Rajalakshmi Engineering College

Name: Nikhil Vinayak P
Email: 240701359@rajalakshmi.edu.in
Roll no: 240701359
Phone: 9884558531
Branch: REC
Department: CSE - Section 5
Batch: 2028
Degree: B.E - CSE

Scan to verify results

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 {
    private TreeMap<Character, Integer> freqMap = new TreeMap<>();
    public void analyzeMessage(List<String> lines) {
        for (String line : lines) {
            for (char c : line.toCharArray()) {
                if (Character.isAlphabetic(c)) {
                    freqMap.put(c, freqMap.getOrDefault(c, 0) + 1);
                }
            }
```

```
        }
    }
    public void displayFrequencies() {
        System.out.println("Character Frequency:");
        for (Map.Entry<Character, Integer> entry : freqMap.entrySet()) {
            System.out.println(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
        List<String> lines = new ArrayList<>();
        for (int i = 0; i < n; i++) {
            lines.add(sc.nextLine());
        }
        MessageAnalyzer analyzer = new MessageAnalyzer();
        analyzer.analyzeMessage(lines);
        analyzer.displayFrequencies();
        sc.close();
    }
}
```

Status : Correct **Marks : 10/10**