Rajalakshmi Engineering College

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 10_Q3

Attempt : 1
Total Mark : 10
Marks Obtained : 0

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

```
import java.util.Map;
import java.util.Scanner;
import java.util.TreeMap;

class FruitFestivalTotal {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      Map<String, Double> fruitMap = new TreeMap<>();
      double total = 0.0;

      while (sc.hasNextLine()) {
```

```
        String line = sc.nextLine().trim();
        if (line.equals("done")) {
            System.out.printf("%.2f%n", total);
            return;
        }

        // Must contain exactly one ':'
        int colonCount = countChar(line, ':');
        if (colonCount != 1) {
            System.out.println("Invalid format");
            return;
        }

        String[] parts = line.split(":", -1);
        if (parts.length != 2) {
            System.out.println("Invalid format");
            return;
        }

        String fruitName = parts[0];
        String quantityStr = parts[1];

        // fruitName: only letters, length 1–20
        if (fruitName.isEmpty() || fruitName.length() > 20 || !
fruitName.matches("[A-Za-z]+")) {
            System.out.println("Invalid format");
            return;
        }

        // quantity: numeric double (digits with optional decimal), in range 1.0–
100.0
        if (!quantityStr.matches("\\d+(\\.\\d+)?")) {
            System.out.println("Invalid input");
            return;
        }

        double qty;
        try {
            qty = Double.parseDouble(quantityStr);
        } catch (NumberFormatException e) {
            System.out.println("Invalid input");
            return;
```

```
            }

            if (qty < 1.0 || qty > 100.0) {
                System.out.println("Invalid input");
                return;
            }

            fruitMap.put(fruitName, qty);
            total += qty;
        }
    }

    private static int countChar(String s, char c) {
        int count = 0;
        for (int i = 0; i < s.length(); i++) {
            if (s.charAt(i) == c) count++;
        }
        return count;
    }
}
```

Status : Wrong **Marks : 0/10**