

# Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE

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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);
        int n = sc.nextInt();
        sc.nextLine(); // consume 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 (Character.isLetter(ch)) { // consider only alphabets
        map.put(ch, map.getOrDefault(ch, 0) + 1);
    }
}
System.out.print("Character Frequency: ");
for (Map.Entry<Character, Integer> entry : map.entrySet()) {
    System.out.print(entry.getKey() + ":" + entry.getValue() + " ");
}
}
// You are using Java
// You are using Java
```

**Status :** Correct

**Marks :** 10/10