

---

# **COP 3540 Data Structures with OOP**

## **Arrays**

### **Chapter 2**

# The Basics of Arrays in Java – Array Creation

- Two kinds of Arrays:
  - primitive (ints, floats, double, char, unsigned, ...) and
  - objects
- In Java arrays are **objects** not primitives.
- Since all arrays are objects, must use 'new' to create.
- Two ways to create an array in Java
  1. 

```
int[] intArray;           // only the reference
intArray = new int[100]; // creates the array with space for 100 integers
                        // intArray now points (references) this array.
```
  2. Alternatively: 

```
int intArray[] = new int[100];
```

~~Either format is acceptable. (I prefer the latter)~~

*What is a primitive?*

*Where is the array data actually stored?*

*Where is the reference stored?*

**Attribute:**

```
int arrayLength = intArray.length; // number of elements
```

→ **Where does this 'length' attribute come from?**

→ **How do you know intArray.length is not a method?**

# The Basics of Arrays in Java – Accessing Array Elements

---

- ◆ Array access is via an **index number**

*What is an index? Same as a subscript?*

```
temp = intArray[3];    //assign value of fourth element
                        // in intArray to temp (assumes
                        // temp is an int).
```

```
intArray[7] = 66;    // assigns value of 66 to
                    // intArray[7]. (8th element)
```

Array Index Out of Bounds – discuss....

```
intArray = new int [100];    // bounds?
```