Rajalakshmi Engineering College

Name: Harish V.H
Email: 240701175@rajalakshmi.edu.in
Roll no: 240701175
Phone: 9080255347
Branch: REC
Department: CSE - Section 2
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

```
import java.util.*;

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

   // Analyze each line
   public void analyzeLine(String line) {
      for (char ch : line.toCharArray()) {
         if (Character.isAlphabetic(ch)) {  // only alphabets, ignore spaces
            map.put(ch, map.getOrDefault(ch, 0) + 1);
         }
```

```
        }
    }

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

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        MessageAnalyzer analyzer = new MessageAnalyzer();

        int n = Integer.parseInt(sc.nextLine()); // number of lines

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

        analyzer.printFrequency();
    }
}
```

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