Hands-on Experiment # 8: Worksheet

(Do not submit this document file)

To submit this homework, zip all your .java files into 1 zip file and submit as attachment on MyCourseville assignment page. Make sure you have completely uploaded your file! name your file **yourid_ex08**

Part A (4.5 marks): Checking if an array is a reverse of another

Class IsReverse is given in IsReverse.java. Its main method is implemented for you.

Write method `public static boolean isReverse(int[] a, int[] b)` inside this class.

This method returns true if the array a and b is a reverse of one another. For example, if a = {1,2,3,4} and b = {4,3,2,1} then this method returns true. Expected return values for various test cases are in the main method.

You **must not change** the main method.

Part B: (5 marks) Replacing one value with another

Class Replace is given. Its main method is implemented for you. Write the following methods for this class.

- Write method `public static void printArray(int[] a).` This method prints array content (each data is separated by a comma) in one line.
- Write method `public static int[] replace(int[] a, int v, int v2).` This method replaces all values of v inside array a with v2, and returns the changed a. **If a is null, just return null**. For example:
  - if a is {1,2,3,4,5,4,3,2}, replace(a,3,6) will change a to {1,2,6,4,5,4,6,2}.
  - if a is {1,2,3,4,5,4,3,2}, replace(a,4,7) will change a to {1,2,3,7,5,7,3,2}.
  - If a is {1,2,3}, replace(a,5,6) will return a unchanged.

  You **must not change** the main method.

Part C: (6 marks) Find number of data greater than a specified value

A file numbers.txt, containing integers (can have any number of integers), is given.

Write a class CountNumbers (**write it from scratch!**) that has the following method:

- `public static int greater(int[] a, int v).`
  - This method counts the number of integers in array a that is larger than v.
    - For example, if a is {1,2,3,4,5,4,3,2}, greater(a,3) will return 3 (since 4,5, and 4 are greater than 3).

- `public static void main(String[] args).`
  - This method reads numbers.txt and store the integers in an array, a.
  - Then it increments each integer by 1.
  - Then it finds out how many integers are more than 25, 50, 75 and prints them out.

A screenshot of your program after it finishes should give the output similar to the one below:

```
E:\Dropbox\teaching\2190101\2020\Lab\Lab08_2020_array\solution_AND_HowToMark_week08_array>java CountNumbers
The number of integers greater than 25: 68
The number of integers greater than 50: 48
The number of integers greater than 75: 22
```

Part D: (4.5 marks) Inserting an array inside another array

Class InsertArray is given.

- Write method `public static int[] insert(int[] a, int[] b, int pos).` This method return a result that is an array constructed from inserting all values of **b** inside **a**, starting from position **pos** of **a**.
  - The array **a** must NOT change!
  - The array **a** and **b** are assumed not to be **null**.
  - If the position is too far to the left, regard it as 0.
  - If the position is too far to the right regard it as the position just beyond the last position of **a**.
- Examples of expected results can be found in the main method of class InsertArray.

You **must not change** the main method.