CODE:

// Name: Arjun Tyagi

// PRN: 21070126020

// Batch: AIML-A1

/*

ASSIGNMENT 2

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.*/

```java
package com.College;

import java.util.Scanner;

import java.util.ArrayList;

public class Assignment_2 {

public static void main(String arg[])

{

even_odd obj1 = new even_odd();

obj1.accept();

obj1.display();

distance obj2 = new distance();

obj2.smallest_distance();

convert obj3 = new convert();

obj3.array_list();

obj3.array_list_2();

}

}
```

```java
class even_odd
{
int even[] = new int[10];

int odd[] = new int[10];

int i, j, k;

void accept()
{
Scanner obj = new Scanner(System.in);

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

for(i = 0; i < 10; i++)
{
System.out.print("Enter a number: ");

int a = obj.nextInt();

if(a % 2 == 0)
{
even[j] = a;

j++;
}
else
{
odd[k] = a;

k++;
}
}
System.out.println("\n");
}
void display()
```

```java
{
System.out.println("Even numbers: ");

for(i = 0; i < j; i++)

{
System.out.println(even[i]);

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

for(i = 0; i < k; i++)

{
System.out.println(odd[i]);

}
System.out.println("\n");

}
}
class distance
{
void smallest_distance() {

Scanner obj = new Scanner(System.in);

int a[] = new int[10];

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

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

System.out.print("Enter a number: ");

a[i] = obj.nextInt();

}
int i, j, min = 1000, index1 = 0, index2 = 0;

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

for (j = i + 1; j < 10; j++) {
```

```java
if (Math.abs(a[i] - a[j]) < min) {

min = Math.abs(a[i] - a[j]);

index1 = i;

index2 = j;

}

}

}

System.out.println("The 2 numbers with the smallest distance are: " + a[index1] + " and " + a[index2]);

System.out.println("The index of the first number is: " + index1);

System.out.println("\n");

}

}

class convert

{

void array_list()

{

System.out.println("Converting array to array list");

int a[] = {1, 2, 3, 4, 5};

ArrayList<Integer> ar = new ArrayList<Integer>();

for(int i = 0; i < a.length; i++)

{

ar.add(a[i]);

}

System.out.println("Array list: "+ ar);

System.out.println("\n");

}

void array_list_2()
```

```java
{
//array list into array

ArrayList<Integer> ar = new ArrayList<Integer>();

for (int i= 0 ; i < 5; i++)

{

ar.add(i);

}

int a[] = new int[ar.size()];

for (int i = 0; i < ar.size(); i++)

{

a[i] = ar.get(i);

}

System.out.println("Converting array list to array");

System.out.println("Array: " );

for (int i = 0; i < a.length; i++)

{

System.out.print(a[i] + " ");

}

}

}
```

OUTPUT:

Enter 10 numbers:

Enter a number: 3

Enter a number: 4

Enter a number: 7

Enter a number: 99

Enter a number: 67

Enter a number: 46

Enter a number: 98

Enter a number: 23

Enter a number: 12

Enter a number: 19

Even numbers:

4

46

98

12

Odd numbers:

3

7

99

67

23

19

Enter 10 numbers:

Enter a number: 2

Enter a number: 13

Enter a number: 56

Enter a number: 89

Enter a number: 12

Enter a number: 11

Enter a number: 54

Enter a number: 32

Enter a number: 99

Enter a number: 108

The 2 numbers with the smallest distance are: 13 and 12

The index of the first number is: 1

Converting array to array list

Array list: [5,6,7,8,9]

Converting array list to array

Array:

5 6 7 8 9

GITHUB REPOSITORY LINK

https://github.com/arjuntyagi19/java_assignment/tree/main/Assignments