PROGRAMMING IN JAVA LAB-1

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Batch-AIML A2

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

```
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
```

```
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]
```

```
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/Bhavyadashottar18/Java-Sem4/tree/main/Assignment2