

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

```
// You are using Java
import java.util.*;

class MessageAnalyzer {
    TreeMap<Character, Integer> charFrequency = new TreeMap<>();

    public void addMessage(String message) {
        for (char c : message.toCharArray()) {
            if (Character.isLetter(c)) { // consider only alphabets
                charFrequency.put(c, charFrequency.getOrDefault(c, 0) + 1);
            }
        }
    }
}
```

```
        }  
  
    public void displayFrequency() {  
        System.out.println("Character Frequency:");  
        for (Map.Entry<Character, Integer> entry : charFrequency.entrySet()) {  
            System.out.print(entry.getKey() + ":" + entry.getValue() + " ");  
        }  
    }  
  
    public class Main {  
        public static void main(String[] args) {  
            Scanner sc = new Scanner(System.in);  
            int n = sc.nextInt();  
            sc.nextLine(); // consume newline  
  
            MessageAnalyzer analyzer = new MessageAnalyzer();  
  
            for (int i = 0; i < n; i++) {  
                String line = sc.nextLine();  
                analyzer.addMessage(line);  
            }  
  
            analyzer.displayFrequency();  
        }  
    }  
}
```

Status : Correct

Marks : 10/10