

Rajalakshmi Engineering College

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Department: AI & DS - Section 2

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

```
    public void addLine(String line) {  
        for (char c : line.toCharArray()) {  
            if (Character.isAlphabetic(c)) {  
                map.put(c, map.getDefault(c, 0) + 1);  
            }  
        }  
    }  
}
```

```

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

class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        sc.nextLine();

        MessageAnalyzer analyzer = new MessageAnalyzer();

        for (int i = 0; i < n; i++) {
            String line = sc.nextLine();
            analyzer.addLine(line);
        }

        analyzer.printFrequency();
    }
}

```

Status : Correct

Marks : 10/10