CS-200-1: Programming I, Fall 2014
Northeastern Illinois University
Homework #7
Due: Wednesday, November 12th by 2:50 p.m.

Assignment Specifications: Read all instructions carefully!
Make sure the following are in a .zip file - Do **NOT** submit files individually to D2L!!

- ☐ Your source code (the .java files).
- ☐ Your output in .txt file(s).
- ☐ Make sure your name and assignment number are in the .txt file and the .java file(s) (as comments for the .java files).
- ☐ Turn your homework in to D2L before class (no late homework will be accepted - see syllabus for policies).

Problem #1

- Determine what is printed out to the console. In a .txt file (named Homework7_P1.txt), put the output (i.e. what is printed out to the console) exactly as it would appear in the console.
- Put the Homework7_P1.txt file into a folder named Homework7.

```
public class HW7Tracing
{
    public static void main(String[] args)
    {
        int i, j, k, size = 4;
        int[] arr = {6, 2, 15, 1};

        System.out.println("before");
        for (i = 0; i < size; i++)
            System.out.print(arr[i] + " ");
        System.out.println();

        System.out.println();
        for (i = 0; i < size - 1; i++)
        {
            for (j = i + 1; j < size; j++)
                if(arr[j] <= arr[i])
                {
                    arr[i] = arr[j] - 1;
                    arr[j] = arr[j] + 1;
                }

            System.out.print((i + 1) + ": ");
            for (k = 0; k < size; k++)
                System.out.print(arr[k] + " ");
            System.out.println();
        }

        System.out.println();
        System.out.println("after");
        for (i = 0; i < size; i++)
            System.out.print(arr[i] + " ");
        System.out.println();
    }
}
```

Problem #2

- Create a new .java file named Reverse.java.
- Write a program that asks the user to enter 10 integers.
- Display the numbers entered in the reverse order in which they were read in.
- Your code should use an array.
- Your output should match the sample output below.
- Put the Reverse.java file into the Homework7 folder.

```
Enter 10 integers: 3 1 90 8 37 55 28 76 101 5
The reverse is: 5 101 76 28 55 37 8 90 1 3
```

Problem #3

- Create a new .java file named Identical.java.
- Write a program that asks the user to enter the length of an integer list (array).
- Then prompt the user to enter the first list and then the second list.
- If the two lists differ by at least one value, print out that they are not identical.
- If the two lists do not differ, print out that they are identical.
- Hint: You **cannot** determine if two arrays are the same by using array == array2. You have to compare each element of the array.
- Your output should match the sample output below.
- Put the Identical.java file into the Homework7 folder.

```
Enter the list length: 5
Enter list 1: 1 3 8 4 7
Enter list 2: 1 3 8 4 7
The lists are identical.
```

```
Enter the list length: 5
Enter list 1: 1 2 8 9 7
Enter list 2: 1 3 8 4 7
The lists are not identical.
```

Problem #4

- Create a .java file named DistinctNumbers.java.
- Write a program that asks the user to enter 10 integers.
- The program should then determine the total number of distinct (i.e. unique integers).
- It should then display the distinct numbers separated by exactly one space (i.e. if a number appears multiple times, it is displayed only once).
- Your output should match the sample output below.
- Put the DistinctNumbers.java file into the Homework7 folder.

```
Enter ten numbers: 5 1 3 8 5 9 3 7 3 1
The number of unique numbers is: 6
The distinct numbers are: 5 1 3 8 9 7
```

```
Enter ten numbers: 5 5 5 5 5 5 5 5 5 5
The number of unique numbers is: 1
The distinct numbers are: 5
```