

# Rajalakshmi Engineering College

Name: Muthu Sri ram

Email: 241801174@rajalakshmi.edu.in

Roll no: 241801174

Phone: 9840740245

Branch: REC

Department: AI & DS - Section 1

Batch: 2028

Degree: B.E - AI & DS

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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**

```
import java.util.*;
```

```
class MessageAnalyzer {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        TreeMap<Character, Integer> map = new TreeMap<>();
```

```
        int n = sc.nextInt();  
        sc.nextLine(); // Consume newline
```

```
        for (int i = 0; i < n; i++) {
```

```
String line = sc.nextLine();

for (char ch : line.toCharArray()) {
    if (Character.isAlphabetic(ch)) {
        map.put(ch, map.getOrDefault(ch, 0) + 1);
    }
}

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

**Status :** Correct

**Marks :** 10/10