CSC 1051 - Lab 10

Objectives:
Practice using arrays to store and process values.

a) Simple array example

```java
class ArrayDemo {
    public static void main(String[] args) {
        int[] anArray; // declares an array of integers
        anArray = new int[5]; // allocates memory for 5 integers
        anArray[0] = 100; // initialize first element
        anArray[1] = 200; // initialize second element
        anArray[2] = 300; // etc.
        anArray[3] = 400;
        anArray[4] = 500;
        System.out.println("Element at index 0: " + anArray[0]);
        System.out.println("Element at index 1: " + anArray[1]);
        System.out.println("Element at index 2: " + anArray[2]);
        System.out.println("Element at index 3: " + anArray[3]);
        System.out.println("Element at index 4: " + anArray[4]);
    }
}
```

- Type in this program, compile, and run.
- Rename the program Lab10a.java and modify it to set the array values using a loop. *(Hint: Use two for loops, one for initializing the values and another for printing them out; use the loop counter to index into the array elements.)*
- Modify the program to work with an array of 100 elements, instead of 10.
- What happens if you do not initialize the array’s values? Comment out the part of the program that sets the values to 100, 200, etc. and see what happens? Do you get an error?
b) An array of double
Make a new version of your program from part (a) and name it Lab10b.java that creates instead an array of 100 values of type double, set to random values in the range 0….1.

• What happens if you do not initialize the array’s values?

c) An array of boolean
Create a new version of your program Lab10c.java that creates instead an array of 100 values of type boolean. The values should be set to alternating true/false, i.e., anArray[0] = true; anArray[1] = false, etc. (but be sure to use a loop here too).

• What happens if you do not initialize the array’s values?

d) Reading values from the user and storing them in an array
Starting from Lab10a.java (array of int) create a new version of your program Lab10d.java, that uses Scanner to input integer values from the user. (Test it with smaller arrays, say with 5 entries, so you don’t need to type so much.)

f) Expand your knowledge of arrays and all things Java

This example in part (a) is from the Java online tutorials: http://docs.oracle.com/javase/tutorial/java/nutsandbolts/arrays.html

• Read the tutorial on arrays. This is one of many online tutorials that are available on Java programming. As you progress to writing Java programs to solve real life problems (or to review for final exam!), it is useful to know where to go to learn or to brush up on intricacies of the Java language.
• Make a note here about something that you learned by reading the Java online tutorials.

Demonstrate your work to the instructor or TA.

Lab10a (array of int) __________
Lab10b (array of double) __________
Lab10c (array of boolean) __________
Lab10d (input into array) __________