JAVA - J2EE Batch 2

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Assignment-3

3 Problem Statement - Rearrange the given sorted array

Given a sorted array of positive integers, rearrange the array alternately i.e first element should be maximum value, second minimum value, third second max, fourth second min and so on

This exercise contains a class named RearrangeArrayElements with the following methods:

```
+inputAcceptor() : void

        -Should accept inputs from the console
        -Should call inputArraySizeValidator method with given array size
        -Should call inputArrayValidator method with given input array
        -Should call displayResult method with null as argument based on
the validation         result
        -Should call computeRearrangedArray if inputs are valid
```

```
+inputArraySizeValidator(int) : boolean
        -Should accept input as int and validate it
        -Should return true if given input is valid otherwise false
```

```
+inputArrayValidator(int[]) : boolean
        -Should accept input as int array and check given array is sorted
or not
        -Should return true if given input is valid otherwise false
```

```
+computeRearrangedArray(int[]) : int[]
        -Should get int array as input and return rearranged array as
output
        -Should rearrange the given input array
```

```
+displayResult(int[]) : void
```

-Should accept int array as input and print it
-Should print "Give proper input" if given input array is null

3.1 EXAMPLE

Sample Input:71 2 3 4 5 6 7
Expected Output: 7 1 6 2 5 3 4

Sample Input:0
Expected Output:Give proper input

Sample Input:14
Expected Output:4

4 PROGRAM

Copy the program into Codelabs/Any of the IDE, complete the instructions as per problem statement

```
public class RearrangeArrayElements {
    public static void main(String[] args) {
    }

    //write logic to get inputs from user and send inputs for validation
    public void inputAcceptor() {
    }

    //write logic to validate the given array size is valid or not
    public boolean inputArraySizeValidator(int size) {
        return (Boolean) null;
    }

    //write logic to validate the given input array is sorted or not
    public boolean inputArrayValidator(int[] input) {
        return (Boolean) null;
    }

    //write logic to rearrange elements of array and return the result
array
    public int[] computeRearrangedArray(int[] inputArray) {
        return null;
    }

    //write logic to print the result
    public void displayResult(int[] outputArray) {
    }
}
```

→

```java
import java.util.Scanner;

public class RearrangeArrayElements {
    Run | Debug
    public static void main(String[] args) {
        new RearrangeArrayElements().inputAcceptor();
    }

    public void inputAcceptor() {
        Scanner scanner = new Scanner(System.in);

        System.out.println(x:"Enter the size of the array:");
        int size = scanner.nextInt();

        if (inputArraySizeValidator(size)) {
            int[] inputArray = new int[size];

            System.out.println(x:"Enter the sorted array elements:");
            for (int i = 0; i < size; i++) {
                inputArray[i] = scanner.nextInt();
            }

            if (inputArrayValidator(inputArray)) {
                int[] resultArray = computeRearrangedArray(inputArray);
                displayResult(resultArray);
            } else {
                System.out.println(x:"Give proper input");
            }
        } else {
            System.out.println(x:"Give proper input");
        }

        scanner.close();
    }

    public boolean inputArraySizeValidator(int size) {
        return size > 0;
```

```java
    }

    public boolean inputArrayValidator(int[] input) {
        if (input.length == 0) {
            return false;
        }

        for (int i = 0; i < input.length - 1; i++) {
            if (input[i] > input[i + 1]) {
                return false;
            }
        }
        return true;
    }
    public int[] computeRearrangedArray(int[] inputArray) {
        int[] resultArray = new int[inputArray.length];
        int left = 0;
        int right = inputArray.length - 1;
        int index = 0;
        while (left <= right) {
            resultArray[index++] = inputArray[right--];
            if (left <= right) {
                resultArray[index++] = inputArray[left++];
            }
        }
        return resultArray;
    }
    public void displayResult(int[] outputArray) {
        System.out.println(x:"Rearranged array:");
        for (int num : outputArray) {
            System.out.print(num + " ");
        }
    }
}
```

Input

```
7
1 2 3 4 5 6 7
```

Compile and Run

Output

```
Enter the size of the array:
Enter the sorted array elements:
Rearranged array:
7 1 6 2 5 3 4
```

Save Code

Input

```
0
```

Compile and Run

Output

```
Enter the size of the array:
Give proper input
```

Save Code

Input

```
1
4
```

Compile and Run

Output

```
Enter the sorted array elements:
Rearranged array:
4
```

Save Code