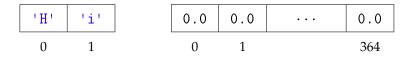
## Model 1 Array Syntax

An *array* variable allows you to store multiple variables (of the same type). Each value in an array is known as an *element*. The programmer must specify the *length* of the array (the number of array elements). Once the array is created, its length cannot be changed.

Array elements are accessed by *index* number, starting at zero:



## Questions (15 min)

**Start time:** 

- 1. Examine the results of the code.
  - a) What is the length of letterArray?
  - b) What is the length of numberArray?
  - c) What is the index of the element 'i' in letterArray?
  - d) What is the index of the last element of number Array?
- **2**. Now examine the syntax of the code.
  - a) What are three ways that square brackets [] are used?
  - b) In contrast, how are curly braces {} used for an array?

**3**. What are the resulting type and value of the following expressions? Show your work by writing the value of each array element in the space provided.

```
int[] a = {3, 6, 15, 22, 100, 0};
double[] b = {3.5, 4.5, 2.0, 2.0, 2.0};
String[] c = {"alpha", "beta", "gamma"};
```

a) a[3] + a[2]

Type:

Value:

b) b[2] - b[0] + a[4]

Type:

Value:

c) c[1].charAt(a[0])

Type:

Value:

d) a[4] \* b[1] <= a[5] \* a[0]

Type:

Value:

As shown in #3, an array variable can be declared and initialized without using new. However, to assign an array variable that was previously declared, new is required:

```
a = new int[] {3, 6, 15, 22, 100, 0};
c = new String[] {"alpha", "beta", "gamma"};
```

4. Write statements that declare and initialize variables for the following arrays.

a)	0	14	1024	127	3	5521
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b)	3.23	1.52	4.23	32.5	2.45	5.23	3.33
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5. Write statements that assign the following arrays to variables you declared in #4.

a)	0	14	1024	127	3	5521
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b)	3.23	1.52	4.23	32.5	2.45	5.23	3.33
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