

# 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();
    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