CS 249: Assignment 4

Single and Multidimensional Arrays

Theory Questions (24%)

1. (2%) Declare AND initialize an single-dimensional array of **5 doubles** with the name "list". You do not need to set the values of the doubles.

   ```
   double[] list;
   list = new double[5];
   ```

2. (2%) If we had declared but NOT initialized "list", what value would it have?

   Compiler will give out an error that array is not initialized

3. (2%) Write code **using a for loop** to set each value of "list" to 1. **Do NOT use the number 5 directly as the length!**

   ```
   for( var i = 0; i < list.length;i++){
   list[i] = 1;
   }
   ```

4. (2%) Write code **using a for-each loop** to print each value of "list" on each line.

   ```
   for( i = 0; i < list.length;i++){
   System.out.print(list[i];
   }
   ```

5. (2%) I **CANNOT** use a for-each loop to modify values in the array.

   (a) True   True
   (b) False

6. (2%) I **CAN** use a for-each loop if I have to traverse the array in reverse.

   (a) True   False
   (b) False

7. (2%) Given the array "list", "list" is a reference variable, because an array is implemented as a class.

   (a) True   True

   (b) False

8. (2%) Given the code below, what will the values in the array "powers" be?

```
public static void main(String [] args) {                    1, 2, 4, 8
        int [] powers = { 1, 1, 1, 1 };
        fillPowers(powers);
        System.out.println(Arrays.toString(powers));
}

public static void fillPowers(int [] powers) {
        powers[0] = 1;
        for(int i = 1; i < powers.length; i++) {
                powers[i] = powers[i-1]*2;
        }
}
```

9. (2%) If I want to copy the contents of "list2" into "list1", should I use the code below? If not, why not?

     list1 = list2;   No because arrays are reference types

10. (2%) If I call my Java program "TestArgs" on the command line as shown below, what would be the contents of **args[2]**?

     java TestArgs Totoro "Spirited Away" "Howl's Moving Castle"   Howl's Moving Castle

11. (2%) Declare and initialize a 2D doubles array of **3 rows** and **4 columns** named "M". You do not need to set the values in the array.

   double[][] M;
   m = new double[3][4]

12. (2%) Given the 2D array "M", write code to store the length of the first row into an int variable "firstLen". **Do NOT use the number 4 directly as the length!**

   firstLen = M[0].length