ASSIGNMENT 2

PIJ LAB

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BATCH: AIML A1

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 neighboring 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.

CODE:

```
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:
1 2 3 4 5 6 7 8 9 10
The smallest distance is between 1 and 2 and the distance is 1

Process finished with exit code 0
```

```
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 2 3 4 5 6 7 8 9 10
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Process finished with exit code 0
```

```
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: 20
19
10
5
end
Even numbers:
20 10
Odd numbers:
19 5 Invalid choice

Process finished with exit code 0
```

GITHUB LINK: https://github.com/akhilrastogi10/java-sem-4.git