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Assignment no 3

Q1 Create a project in Eclipse with a class named TVNetworkApplication with the main method. You will be using the HashMap and TreeSet classes. Use Exception handling in the below tasks to avoid runtime failure with the application.

1. In your main method, create a HashMap named networkMap that will store key,value pairs where **the key is a TV network name and the associated value is a TreeSet that contains television shows from that network**:

2. HashMap<______,______> networkMap = new HashMap<______,______>();

3. In a loop, ask the user for the name of a television show and then ask the user for the name of the TV network for that show. After you have the input values, find the network in the hash map. a. If the network is not in the hash map yet, create a tree set with the name of the television show in it, and then add the key, value pair (network, set with 1 show) to the hash map.

b. If the network is in the hash map, add the television show to the tree set for that network.

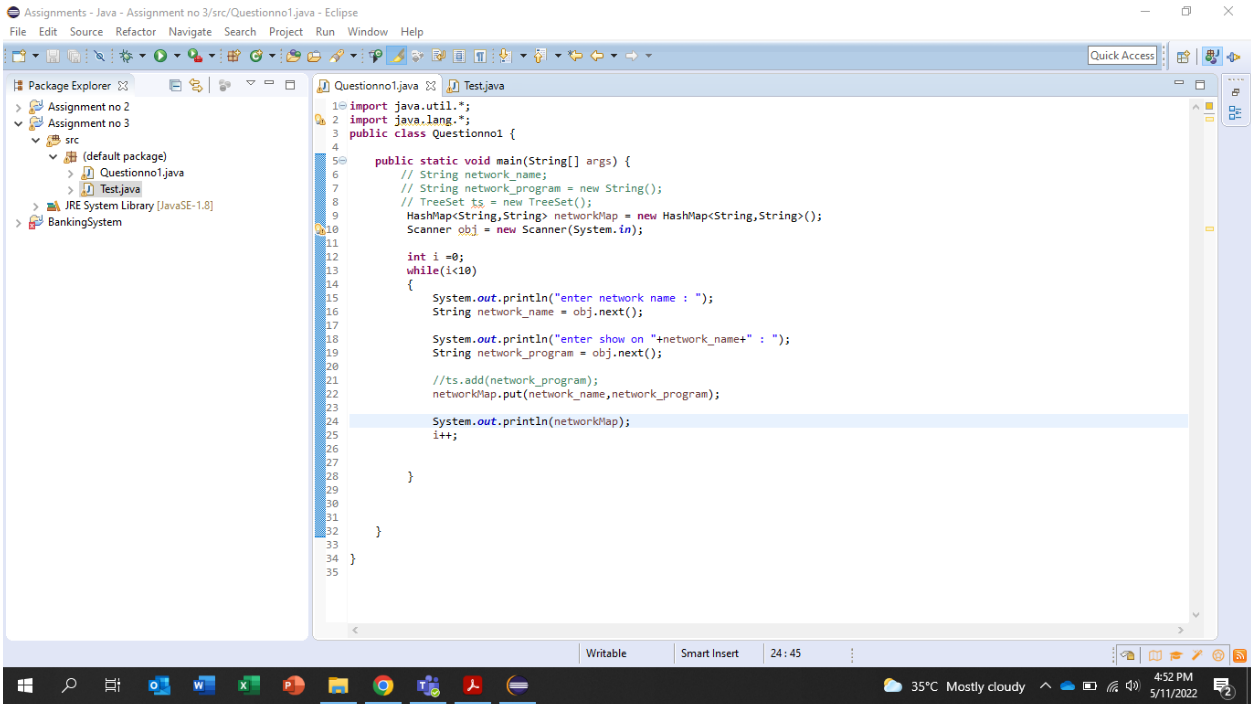
After you update the hash map, output the contents of the hash map (i.e. System.out.println(networkMap);). Repeat this until 10 shows have been entered.

Sample Output (note how the networks are not necessarily in lexicographic order, but the television shows for each network are in lexicographic order... why?):

```
Input tv network: FOX
Input tv show on FOX: The Simpsons
{FOX=[The Simpsons]}
Input tv network: NBC
Input tv show on NBC: ER
{FOX=[The Simpsons], NBC=[ER]}
Input tv network: ABC
Input tv show on ABC: 20/20
{FOX=[The Simpsons], NBC=[ER], ABC=[20/20]}
Input tv network: CBS
Input tv show on CBS: Survivor
{CBS=[Survivor], FOX=[The Simpsons], NBC=[ER], ABC=[20/20]}
Input tv network: ABC
Input tv show on ABC: Lost
{CBS=[Survivor], FOX=[The Simpsons], NBC=[ER], ABC=[20/20, Lost]}
Input tv network: FOX
Input tv show on FOX: Family Guy
{CBS=[Survivor], FOX=[Family Guy, The Simpsons], NBC=[ER], ABC=[20/20, Lost]}
```

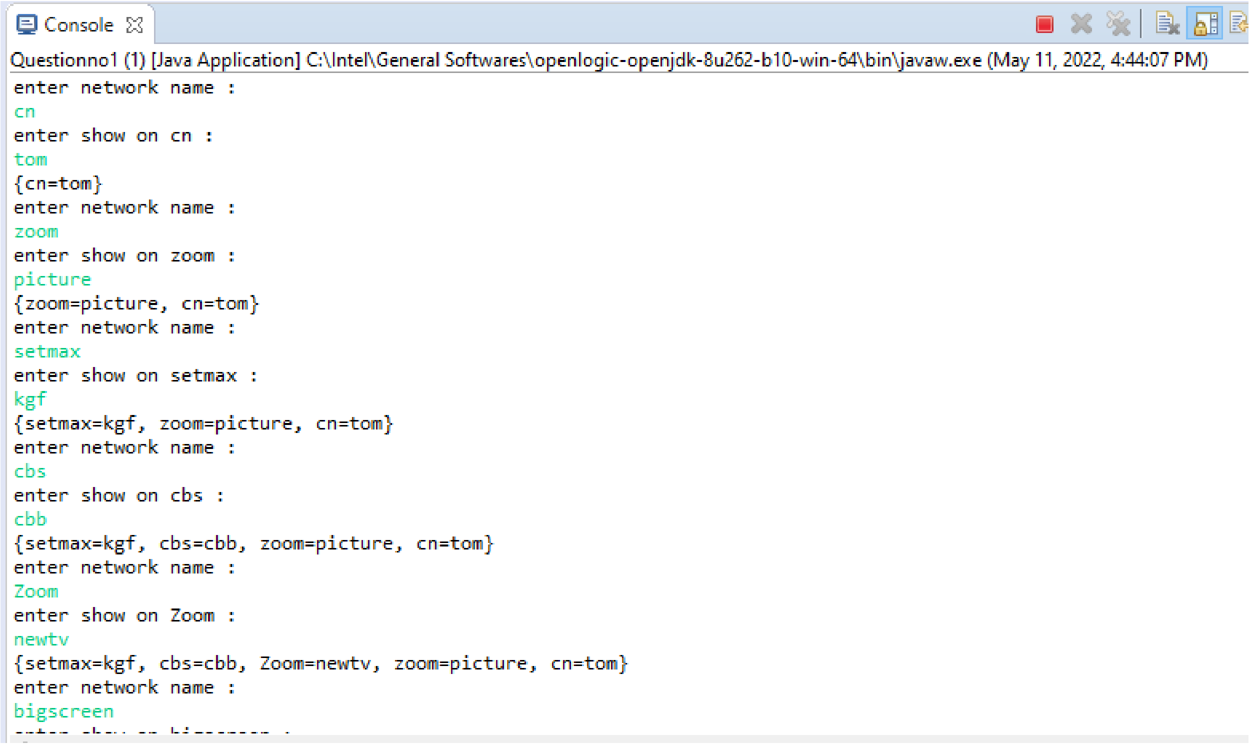
Input tv network: CBS
Input tv show on CBS: CSI
{CBS=[CSI, Survivor], FOX=[Family Guy, The Simpsons], NBC=[ER], ABC=[20/20, Lost]}
Input tv network: FOX
Input tv show on FOX: American Idol
{CBS=[CSI, Survivor], FOX=[American Idol, Family Guy, The Simpsons], NBC=[ER], ABC=[20/20, Lost]}
Input tv network: ABC
Input tv show on ABC: Desperate Housewives
{CBS=[CSI, Survivor], FOX=[American Idol, Family Guy, The Simpsons], NBC=[ER], ABC=[20/20, Desperate Housewives, Lost]}
Input tv network: NBC
Input tv show on NBC: Law And Order
{CBS=[CSI, Survivor], FOX=[American Idol, Family Guy, The Simpsons], NBC=[ER, Law And Order], ABC=[20/20, Desperate Housewives, Los

Code :-



```java
import java.util.*;
import java.lang.*;
public class Questionno1 {

    public static void main(String[] args) {
        // String network_name;
        // String network_program = new String();
        // TreeSet ts = new TreeSet();
         HashMap<String,String> networkMap = new HashMap<String,String>();
         Scanner obj = new Scanner(System.in);

         int i =0;
         while(i<10)
         {
             System.out.println("enter network name : ");
             String network_name = obj.next();

             System.out.println("enter show on "+network_name+" : ");
             String network_program = obj.next();

             //ts.add(network_program);
             networkMap.put(network_name,network_program);

             System.out.println(networkMap);
             i++;


         }



    }

}
```

Outputs



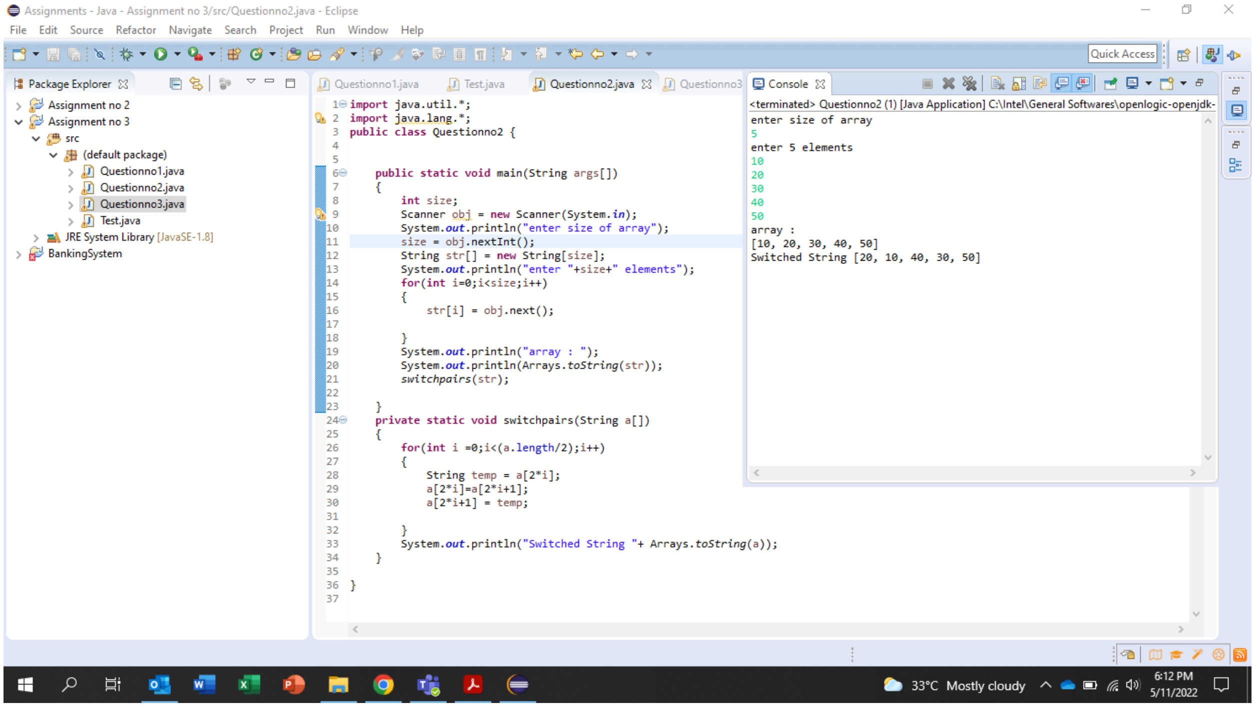
Questionno1 (1) [Java Application] C:\Intel\General Softwares\openlogic-openjdk-8u262-b10-win-64\bin\javaw.exe (May 11, 2022, 4:44:07 PM)

```
enter network name :
cn
enter show on cn :
tom
{cn=tom}
enter network name :
zoom
enter show on zoom :
picture
{zoom=picture, cn=tom}
enter network name :
setmax
enter show on setmax :
kgf
{setmax=kgf, zoom=picture, cn=tom}
enter network name :
cbs
enter show on cbs :
cbb
{setmax=kgf, cbs=cbb, zoom=picture, cn=tom}
enter network name :
Zoom
enter show on Zoom :
newtv
{setmax=kgf, cbs=cbb, Zoom=newtv, zoom=picture, cn=tom}
enter network name :
bigscreen
enter show on bigscreen :
```

Q2 ArrayList switch pairs

Write a method switch pairs that switches the order of values in an ArrayList of Strings in a pairwise fashion. Your method should switch the order of the first two values, then switch the order of the next two, switch the order of the next two, and so on. For example, if the list initially stores these values: {"four", "score", "and", "seven", "years", "ago"} your method should switch the first pair, "four", "score", the second pair, "and", "seven", and the third pair, "years", "ago", to yield this list: {"score", "four", "seven", "and", "ago", "years"} If there are an odd number of values in the list, the final element is not moved. For example, if the original list had been: {"to", "be", "or", "not", "to", "be", "hamlet"} It would again switch pairs of values, but the final value, "hamlet" would not be moved, yielding this list: {"be", "to", "not", "or", "be", "to", "haml

Code and Output



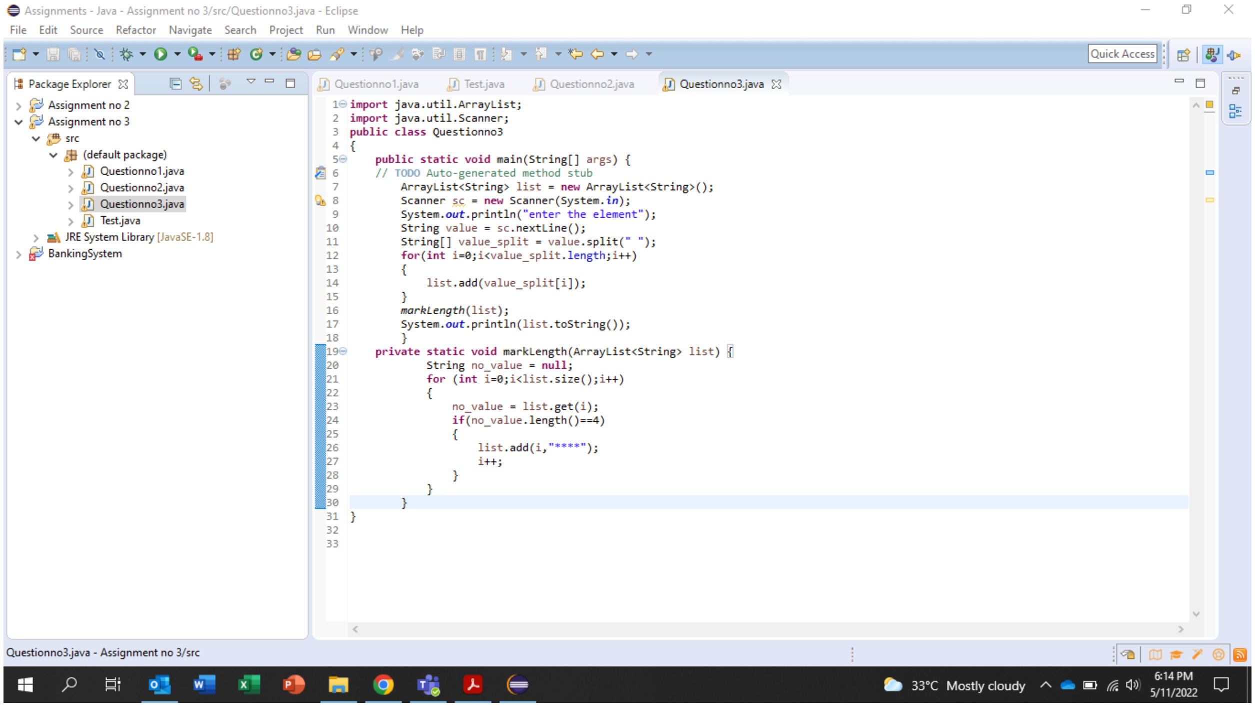
```java
import java.util.*;
import java.lang.*;
public class Questionno2 {


    public static void main(String args[])
    {
        int size;
        Scanner obj = new Scanner(System.in);
        System.out.println("enter size of array");
        size = obj.nextInt();
        String str[] = new String[size];
        System.out.println("enter "+size+" elements");
        for(int i=0;i<size;i++)
        {
            str[i] = obj.next();

        }
        System.out.println("array : ");
        System.out.println(Arrays.toString(str));
        switchpairs(str);

    }
    private static void switchpairs(String a[])
    {
        for(int i =0;i<(a.length/2);i++)
        {
            String temp = a[2*i];
            a[2*i]=a[2*i+1];
            a[2*i+1] = temp;

        }
        System.out.println("Switched String "+ Arrays.toString(a));
    }

}
```

```
<terminated> Questionno2 (1) [Java Application] C:\Intel\General Softwares\openlogic-openjdk-
enter size of array
5
enter 5 elements
10
20
30
40
50
array :
[10, 20, 30, 40, 50]
Switched String [20, 10, 40, 30, 50]
```

Q3 Array List markLength4

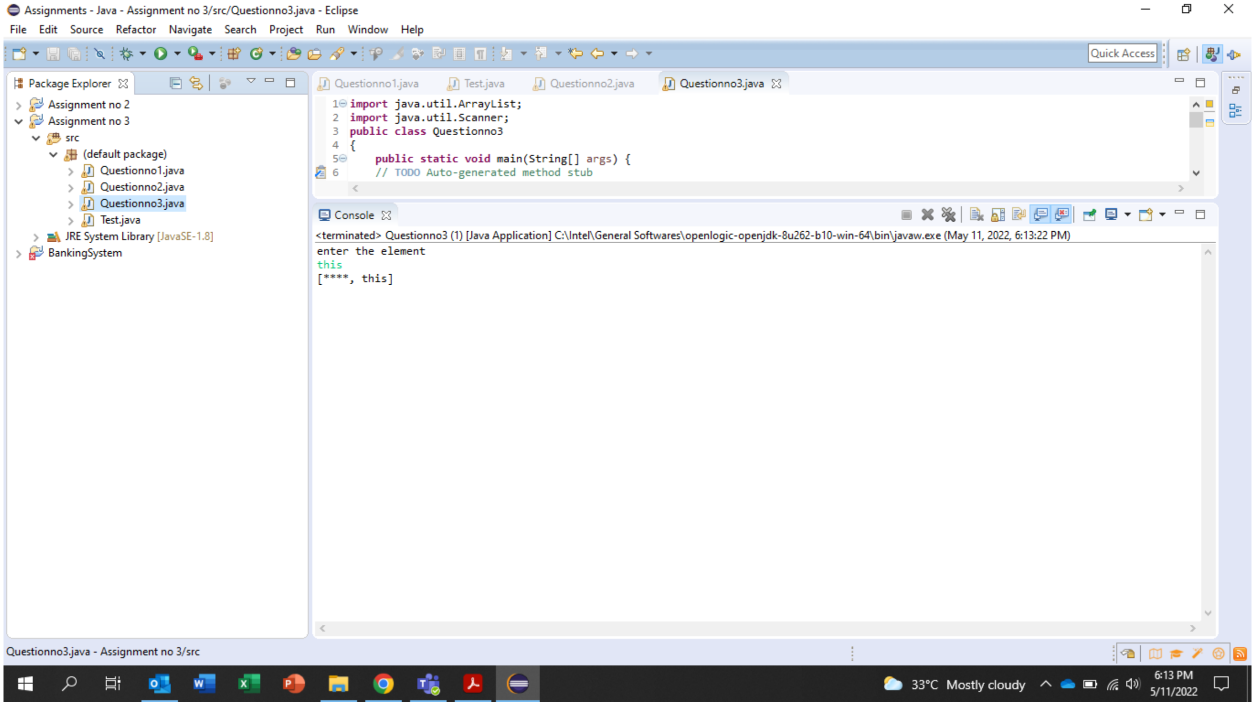
Write a method markLength4 that takes an Array List of Strings as a parameter and that places a string of four asterisks "****" in front of every string of length 4. For example, suppose that a variable called list contains the following values: {"this", "is", "lots", "of", "fun", "for", "every", "Java", "programmer"} And you make the following call: markLength4(list); then list should store the following values after the call: {"****", "this", "is", "****", "lots", "of", "fun", "for", "every", "****", "Java", "programmer"} Notice that you leave the original strings in the list, "this", "lots", "Java", but include the fourasterisk string in front of each to mark it

Code:-



```java
import java.util.ArrayList;
import java.util.Scanner;
public class Questionno3
{
    public static void main(String[] args) {
    // TODO Auto-generated method stub
        ArrayList<String> list = new ArrayList<String>();
        Scanner sc = new Scanner(System.in);
        System.out.println("enter the element");
        String value = sc.nextLine();
        String[] value_split = value.split(" ");
        for(int i=0;i<value_split.length;i++)
        {
            list.add(value_split[i]);
        }
        markLength(list);
        System.out.println(list.toString());
        }
    private static void markLength(ArrayList<String> list) {
            String no_value = null;
            for (int i=0;i<list.size();i++)
            {
                no_value = list.get(i);
                if(no_value.length()==4)
                {
                    list.add(i,"****");
                    i++;
                }
            }
        }
}
```

Outputs



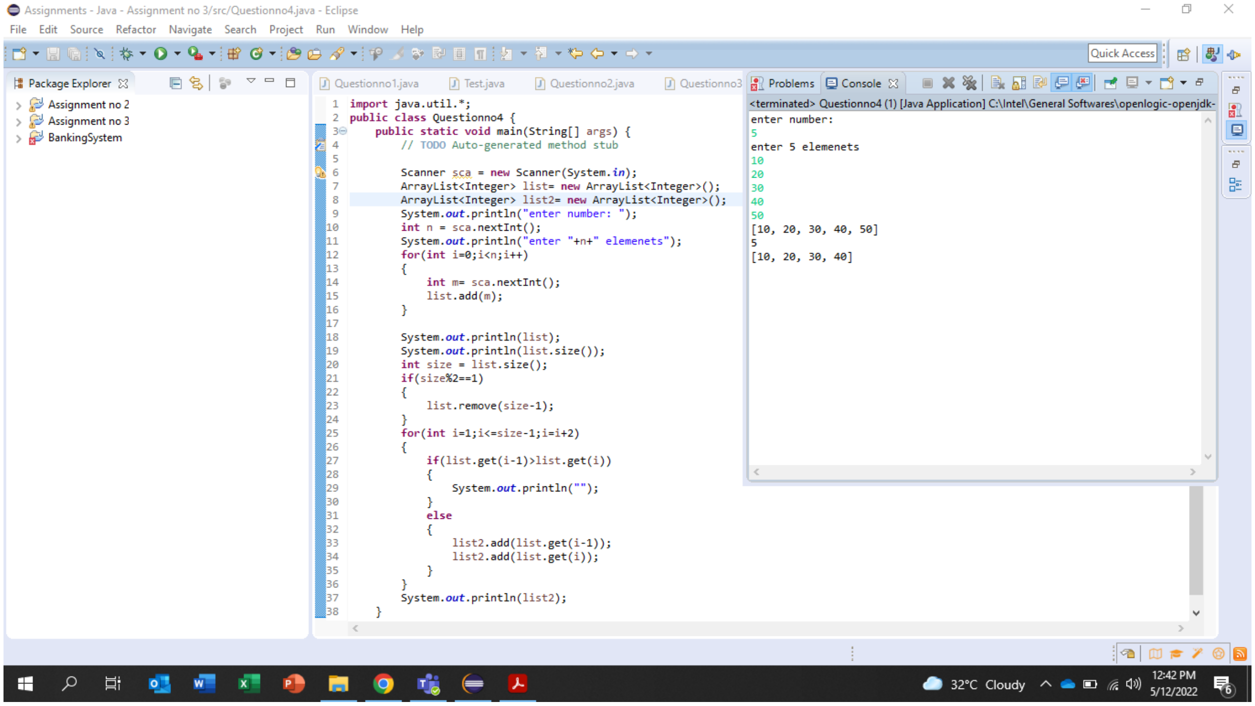
```java
import java.util.ArrayList;
import java.util.Scanner;
public class Questionno3
{
    public static void main(String[] args) {
    // TODO Auto-generated method stub
```

```
<terminated> Questionno3 (1) [Java Application] C:\Intel\General Softwares\openlogic-openjdk-8u262-b10-win-64\bin\javaw.exe (May 11, 2022, 6:13:22 PM)
enter the element
this
[****, this]
```

Q 4 ArrayListremoveBadPairs

Write a method removeBadPairs that accepts an ArrayList of integers and removes any adjacent pair of integers in the list if the left element of the pair is larger than the right element of the pair. Every pair's left element is an even-numbered index in the list, and every pair's right element is an odd index in the list. For example, suppose a variable called list stores the following element values: [3, 7, 9, 2, 5, 5, 8, 5, 6, 3, 4, 7, 3, 1] We can think of this list as a sequence of pairs: (3, 7), (9, 2), (5, 5), (8, 5), (6, 3), (4, 7), (3, 1). The pairs (9, 2), (8, 5), (6, 3), and (3, 1) are "bad" because the left element is larger than the right one, so these pairs should be removed. So the call of removeBadPairs(list); would change the list to store the following element values: [3, 7, 5, 5, 4, 7] If the list has an odd length, the last element is not part of a pair and is also considered "bad;" it should therefore be removed by your method. If an empty list is passed in, the list should still be empty at the end of the call. You may assume that the list passed is not null. You may not use any other arrays, lists, or other data structures to help you solve this problem, though you can create as many simple variables as you like

Code and output



```
import java.util.*;
public class Questionno4 {
    public static void main(String[] args) {
        // TODO Auto-generated method stub

        Scanner sca = new Scanner(System.in);
        ArrayList<Integer> list= new ArrayList<Integer>();
        ArrayList<Integer> list2= new ArrayList<Integer>();
        System.out.println("enter number: ");
        int n = sca.nextInt();
        System.out.println("enter "+n+" elemenets");
        for(int i=0;i<n;i++)
        {
            int m= sca.nextInt();
            list.add(m);
        }

        System.out.println(list);
        System.out.println(list.size());
        int size = list.size();
        if(size%2==1)
        {
            list.remove(size-1);
        }
        for(int i=1;i<=size-1;i=i+2)
        {
            if(list.get(i-1)>list.get(i))
            {
                System.out.println("");
            }
            else
            {
                list2.add(list.get(i-1));
                list2.add(list.get(i));
            }
        }
        System.out.println(list2);
    }
```

```
<terminated> Questionno4 (1) [Java Application] C:\Intel\General Softwares\openlogic-openjdk-
enter number:
5
enter 5 elemenets
10
20
30
40
50
[10, 20, 30, 40, 50]
5
[10, 20, 30, 40]
```