

# Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE (CS)

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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.*;  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        int n = Integer.parseInt(sc.nextLine());  
        TreeMap<Character, Integer> map = new TreeMap<>();  
        for (int i = 0; i < n; i++) {  
            String line = sc.nextLine();  
            for (char ch : line.toCharArray()) {  
                if (Character.isLetter(ch)) {  
                    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());  
            if (entry != map.entrySet().lastEntry()) {  
                System.out.print(" ");  
            }  
        }  
    }  
}
```

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

**Status :** Correct

**Marks :** 10/10