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

```
import java.util.*;
class MessageAnalyzer{
   public void analyzeMessageFrequency(List<String> lines){
      TreeMap<Character, Integer> frequencyMap=new TreeMap<>();
      for(String line:lines){
         for(char ch:line.toCharArray()){
            if(Character.isLetter(ch)){
               frequencyMap.put(ch,frequencyMap.getOrDefault(ch,0)+1);
            }
         }
      }
```

```
        System.out.println("Character Frequency:");
        for (Map.Entry<Character,Integer> entry:frequencyMap.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=Integer.parseInt(sc.nextLine());
        List<String> lines=new ArrayList<>();
        for(int i=0;i<n;i++){
            lines.add(sc.nextLine());
        }
        MessageAnalyzer analyzer=new MessageAnalyzer();
        analyzer.analyzeMessageFrequency(lines);
    }
}
```

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