An Introduction to Processing

Basics of Animation

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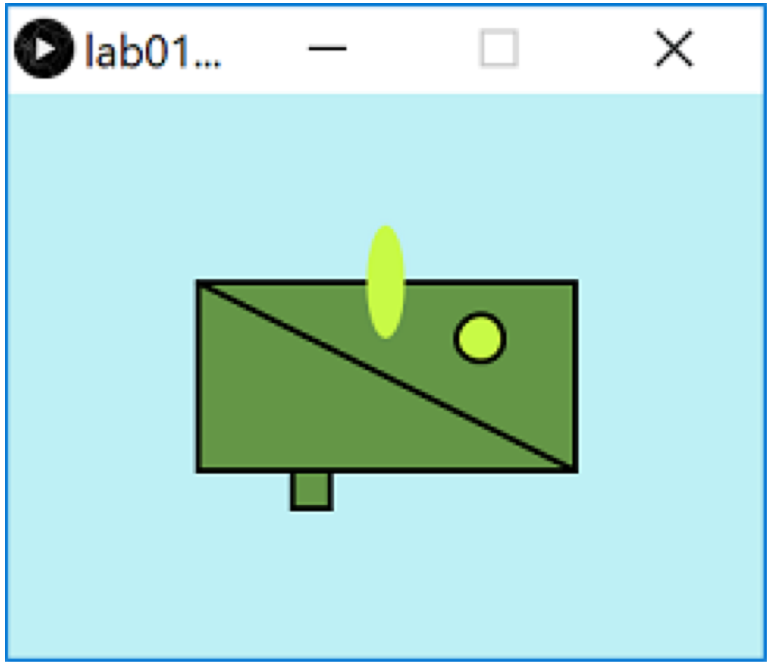
Static versus Animated Drawings

- So far, all of our animations have been static.



Topics list

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

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

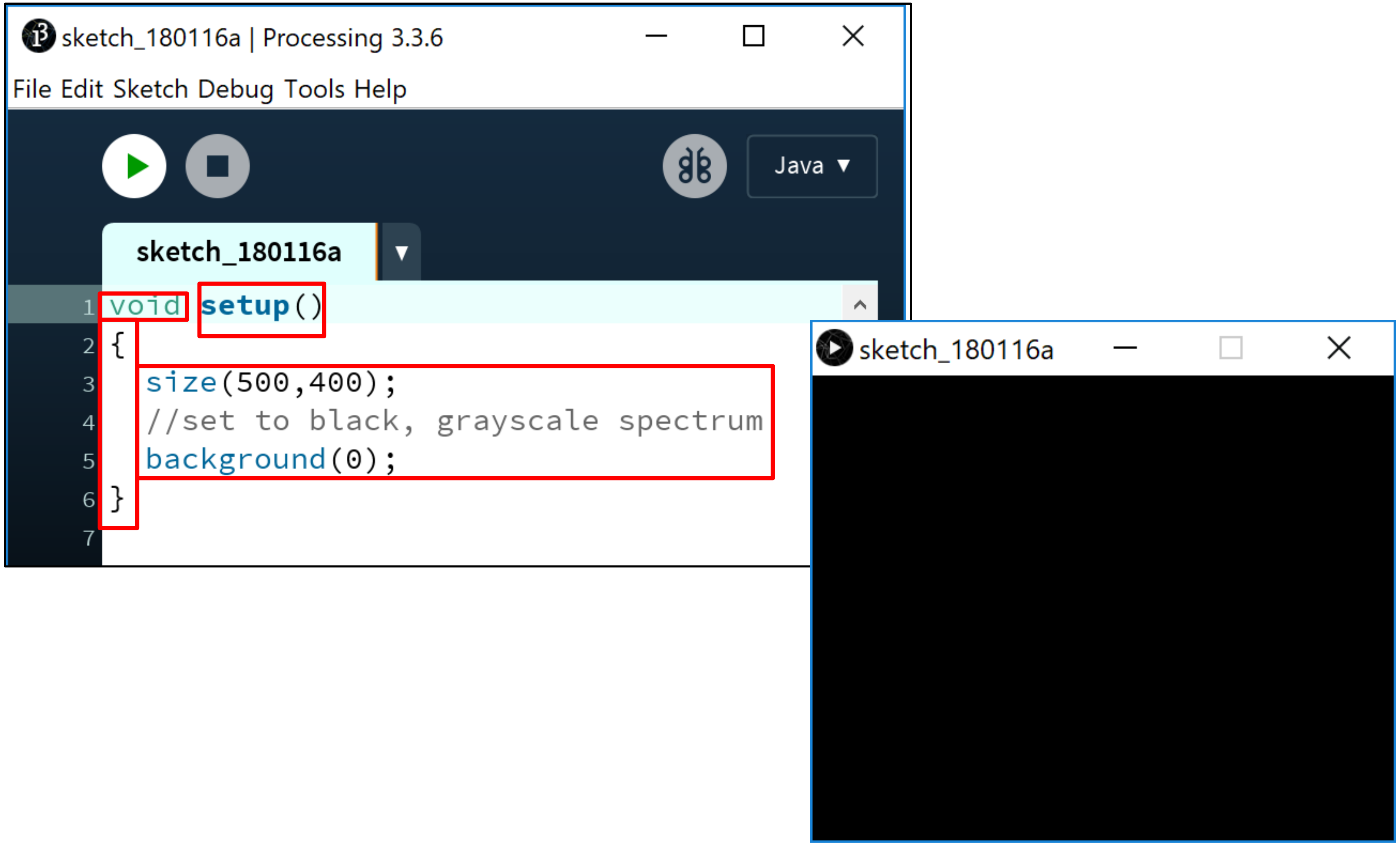
3. **System Variables** in Processing.

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/function


sketch_180116a | Processing 3.3.6
File Edit Sketch Debug Tools Help
Java ▼
sketch_180116a
sketch_180116a

```
void setup()
{
  size(500,400);
  //set to black, grayscale spectrum
  background(0);
}
```

Topics list

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

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

3. **System Variables** in Processing.

void draw()

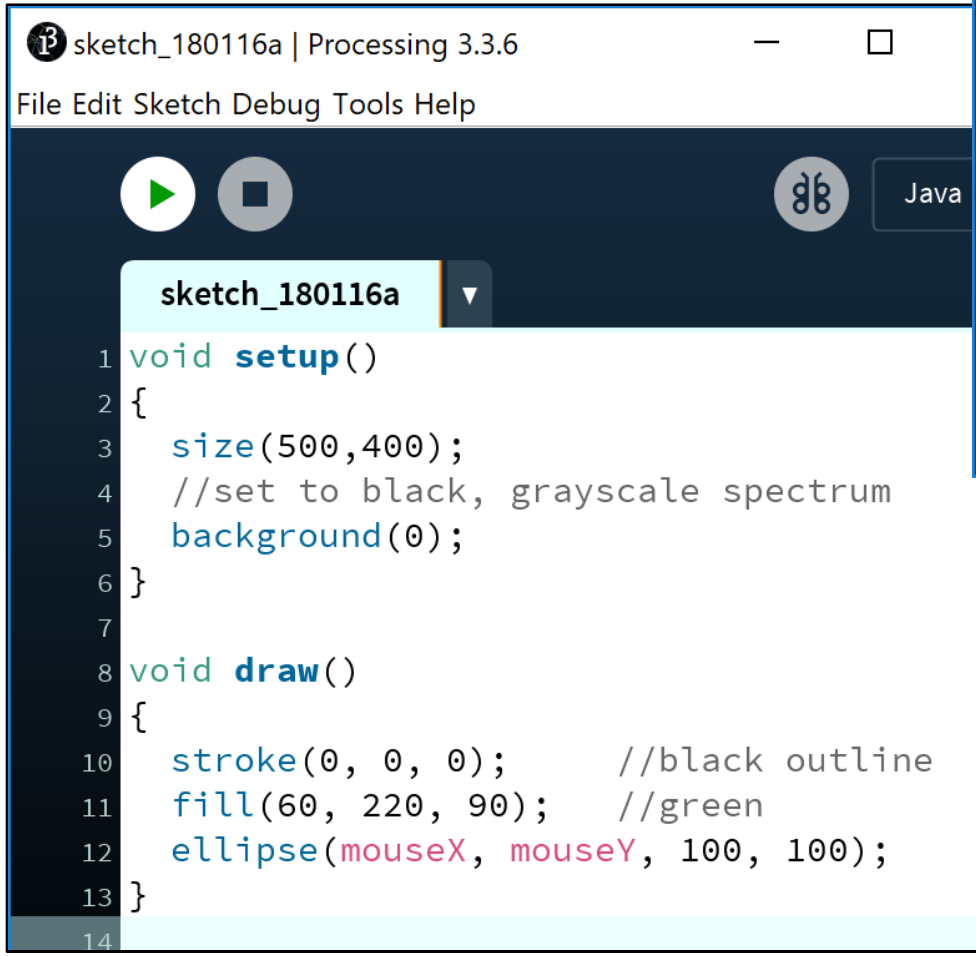
- You should never call the draw() function.
  - Processing automatically calls it straight after the setup() call.

- 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()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{
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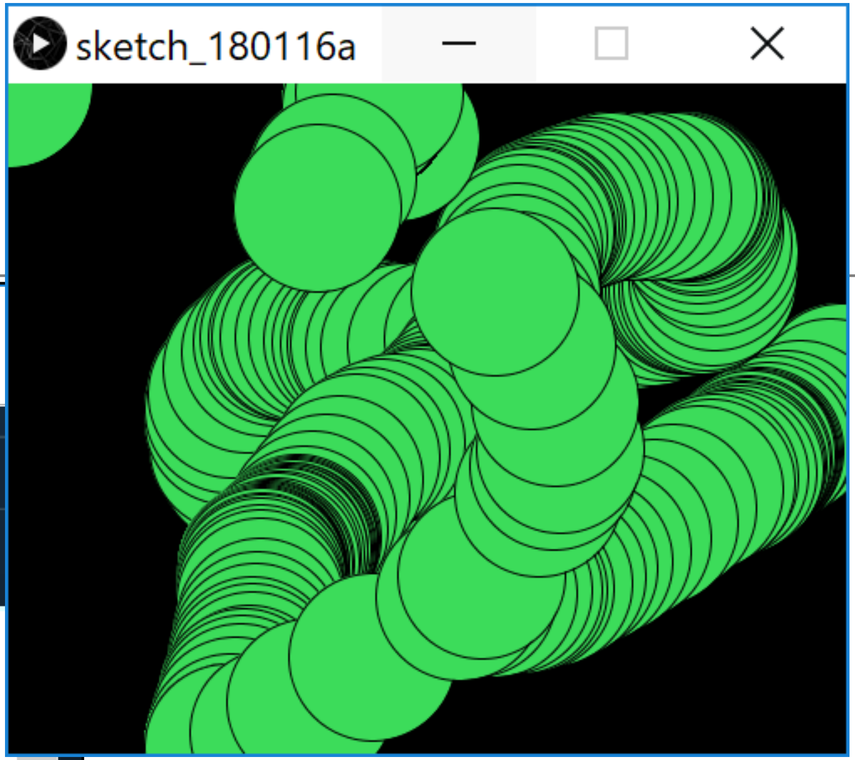
  //set to black, grayscale spectrum
  background(0);
}

void draw()
{
  stroke(0, 0, 0);       //black outline
  fill(60, 220, 90);     //green
  ellipse(mouseX, mouseY, 100, 100);
}
```



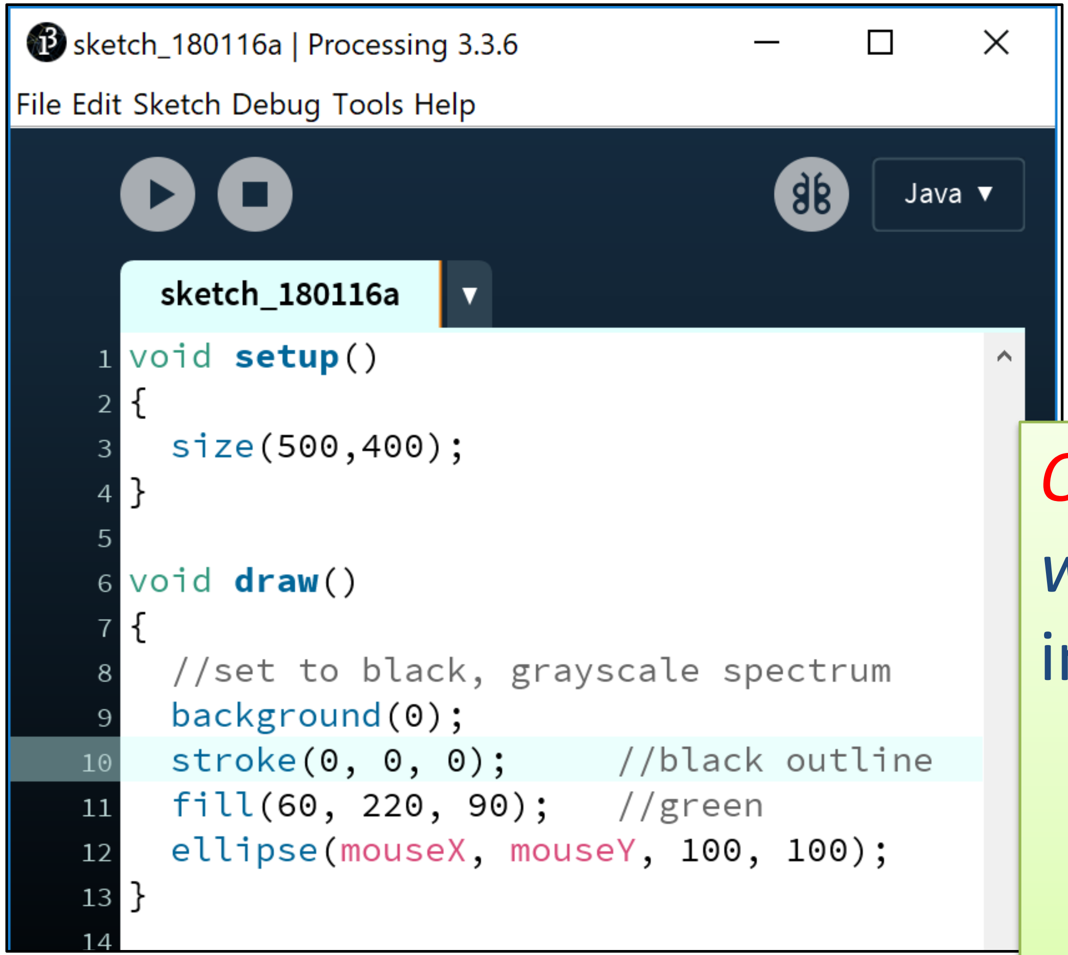
Q: Why many circles?

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

System Variables →

mouseX = x co-ordinate of mouse pointer
mouseY = y co-ordinate of mouse pointer

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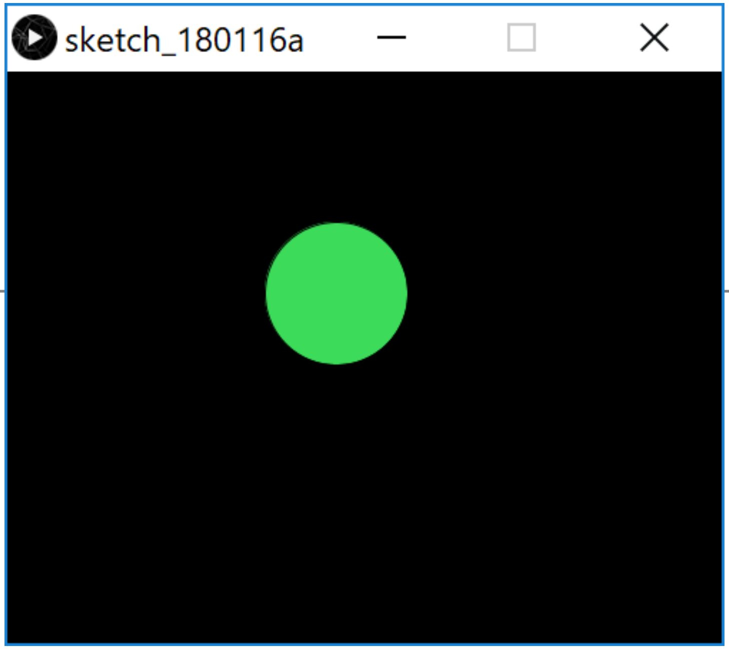
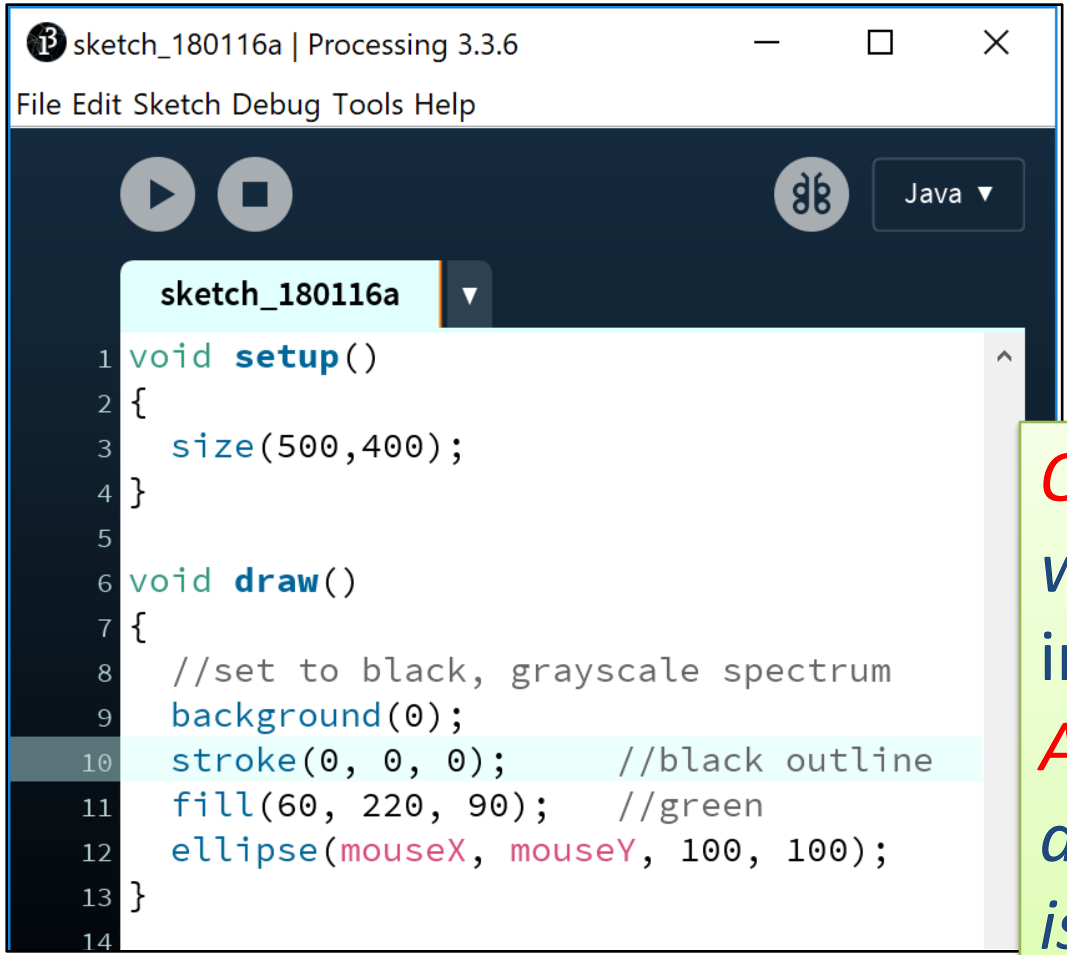
Q: Why happens when we move **background(0)** into the draw function?

void draw()

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Q: Why 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.

3. **System Variables** in Processing.

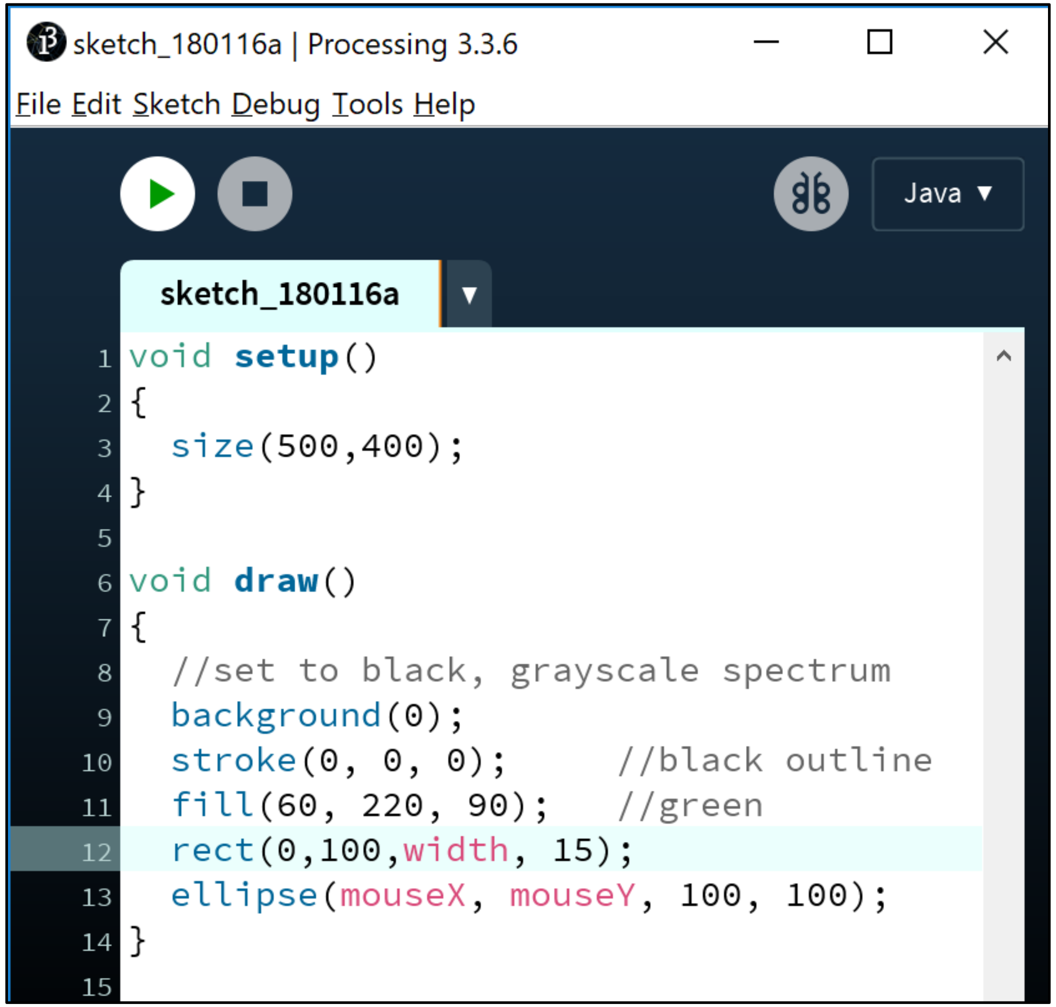
System Variables in Processing

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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  //set to black, grayscale spectrum
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  stroke(0, 0, 0);     //black outline
  fill(60, 220, 90);   //green
  rect(0,100,width, 15);
  ellipse(mouseX, mouseY, 100, 100);
}
```
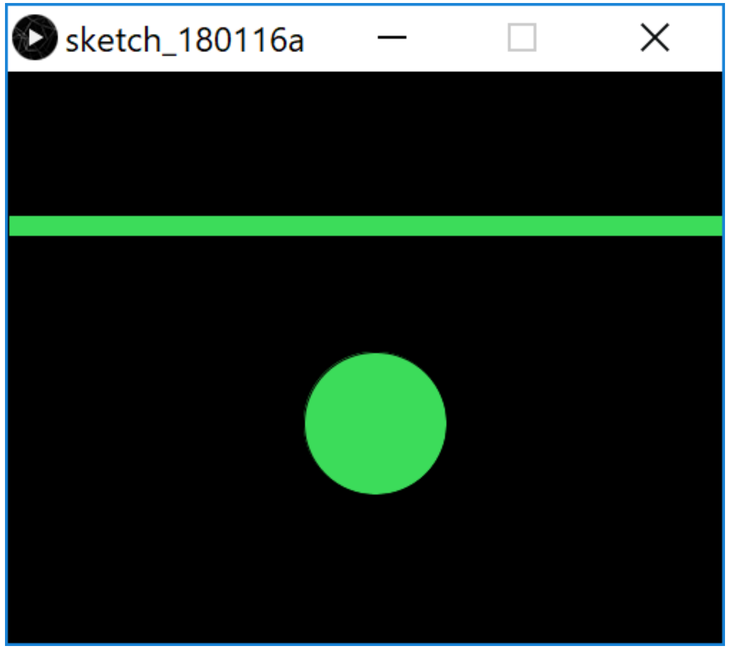
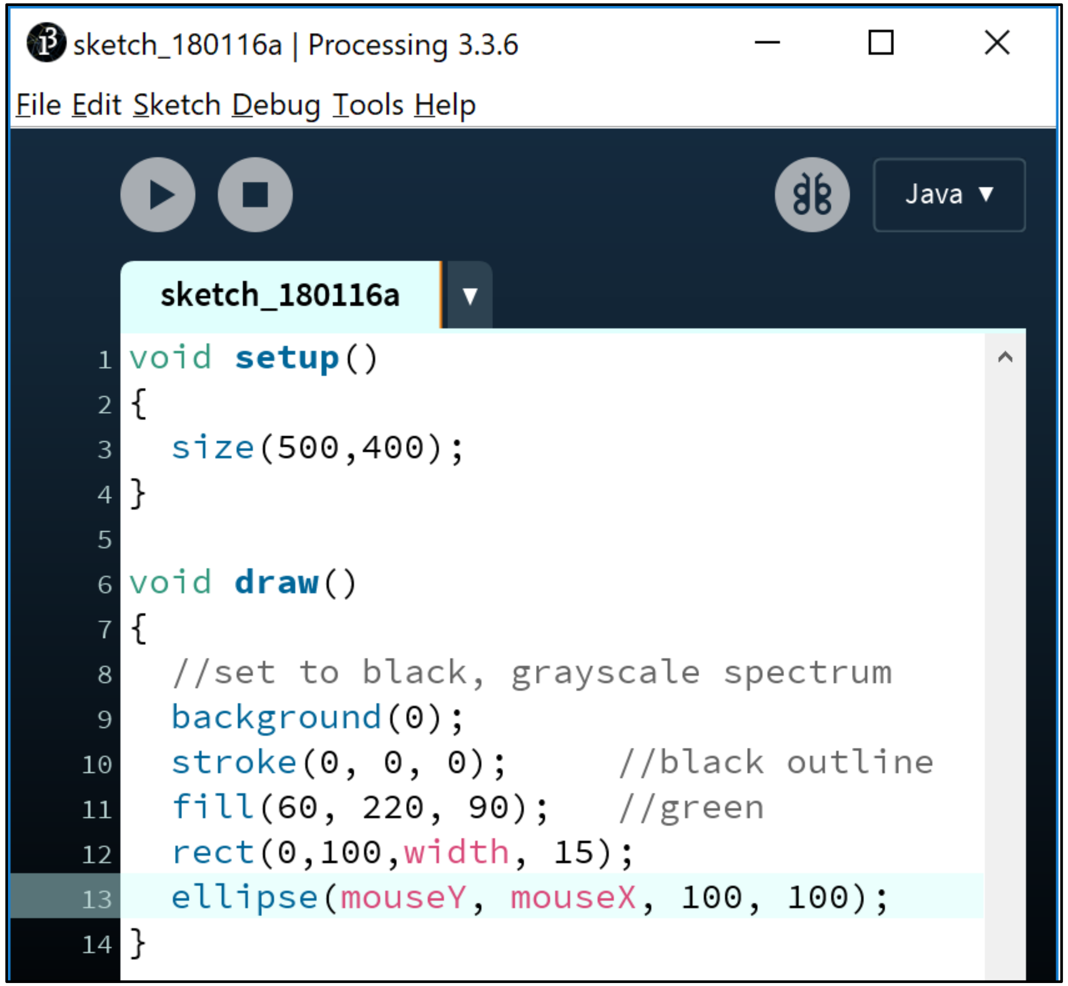



Using the **width** system variable in the **rect** function to draw a thick line.

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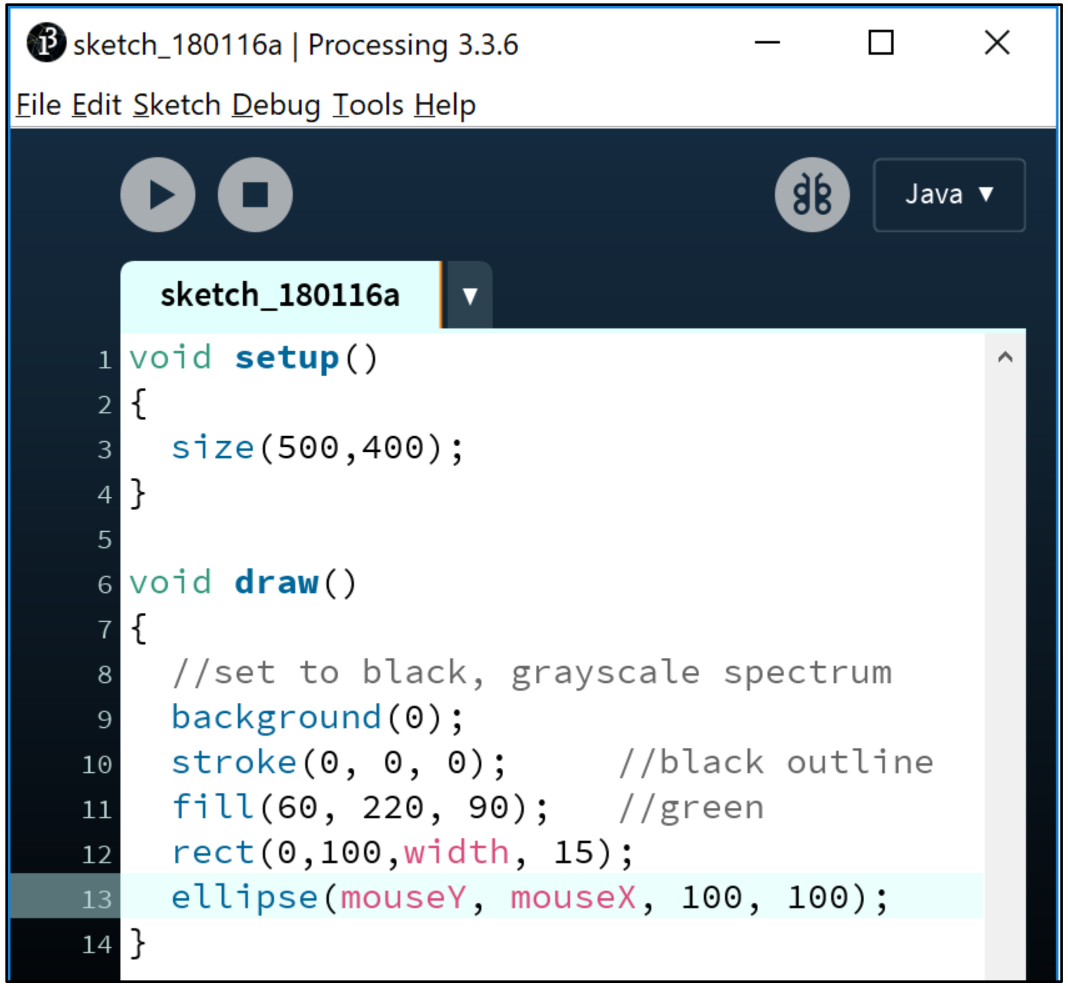
Q: What would happen to our animation if we swapped the ***mouseX*** *and* ***mouseY*** *variables in the* ***ellipse*** *function with each other?*

System Variables in Processing



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}
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***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?