

# 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.*;

class MessageAnalyzer {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        sc.nextLine(); // to consume the newline

        TreeMap<Character, Integer> map = new TreeMap<>();
```

```
for (int i = 0; i < n; i++) {  
    String line = sc.nextLine();  
  
    for (int j = 0; j < line.length(); j++) {  
        char ch = line.charAt(j);  
        if (ch != ' ' && Character.isLetter(ch)) {  
            map.put(ch, map.getOrDefault(ch, 0) + 1);  
        }  
    }  
}  
  
System.out.println("Character Frequency:");  
for (char c : map.keySet()) {  
    System.out.println(c + ":" + map.get(c));  
}  
}
```

**Status :** Correct

**Marks :** 10/10