

# 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***

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

public class Main{
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        TreeMap<Character, Integer> charFrequency = new TreeMap<>();

        int n = Integer.parseInt(scanner.nextLine());
        for (int i = 0; i < n; i++) {
```

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

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

System.out.println("Character Frequency:");
for (char ch : charFrequency.keySet()) {
    System.out.println(ch + ": " + charFrequency.get(ch));
}
scanner.close();
}
```

**Status :** Correct

**Marks :** 10/10