LOGAN MAY 30TH, 2022

CODING 101: JAVA

Coding is fun!

WHAT WE WILL COVER (NOT ALL TODAY)

- Variables
  - Types
    - Basic Types: int, string, boolean, etc.
  - Operations
- Data Structures
  - Arrays
  - Lists
  - Trees
  - Dictionaries (Hashset in java)
  - Stacks and Queues
- Classes
- Inheritence
  - Interfaces
  - Abstract classes
- Logical Operators
- Control Structures
  - If/Else Statements
  - Loops (for loops and while loops)
  - Switch Statements
- IO Operations
  - User Input using Java Scanner
  - Ouput using System Output
  - Reading/Writing Files
- Unit Testing
  - Asserts
  - Setup and Teardown
  - UI Testing

VARIABLES: TYPES

In Java you can create a variable and assign it a value that you can reuse later. Each variable has a type, which means exactly what you might think. A Type in programming is just what type of data does the variable store.

Basic Types:

- int: stores integer numbers (max value of 2,147,483,647), examples: 1, -4, 3, -6, 24
- long: used to store numbers larger than 2147483647 up to 9,223,372,036,854,775,807
- double: stores decimal numbers, examples: 1.0, 0.0. -2.3, 21.045
- string: stores text, examples: “Coding is Fun!”, “123456789”
- boolean: stores true and false values

Operations:

- Numeric operations for int, long, and double types
  - + , - , * , / , %

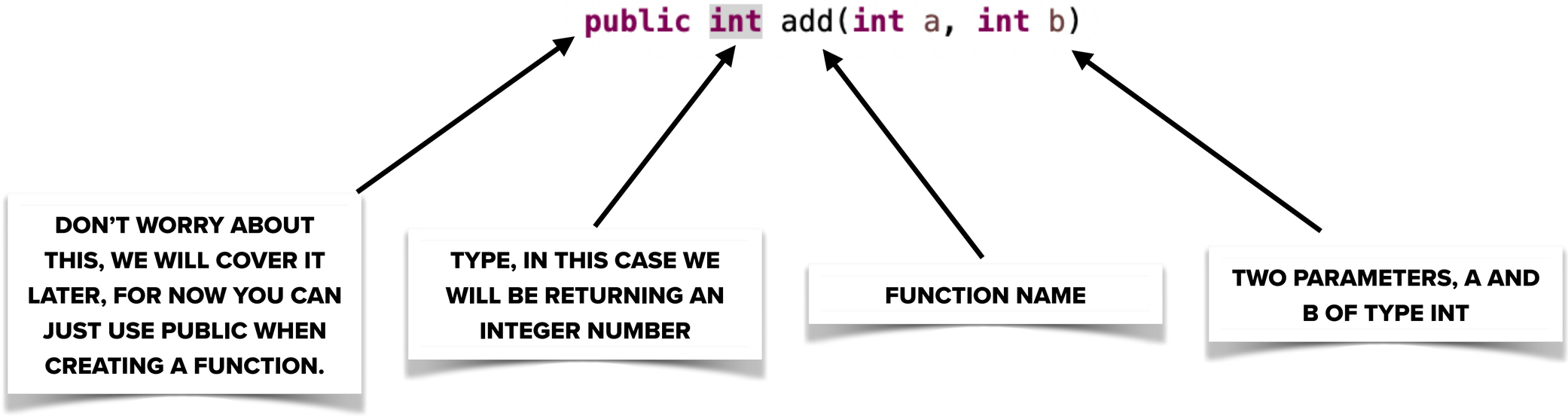
LETS CREATE SOME VARIABLES

```
1
2  public class Day1 {
3
4      public static void main(String[] args) {
5
6          /*
7           * Notice the semicolon at the end of each line,
8           * this is required in java.
9           */
10         int ageInt = 22;
11         double ageDouble = 22.0;
12         String name = "Logan Hylton";
13
14     }
15 }
16
```

NOTICE THE QUOTATION MARKS. THESE ARE REQUIRED WHEN CREATING A STRING VARIABLE

FUNCTIONS

A function takes in some number of parameters (variables) and returns something back. So, when creating a function, we must specify what type will be returned and we must specify the parameters along with their types.



Let's try writing this function together.

BONUS TOPIC (MORE ADVANCED BUT WILL BE USEFUL NOW)

- Accepting User Input; there are multiple ways to get user input (reading input directly from the console, reading from files, and reading from a UI) but we will be focusing on reading input from the console today.
- You will need to know something called a try/catch statement, or block as it is sometimes referred to. This is basically just saying, try the code inside of the try block and if something goes wrong, catch it in the catch block. What you will be catching is called an **Exception**. An exception is just an error that happens somewhere within your code, and you will see us just catch a general exception in our catch block.