PIJ Assignement 2

Name: Parth Singh
PRN: 21070126062
Batch: AIML A3

1. Main.java

```
// Name - Parth Singh
// PRN - 21070126062
// Division - AIML A3


package Assignment2;

import java.util.ArrayList;
import java.util.Arrays;
import java.util.Scanner;

public class Main {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        UserInput userInput = new UserInput();
        Functions functions = new Functions();
        ArrayList<Integer> arrayList= new ArrayList<>();



        System.out.println("Enter the number of elements you want in the
array");
        int sizeOfArray = scanner.nextInt();
        int[] array = new int[sizeOfArray];
```

```
        int evenArray[] = new int[5];
        int oddArray[] = new int[5];

        array = userInput.inputArray(array);
        System.out.println(Arrays.toString(array));


        // Splitting the array into odd and even -


        functions.splitOddEven(evenArray,oddArray,sizeOfArray);
        System.out.println(Arrays.toString(evenArray));
        System.out.println(Arrays.toString(oddArray));

        System.out.println("The first index where the distance between the two
neighboring elements is minimun is" +
        functions.returnIndex(array));

        functions.ArrayToList_ListToArray(array,arrayList);

    }
}
```

2. UserInput.java

```
package Assignment2;

import java.util.ArrayList;
import java.util.Scanner;

public class UserInput {
    Scanner scanner = new Scanner(System.in);

    // Function for taking array as an input from the user.
```

```
    int[] inputArray(int[] arr){
        for(int i=0; i< arr.length; i++){
            arr[i] = scanner.nextInt();
        }
        return arr;
    }


    // Function for taking an arrayList as an input from the user.
    ArrayList<Integer> inputArrayList(ArrayList<Integer> arrayList){
        System.out.println("Enter the size of the ArrayList");
        int length = scanner.nextInt();
        for(int i=0; i<length; i++){
            int ele = scanner.nextInt();
            arrayList.add(ele);
        }
        return arrayList;
    }
}
```

3. Functions.java

```
package Assignment2;

import java.util.Arrays;
import java.util.Scanner;
import java.util.ArrayList;


public class Functions {
    // Creating the object of the scanner class for taking the input from the
user
    Scanner scanner = new Scanner(System.in);
    UserInput userInput = new UserInput();
```

```java
// Function that takes an array as an input and splits it into two arrays
// odd and even the odd array contains all the odd elements and
// the even array contains all the even element
void splitOddEven(int[] oddArray, int[] evenArray, int lengthOfArray) {
    int evenCount = 0;
    int oddCount = 0;
    for (int i = 0; i < lengthOfArray; i++) {

        int oddOrEven = scanner.nextInt();
        if (oddOrEven % 2 == 0) {
            evenArray[evenCount] = oddOrEven;
            evenCount += 1;
        } else {
            oddArray[oddCount] = oddOrEven;
            oddCount += 1;
        }
    }
}

// Function for finding 2 neighboring numbers in an
//array with the smallest distance to each. The function returns
//the index of the 1st number.
int returnIndex(int[] array) {

    Arrays.sort(array);
    int index = 0;
    int min = Integer.MAX_VALUE;

    for (int i = 0; i < array.length - 1; i++) {
        int diffInValue = array[i + 1] - array[i];
        if (diffInValue < min) {
            min = diffInValue;
```

```
                index = i;
            }
        }
        return index;
    }

        // Function to convert an array into ArrayList
        public ArrayList<Integer> arrayToArrayList(int[] arr) {
            ArrayList<Integer> list = new ArrayList<>();
            for (int i = 0; i < arr.length; i++) {
                list.add(arr[i]);
            }
            return list;
        }

        // Function to convert ArrayList into array
        public  int[] arrayListToArray(ArrayList<Integer> list) {
            int[] array = new int[5];
            int[] arr = userInput.inputArray(array);
            for (int i = 0; i < list.size(); i++) {
                arr[i] = list.get(i);
            }
            return arr;
        }

        // Function implementing a switch case for calling the two functions
when they are required
        void ArrayToList_ListToArray(int[] arr, ArrayList<Integer> arrayList){
            System.out.println("1. Convert array to arraylist");
            System.out.println("2. Convert arraylist to array");
            int choice = 0;
            System.out.println("Enter your chocie");
            choice = scanner.nextInt();
            switch (choice){
```

```
                case 1:
                    arrayList = arrayToArrayList(arr);
                    System.out.println(arrayList);
                    break;
                case 2:
                    arr = arrayListToArray(arrayList);
                    System.out.println(Arrays.toString(arr));
                    break;
            }
        }
}
```

Github Link –

https://github.com/ParthSingh2908/Assignment-2.git