

Java: Data Types

CAC 210
Amber Wagner

Remind me...

- * How do we get input in Java?
- * How do I declare a variable named x to store the number 5?
- * How do I declare a variable named month to store the value "August"?
- * How do I print?
- * In Java, everything must be in a _____ and every program must have a _____.

Remind me...Solutions

- * How do we get input in Java?
 - * Scanner class - must import it - `import java.util.Scanner;`
 - * `Scanner input = new Scanner(System.in);`
`int number = input.nextInt();`
- * How do I declare a variable named x to store the number 5?
 - * `int x = 5;`
- * How do I declare a variable named month to store the value "August"?
 - * `String month = "August";`
- * How do I print?
 - * `System.out.println();`
- * In Java, everything must be in a class, and every program must have a main.

Input

Return type	Method name	Description
boolean	hasNext()	returns true if more data is present
boolean	hasNextInt()	returns true if the next thing to read is an integer
boolean	hasNextFloat()	returns true if the next thing to read is a float
boolean	hasNextDouble()	returns true if the next thing to read is a double
Integer	nextInt()	returns the next thing to read as an integer
Float	nextFloat()	returns the next thing to read as a float
Double	nextDouble()	returns the next thing to read as a Double
String	next()	returns the next thing to read as a String

What might the has_____ methods be used for?

Strings

- * Strings work a little differently in Java
- * They are a class rather than a list (Python)

Python	Java	Description
<code>str[3]</code>	<code>str.charAt(3)</code>	Return character in 3rd position
<code>str[2:4]</code>	<code>str.substring(2,4)</code>	Return substring from 2nd up to but not including 4th
<code>len(str)</code>	<code>str.length()</code>	Return the length of the string
<code>str.find('x')</code>	<code>str.indexOf('x')</code>	Find the first occurrence of x
<code>str.split()</code>	<code>str.split('\s')</code>	Split the string on whitespace into a list/array of strings
<code>str.split(',')</code>	<code>str.split(',')</code>	Split the string at <code>' , '</code> into a list/array of strings
<code>str + str</code>	<code>str + str</code> or <code>str.concat(str)</code>	Concatenate two strings together
<code>str.strip()</code>	<code>str.trim()</code>	Remove any whitespace at the beginning or end

Arrays

- * Built-in data structure in Java
- * Similar to a list in Python, but they are a little different
- * You must declare the type, name, and set it equal to a new instance of an array of that type:
 - * `int[] numbers = new int[5];`

Arrays

- * You must fill the array - two approaches
 - * `int[] numbers = {1, 2, 3, 4, 5};`
 - * `int[] numbers = new int[5];`
 - * `int[0] = 1;`
 - * `int[1] = 2;`
 - * `int[2] = 3;`
 - * `int[3] = 4;`
 - * `int[4] = 5;`

For Loops

- * There are different types of loops in Java just like in Python (while, for, for each), but we are going to only look at for loops today
- * `for(counter; duration; increment) {`
`}`
- * `for(int i = 0; i < 5; i++) {`
 `System.out.println(i);`
`}`
- * `for(int i = 0; i < numbers.length; i++) {`
 `numbers[i] = i + 1;`
`}`

For Loops

- * How would increment by 2?
- * What if I wanted to print the array in reverse?

Worksheet