

PROGRAMMING IN JAVA LAB-1

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Batch-AIML A1

Program Description: Part1: Write a Java program that declares two arrays named 'even' and 'odd'. Accept numbers from the user and move them to respective arrays depending on whether they are even or odd.

Part2: Implement a java function that finds 2 neighbouring numbers in an array with the smallest distance to each. The function should return the index of the 1st number.

Part 3: Write a Java program to convert an array into ArrayList and vice versa.

//

// Create a Java Program that takes accepts numbers from users and stores them in two different arrays, odd and even.

import java.util.*;

import java.util.Scanner;

class Smallest_distance

{

static void smallest_distance()

{

int[] arr = new int[10];

Scanner sc = new Scanner(System.in);

System.out.println("Enter 10 numbers: ");

for (int i = 0; i < 10; i++) {

arr[i] = sc.nextInt();

}

int min = Integer.MAX_VALUE;

int minI=0,minJ=0;

for (int i = 0; i < 9; i++) {

int diff = arr[i+1] - arr[i];

if(diff < min){

min = diff;

minI = i;

```

        minJ = i+1;
    }
}

System.out.println("The smallest distance is between " + arr[minI] + " and " + arr[minJ]+ " and
the distance is " + min);

sc.close();
}
}

```

```

class Array_List{
    static void arraylist()
    {
        int[] array = new int[10];
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter 10 numbers: ");
        for(int l = 0; l < 10; l++)
        {
            int n = sc.nextInt();
            array[l] = n;
        }

        ArrayList<Integer> list = new ArrayList<Integer>();
        for(int l = 0; l < 10; l++){
            list.add(array[l]);
        }
        System.out.println(list);
        sc.close();
    }
}

```

```

public class ArrayEvenOdd
{
    public static void main(String[] args) {

```

```

System.out.println("1. Smallest distance between two numbers in an array");
System.out.println("2. Array to ArrayList");
System.out.println("3. Even and Odd numbers");
System.out.println("Enter your choice: ");
Scanner sc1 = new Scanner(System.in);
int choice = sc1.nextInt();
switch(choice)
{
    case 1:
        Smallest_distance.smallest_distance();
        break;
    case 2:
        Array_List.arraylist();
        break;
    case 3:
        // Create two arrays odd and even
        int[] odd = new int[10];
        int[] even = new int[10];

        Scanner sc = new Scanner(System.in);
        System.out.print("Enter numbers to classify, enter 'end' to stop: ");
        while(true)
        {
            String input = sc.nextLine();
            if(input.equals("end"))
            {
                break;
            }
            else
            {
                int num = Integer.parseInt(input);
                if(num%2 == 0)

```

```

        {
            for(int i=0; i<even.length; i++)
            {
                if(even[i] == 0)
                {
                    even[i] = num;
                    break;
                }
            }
        }
    else
    {
        for(int i=0; i<odd.length; i++)
        {
            if(odd[i] == 0)
            {
                odd[i] = num;
                break;
            }
        }
    }
}

sc.close();

// Print the arrays
System.out.println("Even numbers: ");
for(int i=0; i<even.length; i++)
{
    if(even[i] != 0)
    {
        System.out.print(even[i]+" ");
    }
}
}

```

```

        System.out.println();

        System.out.println("Odd numbers: ");

        for(int i=0; i<odd.length; i++)
        {
            if(odd[i] != 0)
            {
                System.out.print(odd[i]+" ");
            }
        }

        default:

            System.out.println("Invalid choice");

        }

        sc1.close();

    }

}

```

OUTPUT

```

C:\Users\nayye\OneDrive\Desktop\JAVA>java ArrayEvenOdd
1. Smallest distance between two numbers in an array
2. Array to ArrayList
3. Even and Odd numbers
Enter your choice:
1
Enter 10 numbers:
2
3
4
5
6
7
12
54
21
1
The smallest distance is between 54 and 21 and the distance is -33

```

```
C:\Users\nayye\OneDrive\Desktop\JAVA>java ArrayEvenOdd
1. Smallest distance between two numbers in an array
2. Array to ArrayList
3. Even and Odd numbers
Enter your choice:
2
Enter 10 numbers:
1
23
3
4
5
6
7
8
9
12
[1, 23, 3, 4, 5, 6, 7, 8, 9, 12]
```

```
C:\Users\nayye\OneDrive\Desktop\JAVA>java ArrayEvenOdd
1. Smallest distance between two numbers in an array
2. Array to ArrayList
3. Even and Odd numbers
Enter your choice:
3
Enter numbers to classify, enter 'end' to stop: 12
13
14
15
16
17
end
Even numbers:
12 14 16
Odd numbers:
13 15 17 Invalid choice
```

GITHUB LINK: <https://github.com/aadarsh1810/JAVA-SEM-4/tree/main/Assignment-2>