



VARIABLES

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THE UNIVERSITY OF MOUNT UNION

WHAT DOES A VARIABLE DO?

- Stores a value in memory so it can be used later in the program
- Value can be easily changed while the program is running

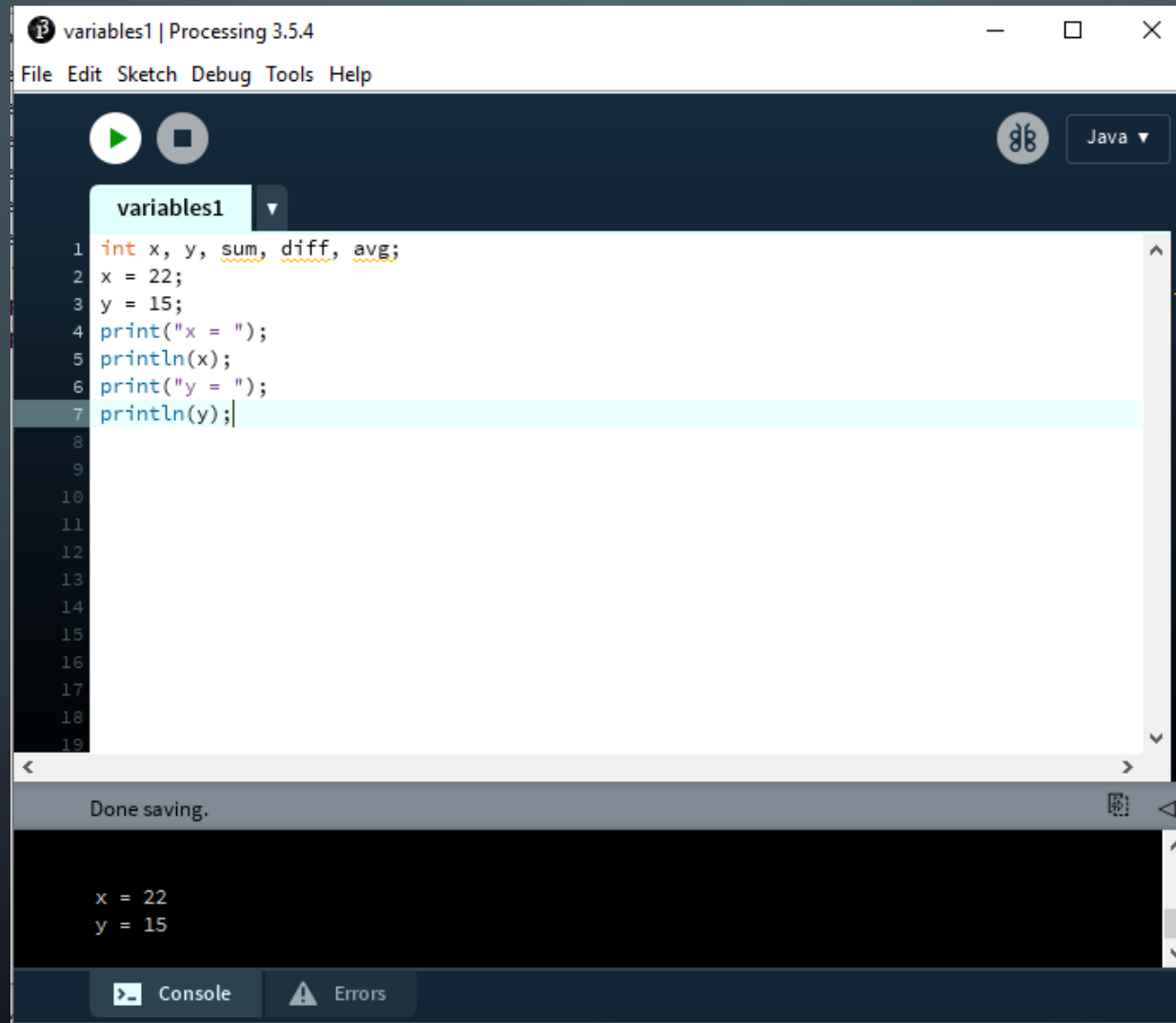
WHY DO WE USE VARIABLES?

- Avoid repeating ourselves
- Much easier to update code
- Much more efficient

WHAT DO WE NEED TO DO?

- Determine the name, data type, and value
- Convention is to use lower case for variable names
- Data types include (but are certainly not limited to)
 - int (integer)
 - float (short for floating-point, which can include decimals)
 - Array (holds a list of data)

EXAMPLE FROM LAB 1



The screenshot shows the Processing IDE interface. The title bar reads 'variables1 | Processing 3.5.4'. The menu bar includes 'File', 'Edit', 'Sketch', 'Debug', 'Tools', and 'Help'. The toolbar contains a green play button, a square stop button, a circular icon with two crossed tools, and a language dropdown menu set to 'Java'. The code editor displays the following code:

```
variables1
1 int x, y, sum, diff, avg;
2 x = 22;
3 y = 15;
4 print("x = ");
5 println(x);
6 print("y = ");
7 println(y);
```

Below the code editor, a status bar shows 'Done saving.'. At the bottom, the 'Console' tab is active, displaying the output:

```
x = 22
y = 15
```

BUILT-IN VARIABLES

- width – automatically stores width of window
- height – automatically stores height of window
- mouseX – automatically stores current x-position of the mouse
- mouseY – automatically stores current y-position of the mouse

LOOKING AT EXAMPLE 2-2 AGAIN

```
void setup() {  
  size(480, 120);  
}  
  
void draw() {  
  if (mousePressed) {  
    fill(0);  
  } else {  
    fill(255);  
  }  
  ellipse(mouseX, mouseY, 80, 80);  
}
```

We still don't have the tools to understand *all* of this code...but how about “size”? And “ellipse”? We can understand those now!