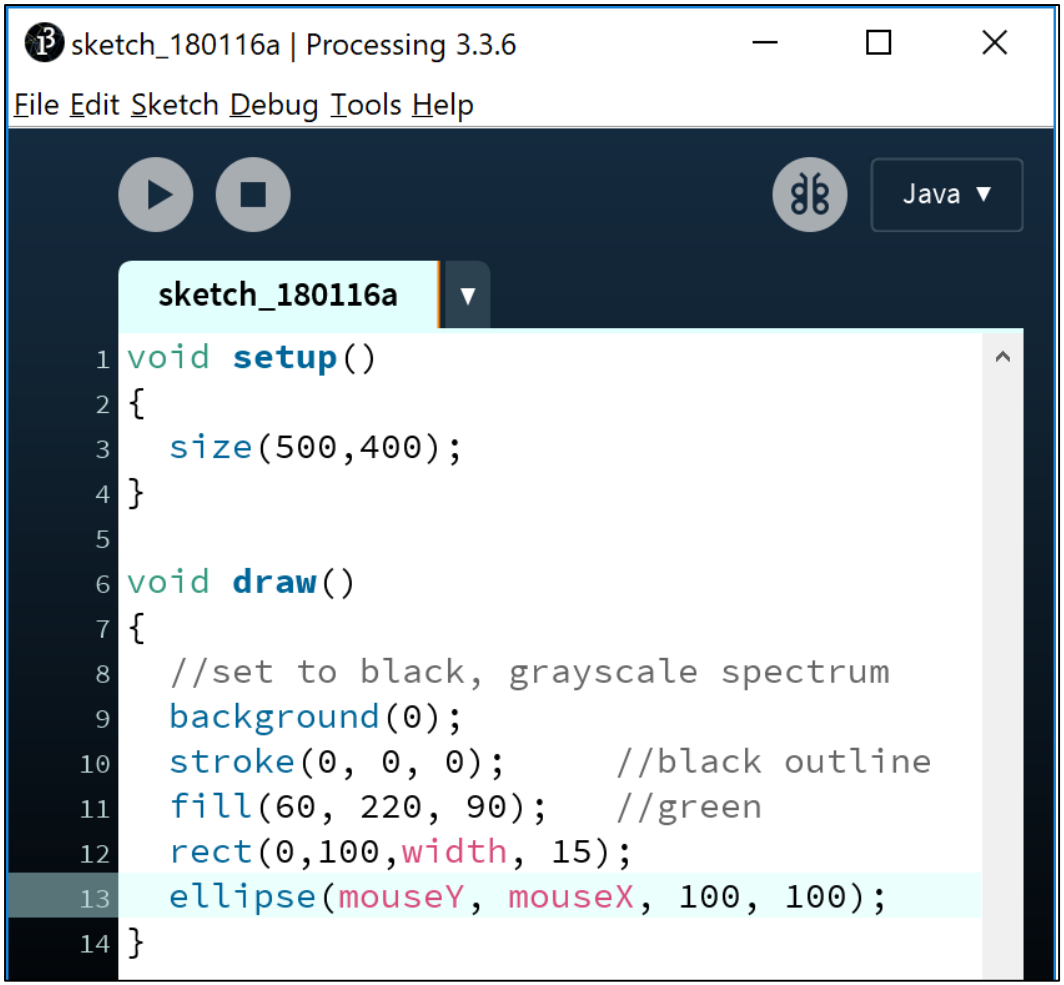



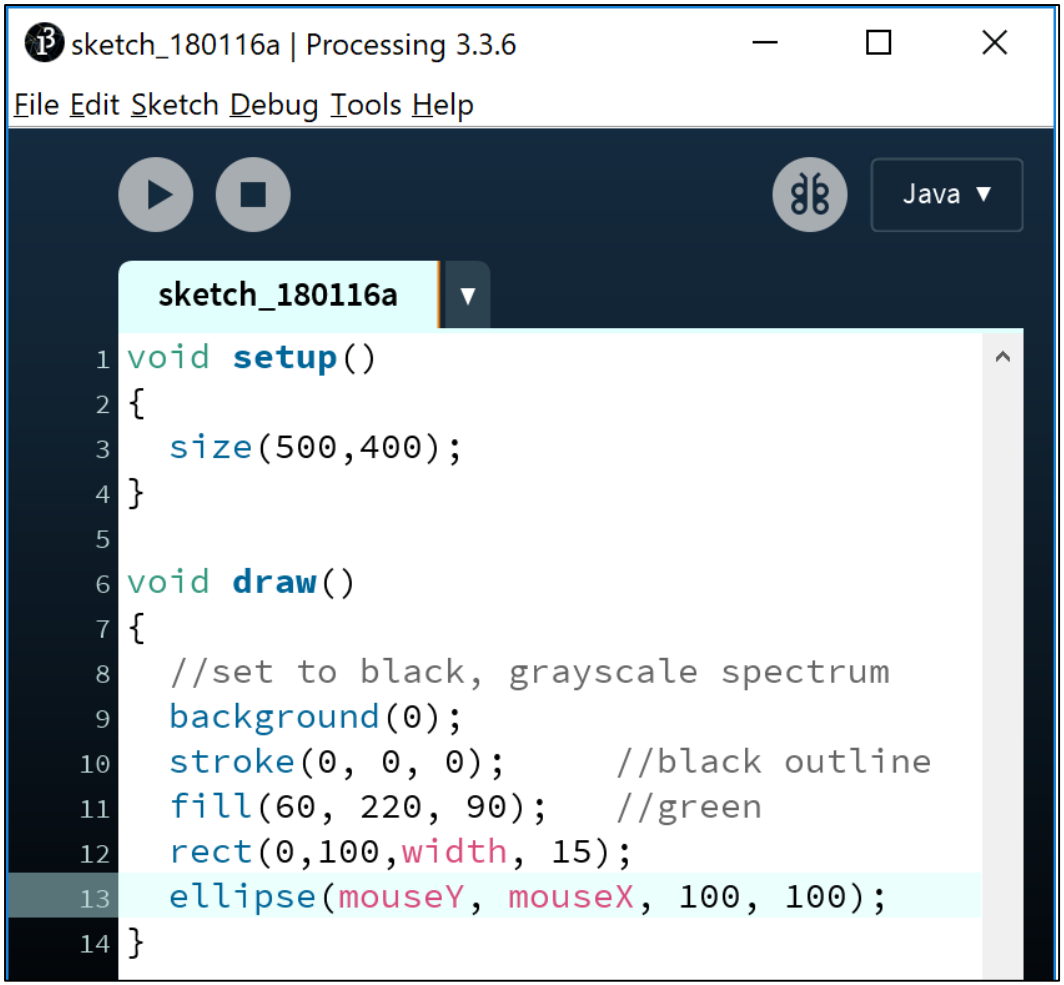
Using the **width** system variable in the **rect** function to draw a thick line.

System Variables in Processing



Q: *What would happen to our animation if we swapped the* ***mouseX*** *and* ***mouseY*** *variables in the* ***ellipse*** *function with each other?*

System Variables in Processing



Q: *What would happen to our animation if we swapped the* ***mouseX*** *and* ***mouseY*** *variables in the* ***ellipse*** *function with each other?*

A: *As you move your mouse right on the x axis, the circle will move down on the y axis and vice versa.*

Questions?