

# CSE110 Review Questions

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### Arrays

**Question 1** What are the indices for the first and last positions of any array?

Answers: `x[0]`, `x[x.length - 1]`

**Question 2** Immediately after instantiating a new array of primitives (ints, doubles, etc.), what fills the array? What about an array of objects?

Answers: `0`, `null`

**Question 3** What happens when you try to access an array element past the end of the array?

Answer: The code throws an `ArrayIndexOutOfBoundsException`.

**Question 4** Instantiate three arrays called `x`, `y`, and `z` of type `int`, `String`, and `BankAccount` (respectively), all of size 10.

Answers:

```
int[] x = new int[10];
String[] y = new String[10];
BankAccount[] z = new BankAccount[10];
```

**Question 5** Write a for-loop to double each element in an array `x` of type `int`.

Answer:

```
for (int i = 0; i < x.length; i++)
    x[i] *= 2;
```

**Question 6** Write code to store the largest number in an `int` array `x` into a variable called `max`.

Answer:

```
int max = x[0];
for (int i = 1; i < x.length; i++)
    if (x[i] > max)
        max = x[i];
```

**Question 7** Write code to count how many numbers in the array are strictly larger than 4, and store that total in a variable called `total`.

Answer:

```
int total = 0;
for (int i = 0; i < x.length; i++)
    if (x[i] > 4)
        total++;
```

**Question 8** Write code to print out every other element in an array separated by tabs.

Answer:

```
for (int i = 0; i < x.length; i+=2)
    System.out.println(x[i] + "\t");
```

**Question 9** Write code to shift each number one place to the right (Note: there will be 2 copies of the 1st element when the code finishes).

Answer:

```
for (int i = x.length-2; i >= 0; i--)
    x[i+1] = x[i];
```

**Question 10** Write code to print the contents of an array in reverse order, one element for each line.

Answer:

```
for (int i = x.length-1; i >= 0; i--)
    System.out.println(x[i]);
```

**Question 11** Use the following array x to answer the following questions:

4 8 5 1 6 3 2

- a) What value is given by x[1]?
- b) What value is given by x[6]?
- c) What value is given by x[7]?
- d) What value is given by x.length?

Answers:

- a) 8
- b) 2
- c) `ArrayIndexOutOfBoundsException` thrown
- d) 7

**Question 12** Write a method called `append` that appends the two arrays passed as arguments and returns an array of type `int` as the result. For example, if the first array argument was {1, 2, 3}, and the second was {4, 5, 6, 7}, `append` returns {1, 2, 3, 4, 5, 6, 7}.

Answer:

```
public int[] append(int[] a, int[] b) {
    int[] temp = new int[a.length + b.length];
    int j = 0;
    for (int i = 0; i < a.length; i++) {
        temp[i] = a[i];
    }

    for (int i = a.length; i < temp.length; i++) {
        temp[i] = b[j];
        j++;
    }

    return temp;
}
```

**Question 13** Write a method called findMin that returns the smallest element in an array that is passed as an argument. For example, if the array was {4, 7, 9, 12, 8, 1, 5}, the method would return 1.

**Answer:**

```
public int findMin(int[] a) {  
    int min = a[0];  
    for (int i=1; i < a.length; i++) {  
        if (a[i] < min) {  
            min = a[i];  
        }  
    }  
    return min;  
}
```