

CS 61BL Lab 3

Find a new partner!

Announcements

- * Project 0 due on Saturday!
- * We will be holding a Project Party in the Wozniak Lounge (on 4th floor of Soda) from 3pm to 9pm on Friday.
- * Quiz tomorrow!

Loops

- * Java has two types of *loops*: `while` loops and `for` loops

While loops

- * Use a while loop when you want to do repeat until a condition becomes true

- * Syntax:

```
while (<condition>) {  
    <body>;  
}
```

- * The condition must evaluate to a boolean value

While Loop Example

```
int x = 10;  
while (x >= 0) {  
    System.out.println(x);  
    x--; // decreases x by 1  
}
```

// prints out 10, 9, ... 1, 0

Arrays

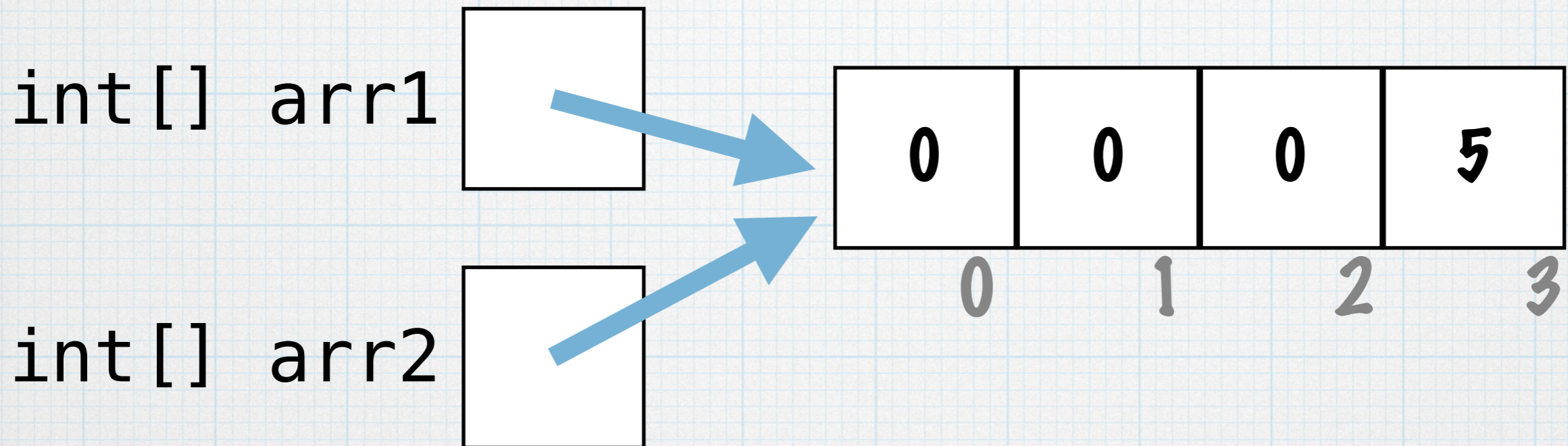
- * Arrays are a sequence of elements
- * All of the elements are the same type
- * To declare an array, we do
`<type>[] variable = new <type>[length];`
- * For example, to make an array of Strings of size 3, we do `String[] arr = new String[3];`
- * To access elements, do `arr[i]` (In Java, arrays start at 0!)

Arrays are objects

- * Arrays are *objects*!
- * What happens here?

```
int[] arr1 = new int[4];  
/* The array is prefilled with  
   default values: 0 for ints */  
int[] arr2 = arr1;  
arr1[3] = 5;  
System.out.println(arr2[3]);
```


Box n' Pointer



```
int[] arr1 = new int[4];  
/* The array is prefilled with  
   default values: 0 for ints */  
int[] arr2 = arr1;  
arr1[3] = 5;  
System.out.println(arr2[3]);
```


For Loops

- * For loops are very commonly used with arrays.

- * Syntax:

```
for (<initialize>; <test>; <increment>) {  
    <body>  
}
```

- * Initialize is performed once at the beginning, where you normally initialize a variable.
- * The test is checked at the beginning of each iteration. If the test is false, the loop is exited.
- * The increment step is performed at the end of each iteration. This is usually to increment a variable we've defined in the initialize stage.

Looping over an Array

```
String[] x = {"a", "b", "c"};
// Array literal syntax
for (int i = 0; i < x.length; i++) {
    System.out.println(x[i]);
}
/* x.length gives you the number
   of elements in x
*/
```