Java Review

Arrays

What is an array?

- A single variable that can hold multiple values.

- Arrays can only hold one data type.

- Arrays have a fixed length that is defined on initialization.

- Each value in an array has an index. Indices start at 0 and go up to *one less* than the length of the array.

Declaring & Initializing an array

Since arrays can only hold one data type, this type must be specified at declaration:

```
int[] numbers;
String[] names;
```

Once declared, we can initialize an array as follows:

```
numbers = new int[10];  // Specifies length 10 – indices are 0 through 9.
names = new String[12]; // Length 12 – indices 0 through 11.
```

Declaring and Initializing – More

- We can declare and initialize in one step:

```
int[] numbers = new int[10];
```

- The length of an array can be given as an integer variable:

```
int numStudents = sc.nextInt();

String[] names = new String[numStudents];
```

Assigning Values

To change entries in an array, do the following:

```
names[0] = “Sam”;
names[1] = “Jason”;
names[2] = “Adam”;
```

Looping Through Arrays

- For loops and arrays go hand-in-hand
- **Big Idea:** Loop from 0 up to the length of the array. Use this value as an index.

```
for (int i = 0; i < names.length; i = i + 1) {
  // Use the loop variable as an index into the array.
  names[i] = “anonymous”;
}
```

Enhanced For Loops

- Enhanced for loops are useful for printing or viewing entries in an array.
- They cannot be used for *editing* an array.
- **Big Idea:** Declare a temporary variable of the same type as the array. This variable will take on the values in the array, one at a time.

```
for (String n : names) {
  // First n will become names[0], then names[1], then names[2], etc.
  System.out.println(n);
}
```