

JAVA ASSIGNMENT

ANVESHA RAIKWAR

21070126017

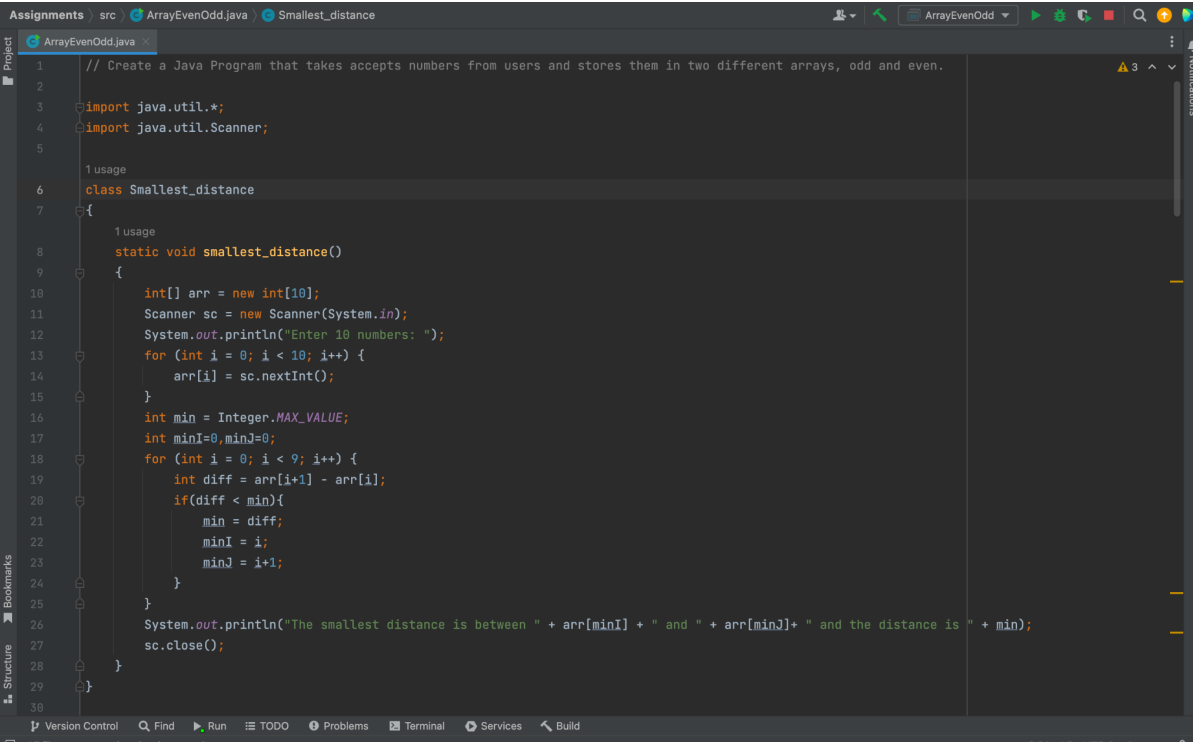
AIML A1

QUESTION:-

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.



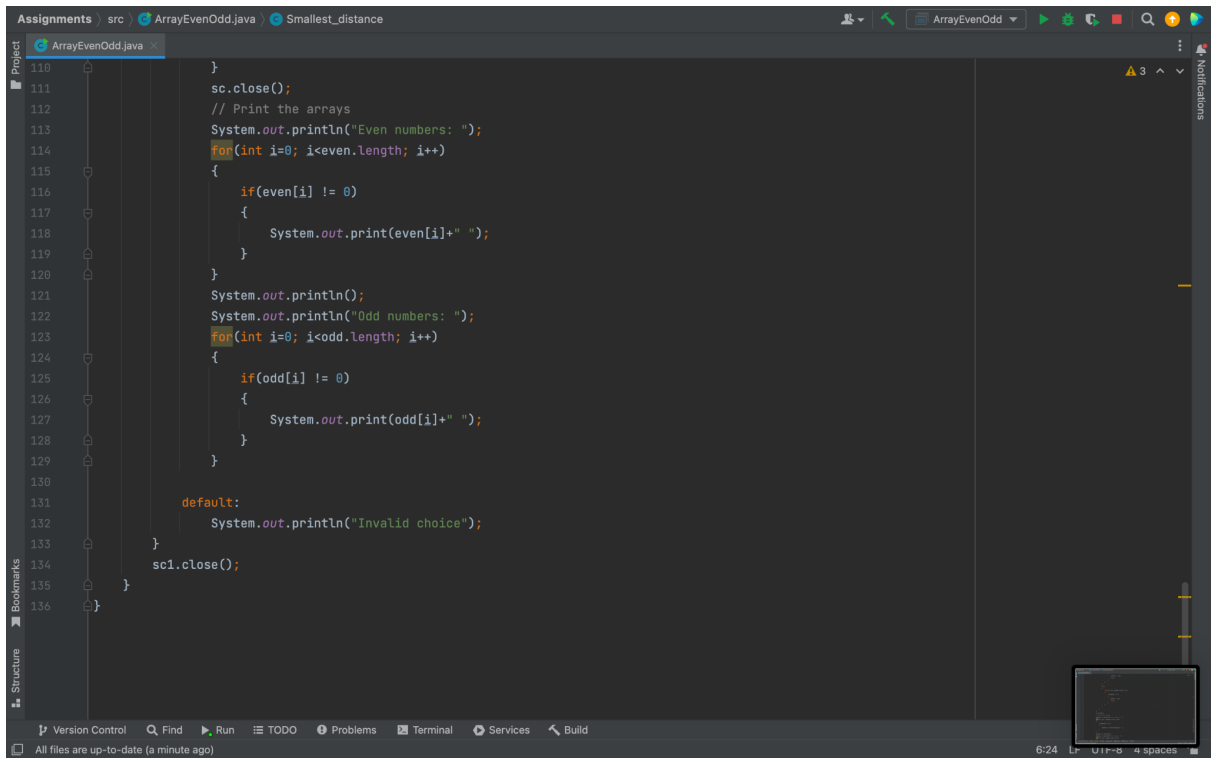
```
1 // Create a Java Program that takes accepts numbers from users and stores them in two different arrays, odd and even.
2
3 import java.util.*;
4 import java.util.Scanner;
5
6 class Smallest_distance
7 {
8     1 usage
9     static void smallest_distance()
10    {
11        int[] arr = new int[10];
12        Scanner sc = new Scanner(System.in);
13        System.out.println("Enter 10 numbers: ");
14        for (int i = 0; i < 10; i++) {
15            arr[i] = sc.nextInt();
16        }
17        int min = Integer.MAX_VALUE;
18        int minI=0,minJ=0;
19        for (int i = 0; i < 9; i++) {
20            int diff = arr[i+1] - arr[i];
21            if(diff < min){
22                min = diff;
23                minI = i;
24                minJ = i+1;
25            }
26        }
27        System.out.println("The smallest distance is between " + arr[minI] + " and " + arr[minJ]+ " and the distance is " + min);
28        sc.close();
29    }
30 }
```

The screenshot shows an IDE with a Java file named 'Smallest_distance.java'. The code implements a static method 'smallest_distance()' that prompts the user to enter 10 numbers, stores them in an array, and then iterates through the array to find the minimum difference between adjacent elements. The indices of the elements with the minimum difference are stored in 'minI' and 'minJ', and the minimum difference is stored in 'min'. Finally, the result is printed to the console.

```
Assignments / src / ArrayEvenOdd.java / Smallest_distance
ArrayEvenOdd.java x
Project
31 class ArrayList{
32     1 usage
33     static void arraylist()
34     {
35         int[] array = new int[10];
36         Scanner sc = new Scanner(System.in);
37         System.out.println("Enter 10 numbers: ");
38         for(int l = 0; l < 10; l++){
39             {
40                 int n = sc.nextInt();
41                 array[l] = n;
42             }
43         }
44         ArrayList<Integer> list = new ArrayList<>();
45         for(int l = 0; l < 10; l++){
46             list.add(array[l]);
47         }
48         System.out.println(list);
49         sc.close();
50     }
51 }
52 public class ArrayEvenOdd
53 {
54     public static void main(String[] args) {
55
56         System.out.println("1. Smallest distance between two numbers in an array");
57         System.out.println("2. Array to ArrayList");
58         System.out.println("3. Even and Odd numbers");
59         System.out.println("Enter your choice: ");
60         Scanner sc1 = new Scanner(System.in);
61         int choice = sc1.nextInt();
62     }
63 }
Structure
Bookmarks
Version Control Find Run TODO Problems Terminal Services Build
All files are up-to-date (a minute ago) 6:24 LF UTF-8 4 spaces
```

```
Assignments  src  ArrayEvenOdd.java  Smallest_distance
Project  ArrayEvenOdd.java x
61      int choice = sc.nextInt();
62      switch(choice)
63      {
64          case 1:
65              Smallest_distance.smallest_distance();
66              break;
67          case 2:
68              Array_List.arrayList();
69              break;
70          case 3:
71              // Create two arrays odd and even
72              int[] odd = new int[10];
73              int[] even = new int[10];
74
75              Scanner sc = new Scanner(System.in);
76              System.out.print("Enter numbers to classify, enter 'end' to stop: ");
77              while(true)
78              {
79                  String input = sc.nextLine();
80                  if(input.equals("end"))
81                  {
82                      break;
83                  }
84                  else
85                  {
86                      int num = Integer.parseInt(input);
87                      if(num%2 == 0)
88                      {
89                          for(int i=0; i<even.length; i++)
90                          {
91                              if(even[i] == 0)
92                              {
```

```
Assignments  src  ArrayEvenOdd.java  Smallest_distance
Project  ArrayEvenOdd.java x
93                      even[i] = num;
94                      break;
95                  }
96              }
97          }
98          else
99          {
100              for(int i=0; i<odd.length; i++)
101              {
102                  if(odd[i] == 0)
103                  {
104                      odd[i] = num;
105                      break;
106                  }
107              }
108          }
109      }
110      sc.close();
111      // Print the arrays
112      System.out.println("Even numbers: ");
113      for(int i=0; i<even.length; i++)
114      {
115          if(even[i] != 0)
116          {
117              System.out.print(even[i]+" ");
118          }
119      }
120      System.out.println();
121      System.out.println("Odd numbers: ");
122      for(int i=0; i<odd.length; i++)
123      {
```



OUTPUT: -

```
Run: Calculator x ArrayEvenOdd x
/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
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
11
86
92
37
74
32
7
36
49
The smallest distance is between 74 and 36 and the distance is -38
Process finished with exit code 0
```

```
Run: Calculator x ArrayEvenOdd x
/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
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:
37
86
73
92
5
26
74
3
7
32
[37, 86, 73, 92, 5, 26, 74, 3, 7, 32]
Process finished with exit code 0
```

```
Run: Calculator x ArrayEvenOdd x
/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
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: 56
92
3
92
end
Even numbers:
56 92
Odd numbers:
13 3 Invalid choice
Process finished with exit code 0
```

GITHUB LINK:-

https://github.com/anvesha31/Java_assignments/blob/b20d007b37b15c1784d64346fa0571539d8a9d15/Assignment%202