Review Arrays

## What are the features of an array in Java?

* holds multiple values – together
* iterable
* starts at 0 – 0 indexed
  + access the last element at myArray.length – 1 index
* stored contiguously in memory
* fixed length – can’t change it
  + if we create an array that holds 5 items, if we want to hold a 6th
    - step1: create an array of length 6
    - step2: copy over the values
    - step3: add the 6th
* has to be the same data type – homogenous (but can hold subtypes Animals can store Cats and Dogs)
  + it can hold primitive and non-primitive values

### How do I declare an array?

int[] myNumbers; // declares but not initializes

### How do I initialize an array?

#### Method 1:

int[] myNumbers;

myNumbers = { 1, 2, 3 }; // using literals

#### Method 2:

int[] myNumbers;

myNumbers = new int[3]; // new operator

myNumbers[0] = 1

myNumbers[1] = 2

myNumbers[2] = 3

### What are the ways to loop through an array?

#### Method 1: for-loop

for (int i = 0; i <= myNumbers.length – 1; i++) {

myNumbers \*= 2;

}

#### Method 2: for-each

for (int number : myNumbers) {

System.out.println(number \*= 2);

}

#### Method 3: while

New Material – 2D Arrays

### What does a 2D array look like? Where do we commonly use 2D Arrays?

(See Excel Sheet for How it Looks in Memory)

### How can I declare an array of arrays?

### How can I initialize an array of arrays?

#### Method 1: using the new operator

#### Method 2: using literals!

### How can I access one of the inner arrays?

### How can I access an element inside one of the inner arrays?