CS 149

Professor: Alvin Chao

CS149 – Arrays

JAMES MADISON UNIVERSITY

Arrays

- Arrays are collections of the same type of element. We can have arrays of type int, double, char, or String
- Declaration
  - Syntax: BaseType[] ArrayName;
  - Example: int[] score;
- Memory Allocation:
  - Syntax: ArrayName = new BaseType[Length];
  - Example: score = new int[10];
- Accessing Elements:
  - Syntax: ArrayName[Index]
  - Example: score[5] = 8;

Multiple uses of [ ]

Uses of [ ]:

- To declare that a variable is an array (of particular type)
- To indicate the amount of memory to allocate
- An operator to access an element of an array

An Example:

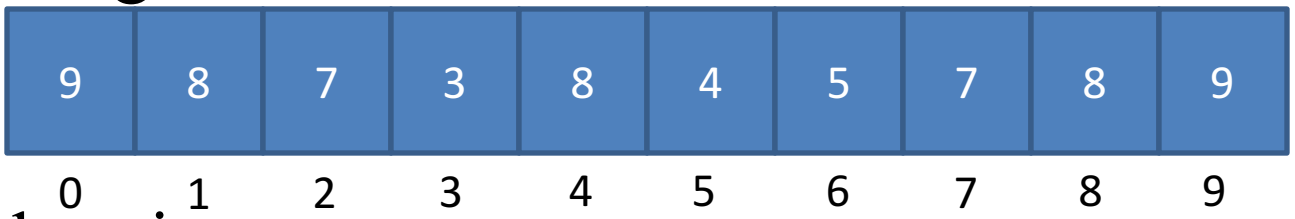
```
int[]     i;        // i is declared to be an array of int
i = new int[5];     // Memory is allocated for 5 int values
i[0] = 10;          // Assign 10 to the 0th element of i

System.out.printf("%d\n", i[0]); // Print the 0th element of i
```

Array Parameters

- Array state diagram

  score



- Formal declaration parameters

  Example:
  - countPopular(int[ ] votes);
  - main(String[ ] args);
- Actual parameters passed

  Example:
  - countPopular(myVotes);

Returning an Array

- Notice the difference between these loops

- What will be printed?

Loops and Arrays

- We declare our integer array score to hold bowling scores for each frame.

```
int i;
int[]    score;

   score= new int[10];

   for (i=0; i<score.length; i++)
   {
      score[i] = i;
   }
```

- What is stored in each element?

Array Length vs. String length

- score.length returns the length of the array.
- Notice this is different from a String length
- str.length() we have the () because string length is a method call to the String class versus score.length as an attribute.

- **Acknowledgements**

Parts of this activity are based on materials developed by David Bernstein.

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