Rajalakshmi Engineering College

Name: Sunetra B
Email: 241801282@rajalakshmi.edu.in
Roll no: 241801282
Phone: 9150958405
Branch: REC
Department: AI & DS - Section 5
Batch: 2028
Degree: B.E - AI & DS

Scan to verify results

2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 10_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : COD

1. Problem Statement

Priya is analyzing encrypted messages in a research project. She wants to analyze the frequency of each character in a given paragraph. The characters should be stored in a TreeMap so that the output is sorted in ascending order of characters automatically.

You are required to build a Java program that:

Uses a TreeMap<Character, Integer> to count how many times each character appears in the message.Ignores spaces and considers only alphabets (case-sensitive).Outputs the frequencies of characters in sorted order.

You must use a TreeMap in the class named MessageAnalyzer.

Input Format

The first line of input contains an integer n, the number of lines in the message.

The next n lines each contain a string (the encrypted message line).

Output Format

The first line of output prints: "Character Frequency:"

Then print each character and its frequency in the format: "<character>: <count>"

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 2
Hello World
Java
Output: Character Frequency:
H: 1
J: 1
W: 1
a: 2
d: 1
e: 1
l: 3
o: 2
r: 1
v: 1

Answer

```
// You are using Java
import java.util.*;

class MessageAnalyzer {
    private TreeMap<Character, Integer> freqMap = new TreeMap<>();

    public void analyze(String line) {
        for (char ch : line.toCharArray()) {
            if (Character.isAlphabetic(ch)) {  // ignore spaces & only alphabets
                freqMap.put(ch, freqMap.getOrDefault(ch, 0) + 1);
            }
```

```
        }
    }

    public TreeMap<Character, Integer> getFrequencies() {
        return freqMap;
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        int n = Integer.parseInt(sc.nextLine());
        MessageAnalyzer analyzer = new MessageAnalyzer();

        for (int i = 0; i < n; i++) {
            String line = sc.nextLine();
            analyzer.analyze(line);
        }

        System.out.println("Character Frequency:");

        for (Map.Entry<Character, Integer> entry :
analyzer.getFrequencies().entrySet()) {
            System.out.print(entry.getKey() + ": " + entry.getValue() + " ");
        }
    }
}
```

Status : Correct **Marks : 10/10**

Rajalakshmi Engineering College

Name: Sunetra B
Email: 241801282@rajalakshmi.edu.in
Roll no: 241801282
Phone: 9150958405
Branch: REC
Department: AI & DS - Section 5
Batch: 2028
Degree: B.E - AI & DS

Scan to verify results

2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 10_Q2

Attempt : 1
Total Mark : 10
Marks Obtained : 9

Section 1 : COD

1. Problem Statement

John is organizing a fruit festival, and the quantities of various fruits are stored in a HashMap where fruit names are keys and quantities are values.

Help him develop a program to find the total quantity of fruits for the festival by summing up the values in the HashMap.

Input Format

The input consists of fruit quantities in the format 'fruitName:quantity', where fruitName is the name of the fruit(a string), and quantity is a double value representing the quantity.

The input is terminated by entering "done".

Output Format

The output prints a double value, representing the sum of values in the HashMap, rounded off to two decimal places.

If the value is not numeric, print "Invalid input".

If any special characters other than ':' are entered, print "Invalid format".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: Banana:15.2
Orange:56.3
Mango:47.3
done

Output: 118.80

Answer

```
import java.util.*;

public class Main {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      HashMap<String, Double> map = new HashMap<>();
      double total = 0.0;

      while (sc.hasNext()) {
         String input = sc.next();

         if (input.equals("done")) break;


         if (!input.contains(":") || input.indexOf(':') != input.lastIndexOf(':')) {
            System.out.println("Invalid format");
            return;
         }

         if (!input.matches("[A-Za-z]+:[0-9.]+")) {
            System.out.println("Invalid format");
            return;
```

```
        }

        String[] parts = input.split(":");

        String fruit = parts[0];
        String qtyStr = parts[1];

        double qty;

        try {
            qty = Double.parseDouble(qtyStr);
        } catch (Exception e) {
            System.out.println("Invalid input");
            return;
        }

        map.put(fruit, qty);
    }

    for (double value : map.values()) {
        total += value;
    }

    // Print result rounded to two decimals
    System.out.printf("%.2f", total);
  }
}
```

Status : Partially correct ***Marks : 9/10***

Rajalakshmi Engineering College

Name: Sunetra B
Email: 241801282@rajalakshmi.edu.in
Roll no: 241801282
Phone: 9150958405
Branch: REC
Department: AI & DS - Section 5
Batch: 2028
Degree: B.E - AI & DS

Scan to verify results

2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 9_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Assist Pranitha in developing a program that takes an integer N as input, representing the number of names to be read. Then read N names and store them in an ArrayList. Finally, input a search string and output the frequency of that string in the list of names.

Note: Some parts of the code are provided as snippets, and you need to complete the remaining sections by writing the necessary code.

Input Format

The first line of input consists of an integer N, representing the number of names to be read.

The following N lines consist of N names, as a string.

The last line consists of a string, representing the name to be searched.

Output Format

The output prints a single integer, representing the frequency of the specified name in the given list.

If the specified name is not found, print 0.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 5
Alice
Bob
Ankit
Alice
Pranitha
Alice

Output: 2

Answer

```
// You are using Java
import java.util.*;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        int N = sc.nextInt();
        ArrayList<String> names = new ArrayList<>();

        for (int i = 0; i < N; i++) {
            names.add(sc.next());
        }

        String searchName = sc.next();
        int frequency = 0;

        for (String name : names) {
```

```
            if (name.equals(searchName)) {
                frequency++;
            }
        }

        System.out.print(frequency);
    }
}
```

Status : Correct **Marks : 10/10**

Rajalakshmi Engineering College

Name: Sunetra B
Email: 241801282@rajalakshmi.edu.in
Roll no: 241801282
Phone: 9150958405
Branch: REC
Department: AI & DS - Section 5
Batch: 2028
Degree: B.E - AI & DS

Scan to verify results

2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 9_Q1

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Bobby is tasked with processing a sequence of numbers from a monitoring system. He needs to extract a strictly increasing subsequence using an ArrayList. The program should dynamically add numbers to the ArrayList only if they are greater than the last number currently stored in the list. Bobby aims to efficiently utilize the dynamic resizing and indexing features of the ArrayList to solve this problem.

Help Bobby implement this solution.

Input Format

The first line of input consists of an integer N, representing the number of elements.

The second line consists of N space-separated integers, representing the elements.

Output Format

The output prints the list of integers in increasing sequence, ignoring out-of-order elements.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 7
3 5 9 1 11 7 13
Output: [3, 5, 9, 11, 13]

Answer

```
// You are using Java
import java.util.*;
public class Main{
   public static void main(String[] args){
      Scanner sc= new Scanner(System.in);
      int n=sc.nextInt();
      ArrayList<Integer> list=new ArrayList<>();
      for(int i=0;i<n;i++){
         int num=sc.nextInt();
         if(list.isEmpty() || num>list.get(list.size()-1)){
            list.add(num);
         }
      }
      System.out.println(list);
   }
}
```

Status : Correct ***Marks : 10/10***