

ASSIGNMENT 2

Due Date: Friday, 7th October 2022, 11:59PM

Requirements:

1. Create a java class named LastnameFirstnameA2 which asks the user to define the length of an array (not more than 10) and then accept the **integer** elements based on the length defined (No Command Line Parameters) for two arrays and follow the instructions:
2. If the length of the array is invalid or the inputs are not integers, you should print a "Usage" statement exactly as shown below.
3. If the arrays are longer than the set length, the first elements should be taken.
 - a. For example, length = 3, input array = [1 2 3 4 5] the input should be taken as [1 2 3]
4. When inputs are correct, your file must contain the following:
 - a. A method that **returns** the user's array.
 - b. A method that **prints** the array passed to it.
 - c. A method **returns** the sorted array of the FIRST array. Do not change the original array. Any sorting algorithm is fine but do not use APIs! Hint: You can store a copy by writing a "copy" function.
 - d. **Print** this array.
 - e. A method **returns** the reversed array of the SECOND array. Do not change the original array. Hint: You can store a copy by using the above written "copy" function.
 - f. Print this array.
 - g. A method that **prints** the count of even and odd numbers.
 - h. Print the counts of even and odd numbers for both the arrays using above method.
 - i. A method to **return** the sum of the elements of the array.
 - j. **Print** the sum of the two arrays. Note: The print statement is different if the sum is equal and different if they are different. (Check example outputs below carefully.)
5. Pay careful attention to the above requirements. "Print" and "return" are two different things.
6. You can write additional methods or classes if needed.
7. You can use java.util.Scanner to read user input (Refer documentation <https://docs.oracle.com/javase/7/docs/api/java/util/Scanner.html> for more details)
8. Your output should be like the following samples. Make sure these matches EXACTLY. Also test for additional test cases to ensure the program works correctly.

```
Please enter the length of both the arrays: 13
Usage : Please input a length of max 10.
```

```
Program Completed.
```

```
Please enter the length of both the arrays: 3
```

```
Please enter 3 elements for the array:
```

```
1 2 3
```

```
Please enter 3 elements for the array:
```

```
a b c
```

```
Usage: Please only input integers.
```

```
Program Completed.
```

```
Please enter the length of both the arrays: 5
```

```
Please enter 5 elements for the array:
```

```
7 5 3 8 2
```

```
Please enter 5 elements for the array:
```

```
12 32 1 2 0
```

```
The first input array is: [ 7 5 3 8 2 ]
```

```
The second input array is: [ 12 32 1 2 0 ]
```

```
The sorted first array is: [ 2 3 5 7 8 ]
```

```
The second array in reverse order is: [ 0 2 1 32 12 ]
```

```
In the first array, count of even numbers: 2 & count of odd numbers: 3
```

```
In the second array, count of even numbers: 4 & count of odd numbers: 1
```

```
The sum of the elements from the first array is 25 and second array is 47.
```

```
Program Completed.
```

```
Please enter the length of both the arrays: 7
Please enter 7 elements for the array:
20 30 20 44 87 1 0 89 90
Please enter 7 elements for the array:
12 10 35 4 31 65 45
The first input array is: [ 20 30 20 44 87 1 0 ]
The second input array is: [ 12 10 35 4 31 65 45 ]
The sorted first array is: [ 0 1 20 20 30 44 87 ]
The second array in reverse order is: [ 45 65 31 4 35 10 12 ]
In the first array, count of even numbers: 5 & count of odd numbers: 2
In the second array, count of even numbers: 3 & count of odd numbers: 4
The sum of the elements of the two arrays is 202.

Program Completed.
```

Please do not use API's from Array class. E.g. Arrays.toString() or Arrays.sort()

Mention sources + links of any references used.

Notes:

1. Pay careful attention to the print statements. They must match exactly to the outputs above. (pay attention to spacing, punctuation, etc.) If not, points will be deducted.
2. The program should always print 'Program Completed' before exiting.
3. Check your program to test if it works perfectly by changing the input array elements, including input other than integers.
4. Make sure that the **output produced is as directed in the instruction above.**
5. Save the file as LastnameFirstnameA2.java (Your own Last Name and First Name must be used.)
6. Give comments to increase code readability.
7. Mention the sources and add links if any, which were used to complete the assignment.
8. Submit the answer only in a .java format.