

# 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 : 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.Scanner;
import java.util.TreeMap;
import java.util.Map;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        if (!scanner.hasNextInt()) {
            scanner.close();
            return;
        }
        int n = scanner.nextInt();
        scanner.nextLine();
        TreeMap<Character, Integer> map = new TreeMap<Character, Integer>();
        for (int i = 0; i < n; i++) {
            String line = scanner.nextLine();
            for (char c : line.toCharArray()) {
                if (map.containsKey(c)) {
                    map.put(c, map.get(c) + 1);
                } else {
                    map.put(c, 1);
                }
            }
        }
        for (Map.Entry<Character, Integer> entry : map.entrySet()) {
            System.out.println(entry.getKey() + ":" + entry.getValue());
        }
    }
}
```

```
        }
        int n = scanner.nextInt();
        scanner.nextLine();
        Map<Character, Integer> charFrequencies = new TreeMap<>();
        for (int i = 0; i < n; i++) {
            if (!scanner.hasNextLine()) break;
            String line = scanner.nextLine();
            for (char c : line.toCharArray()) {
                if (Character.isLetter(c)) {
                    charFrequencies.put(c, charFrequencies.getOrDefault(c, 0) + 1);
                }
            }
        }
        System.out.println("Character Frequency:");
        for (Map.Entry<Character, Integer> entry : charFrequencies.entrySet()) {
            System.out.println(entry.getKey() + ":" + entry.getValue());
        }
        scanner.close();
    }
}
```

**Status :** Correct

**Marks :** 10/10