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Java Assignment 2

Odd Even Array

Shortest distance Between Neighbours

ArrayList to Array and Vice Versa

```

1  package Java.Assignments.Assignment2;
2
3  import java.util.ArrayList;
4  import java.util.Arrays;
5
6  public class MainClass {
7
8      public static void main(String[] args) {
9          InputClass input = new InputClass();
10
11          System.out.println("Enter number of inputs: ");
12          int numCount = input.intInput();
13
14          ArrayClass arr = new ArrayClass(numCount);
15
16          for (int i = 0; i < numCount; i++) {
17              int num = input.intInput();
18              arr.appendNums(num);
19              // if even
20              if(num%2 == 0){
21                  arr.appendEven(num);
22              }
23              // if odd
24              else{
25                  arr.appendOdd(num);
26              }
27          }
28
29          // print odd and even array
30          System.out.println("Even Array: " + Arrays.toString(arr.getEven()));
31          System.out.println("Odd Array: " + Arrays.toString(arr.getOdd()));
32
33          // print smallest neighboring distance
34          int dist[] = arr.findSmallestDistance();
35          System.out.println("Smallest dist is " + dist[0] + " at index " + dist[1]);
36
37          // array to arraylist
38          ArrayList<Integer> arrList = arr.arrayToArrayList(arr.getArr());
39          System.out.println("Array converted to Array list: " + arrList);
40
41          // arraylist to array
42          // Object arrPrimitive[] = arr.ArrayListToArray(arrList);
43          int arrPrimitive[] = arr.ArrayListToArray(arrList);
44          System.out.println("Array list converted to Primitive Array: " + Arrays.toString(arrPrimitive));
45
46          // dispose scanner class instance in InputClass object
47          input.disposeScanner();
48      }
49  }
50

```

```

1  package Java.Assignments.Assignment2;
2
3  import java.lang.Math;
4  import java.util.ArrayList;
5
6  public class ArrayClass {
7      private int[] even, odd, nums;
8      private int pos_even = 0, pos_odd = 0, pos_nums = 0;
9
10     // getters and constructor -----
11
12     public int[] getEven(){
13         return this.even;
14     }
15
16     public int[] getOdd(){
17         return this.odd;
18     }
19
20     public int[] getArr(){
21         return this.nums;
22     }
23
24     ArrayClass(int size){
25         this.even = new int[size];
26         this.odd = new int[size];
27         this.nums = new int[size];
28     }
29
30     // utility functions -----
31
32     // Append to even array
33     public void appendEven(int x){
34         this.even[this.pos_even] = x;
35         this.pos_even += 1;
36     }
37
38     // Append to odd array
39     public void appendOdd(int x){
40         this.odd[this.pos_odd] = x;
41         this.pos_odd += 1;
42     }
43
44     // append to universal array
45     public void appendNums(int x){
46         this.nums[this.pos_nums] = x;
47         this.pos_nums += 1;
48     }
49
50     // find smallest neighbouring distance implementation
51     public int[] findSmallestDistance(){
52         int arr[] = nums.clone();
53
54         int dist = Integer.MAX_VALUE;
55         int pos = 0;
56         for (int i = 0; i < arr.length - 1; i++) {
57             int diff = Math.abs(arr[i] - arr[i + 1]);
58             if(diff < dist){
59                 dist = diff;
60                 pos = i;
61             }
62         }
63
64         int res[] = {dist, pos};
65
66         return res;
67     }
68
69     // array to arrayList implementation
70     public ArrayList<Integer> arrayToArrayList(int arr[]){
71         ArrayList<Integer> arrList = new ArrayList<Integer>();
72
73         for (int i = 0; i < arr.length; i++) {
74             arrList.add(arr[i]);
75         }
76
77         return arrList;
78     }
79
80     // arrayList to array implementation
81     public int[] ArrayListToArray(ArrayList<Integer> arrList){
82         Object ObjArray[] = arrList.toArray();
83
84         int arr[] = new int[ObjArray.length];
85
86         for (int i = 0; i < ObjArray.length; i++) {
87             arr[i] = (int)ObjArray[i];
88         }
89
90         return arr;
91     }
92 }
93
94

```



```
1  package Java.Assignments.Assignment2;
2
3  import java.util.Scanner;
4
5  public class InputClass {
6
7      // static scanner instance for entire program
8      private static Scanner sc = new Scanner(System.in);
9
10     public void showSC_Hash(){
11         System.out.println(sc.hashCode());
12     }
13
14     public void disposeScanner(){
15         sc.close();
16     }
17
18     public int intInput(){
19         int num = sc.nextInt();
20         return num;
21     }
22
23     public double doubleInput(){
24         double num = sc.nextDouble();
25         return num;
26     }
27
28     public String strInput(){
29         String str = sc.next();
30         return str;
31     }
32 }
33
```

Output



```
1  Enter number of inputs:
2  7
3  Enter Number 1:
4  1
5  Enter Number 2:
6  6
7  Enter Number 3:
8  4
9  Enter Number 4:
10 3
11 Enter Number 5:
12 9
13 Enter Number 6:
14 2
15 Enter Number 7:
16 22
17 Even Array: [6, 4, 2, 22, 0, 0, 0]
18 Odd Array: [1, 3, 9, 0, 0, 0, 0]
19 Smallest dist is 1 at index 2
20 Array converted to Array list: [1, 6, 4, 3, 9, 2, 22]
21 Array list converted to Primitive Array: [1, 6, 4, 3, 9, 2, 22]
```

Github: <https://github.com/devilb2103/Sem-4/tree/main/Java/Assignments/Assignment2>