

# Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE (CS)

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## 2024\_28\_III\_OOPS Using Java Lab

### REC\_2028\_OOPS using Java\_Week 4\_MCQ

Attempt : 1

Total Mark : 15

Marks Obtained : 14

#### **Section 1 : MCQ**

1. What will be the output of the following program?

```
class Main {  
    public static void main(String[] args) {  
        String s = new String("5");  
        System.out.println(1 + 1111 + s + 1 + 1010);  
    }  
}
```

**Answer**

1112511010

**Status :** Correct

**Marks :** 1/1

2. What will be the output of the following program?

```
class Main {  
    public static void main(String[] args) {  
        String s1 = "EDUCATION";  
        String s2 = new String("EDUCATION");  
        String s3 = "EDUCATION";  
        if (s1 == s2) {  
            System.out.println("s1 and s2 equal");  
        }  
        else {  
            System.out.println("s1 and s2 not equal");  
        }  
        if (s1 == s3) {  
            System.out.println("s1 and s3 equal");  
        }  
        else {  
            System.out.println("s1 and s3 not equal");  
        }  
    }  
}
```

## **Answer**

s1 and s2 not equals1 and s3 equal

**Status :** Correct

Marks : 1/1

3. Predict the output for the following code:

```
public class Main {  
    public static void main(String[] args) {  
        float a = 10.0f;  
        String temp = Float.toString(a);  
        System.out.println(temp);  
    }  
}
```

## Answer

100

Status : Correct

Marks : 1/1

4. What will be the output of the following code?

```
class Main {  
    public static void main(String args[]) {  
        char c[] = {'j', 'a', 'v', 'a'};  
        String s1 = new String(c);  
        String s2 = new String(s1);  
        System.out.println(s1);  
        System.out.println(s2);  
    }  
}
```

**Answer**

javajava

**Status : Correct**

**Marks : 1/1**

5. Predict the output for the following code:

```
class Main {  
    public static void main(String args[]) {  
        StringBuffer sb = new StringBuffer("I Java!");  
        sb.insert(5, "like ");  
        System.out.println(sb);  
    }  
}
```

**Answer**

I Java like a!

**Status : Wrong**

**Marks : 0/1**

6. What is the output of the following code?

```
class Main  
{  
    public static void main(String args[])  
    {  
        StringBuffer c = new StringBuffer("Hello");  
    }  
}
```

```
        c.delete(0,2);
        System.out.println(c);
    }
}
```

**Answer**

llo

**Status : Correct**

**Marks : 1/1**

7. What will be the output of the following program?

```
public class Main {
    public static void main(String[] args) {
        String str = "1234.34";
        int a = Integer.parseInt(str);
        System.out.println(a);
    }
}
```

**Answer**

NumberFormatException

**Status : Correct**

**Marks : 1/1**

8. What will be the output of the following program?

```
class Main {
    public static void main(String args[]) {
        String name="Work Hard";
        name.concat("Success");
        System.out.println(name);
    }
}
```

**Answer**

Work Hard

**Status : Correct**

**Marks : 1/1**

9. What will be the output for the following code?

```
class Main {  
    public static void main(String[] args) {  
        String languages[] = {"C", "C++", "Java", "Python", "Ruby"};  
        for (String sample: languages) {  
            System.out.println(sample);  
        }  
    }  
}
```

**Answer**

CC++JavaPythonRuby

**Status : Correct**

**Marks : 1/1**

10. What will be the output of the following code?

```
class Main {  
    public static void main(String args[]) {  
        String s1 = "Hello i love java";  
        String s2 = new String(s1);  
        System.out.println((s1 == s2) + " " + s1.equals(s2));  
    }  
}
```

**Answer**

false true

**Status : Correct**

**Marks : 1/1**

11. What will be the output of the following code?

```
class Main {  
    public static void main(String args[])  
    {  
        StringBuffer sb = new StringBuffer("Hello");  
        System.out.println("buffer before = " + sb);  
        System.out.println("charAt(1) before = " + sb.charAt(1));  
    }  
}
```

```
        sb.setCharAt(1, 'i');
        sb.setLength(2);
        System.out.println("buffer after = " + sb);
        System.out.println("charAt(1) after = " + sb.charAt(1));
    }
}
```

**Answer**

buffer before = HellocharAt(1) before = ebuffer after = HicharAt(1) after = i

Status : Correct

Marks : 1/1

12. What will be the output of the following program?

```
class Main {
    public static void main(String args[]) {
        StringBuffer sb = new StringBuffer("Hello");
        System.out.println("buffer = " + sb);
        System.out.println("length = " + sb.length());
        System.out.println("capacity = " + sb.capacity());
    }
}
```

**Answer**

buffer = Hellolength = 5capacity = 21

Status : Correct

Marks : 1/1

13. Predict the output for the following code.

```
public class Main {
    public static void main(String[] args) {
        String a = "java";
        char temp = a.charAt(1);
        System.out.println(temp);
    }
}
```

**Answer**

a

Status : Correct

Marks : 1/1

14. Predict the output for the following code.

```
class Main {  
    public static void main(String[] fruits) {  
        String fruit1 = new String("apple");  
        String fruit2 = new String("orange");  
        String fruit3 = new String("pear");  
        fruit3 = fruit1;  
        fruit2 = fruit3;  
        fruit1 = fruit2;  
        System.out.println(fruit1);  
        System.out.println(fruit2);  
        System.out.println(fruit3);  
    }  
}
```

Answer

appleappleapple

Status : Correct

Marks : 1/1

15. What will be the output of the following program?

```
class Main {  
    public static void main(String[] args) {  
        String greet = "Welcome\n";  
        System.out.print("String: " + greet);  
        int length = greet.length();  
        System.out.print("Length: " + length);  
    }  
}
```

Answer

String: WelcomeLength: 8

Status : Correct

Marks : 1/1

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 4\_Q1

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

In a publishing company, editors often need to quickly analyze passages of text to check for punctuation usage. To assist them, you are asked to write a program that counts the number of specific punctuation marks in each passage.

The punctuation marks of interest are:

Commas (,)Periods (.)Question marks (?)

##### ***Input Format***

The first line of input contains an integer T, representing the number of test cases (passages).

Each of the next T lines contains a single passage of text.

### ***Output Format***

For each test case, print three integers separated by spaces, representing the number of commas, periods, and question marks in the passage.

The first line of output corresponds to the first passage, the second line to the second passage, and so on.

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 1

Hello, world. How are you?

Output: 1 1 1

### ***Answer***

```
import java.util.Scanner;
```

```
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        int T = Integer.parseInt(sc.nextLine()); // Number of test cases  
  
        for (int i = 0; i < T; i++) {  
            String passage = sc.nextLine();  
  
            int commas = 0, periods = 0, questions = 0;  
  
            for (char ch : passage.toCharArray()) {  
                if (ch == ',') {  
                    commas++;  
                } else if (ch == '.') {  
                    periods++;  
                } else if (ch == '?') {  
                    questions++;  
                }  
            }  
        }  
    }  
}
```

```
        System.out.println(commas + " " + periods + " " + questions);
    }
    sc.close();
}
}
```

**Status : Correct**

**Marks : 10/10**

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 4\_Q2

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

Anu is developing a tool for a conference registration system. Participants submit keywords related to their fields of interest. The organizer wants to sort these keywords alphabetically to generate tags for session grouping.

Write a program that accepts at least five keywords as input arguments and outputs them in sorted alphabetical order.

##### ***Input Format***

The first line of input contains an integer n, representing the number of keywords.

The second line of input contains n space-separated keywords (string).

##### ***Output Format***

The output prints n space separated strings representing the sorted keyword in alphabetical order.

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 5

Blockchain Cloud AI Data Cybersecurity

Output: AI Blockchain Cloud Cybersecurity Data

### ***Answer***

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

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

        int n = Integer.parseInt(sc.nextLine()); // number of keywords
        String[] keywords = sc.nextLine().split(" "); // read keywords

        Arrays.sort(keywords); // sort alphabetically

        for (int i = 0; i < n; i++) {
            System.out.print(keywords[i]);
            if (i < n - 1) {
                System.out.print(" ");
            }
        }
        sc.close();
    }
}
```

**Status : Correct**

**Marks : 10/10**

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 4\_Q3

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

Bechan Chacha is seeking help to filter out valid mobile numbers from a list provided by his crush. He can only pick his crush's number if the list contains valid mobile numbers.

A mobile number is considered valid if:

It has exactly 10 digits. It consists only of numeric values (0–9). It does not begin with zero.

Your task is to determine whether each mobile number in the list is valid or not.

##### ***Input Format***

The first line contains an integer T, representing the number of mobile numbers

to check.

The next T lines each contain a string S, representing a mobile number.

#### **Output Format**

For each mobile number S, the output print "YES" if it is valid.

Otherwise, print "NO".

Refer to the sample output for formatting specifications.

#### **Sample Test Case**

Input: 1  
9876543210  
Output: YES

#### **Answer**

```
import java.util.*;  
  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        int T = Integer.parseInt(sc.nextLine()); // number of test cases  
  
        for (int i = 0; i < T; i++) {  
            String s = sc.nextLine().trim();  
  
            if (isValidMobile(s)) {  
                System.out.println("YES");  
            } else {  
                System.out.println("NO");  
            }  
        }  
  
        sc.close();  
    }  
  
    // Function to validate mobile number
```

```
public static boolean isValidMobile(String s) {  
    // must be exactly 10 digits  
    if (s.length() != 10) {  
        return false;  
    }  
    // must contain only digits  
    for (char ch : s.toCharArray()) {  
        if (!Character.isDigit(ch)) {  
            return false;  
        }  
    }  
    // must not start with 0  
    if (s.charAt(0) == '0') {  
        return false;  
    }  
    return true;  
}
```

**Status :** Correct

**Marks :** 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 4\_Q4

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

Arjun is learning how to filter words from a sentence based on grammar rules. He wants to identify the valid words in a sentence.

A word is considered valid if it satisfies all these conditions:

The word contains only alphabets (a–z, A–Z). The word length is at least 2 characters. The word should not contain digits or special characters.

Your task is to read a sentence and print all the valid words in it.

##### ***Input Format***

The input contains a single line containing a sentence S.

##### ***Output Format***

The output prints all the valid words separated by spaces.

If no valid word exists, print "No valid words."

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: Hello world1 123 ab" @#\$ Hi

Output: Hello Hi

### **Answer**

```
import java.util.*;  
  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        String sentence = sc.nextLine();  
        String[] words = sentence.split(" "); // split by space  
  
        List<String> validWords = new ArrayList<>();  
  
        for (String word : words) {  
            if (isValidWord(word)) {  
                validWords.add(word);  
            }  
        }  
  
        if (validWords.isEmpty()) {  
            System.out.println("No valid words.");  
        } else {  
            System.out.println(String.join(" ", validWords));  
        }  
  
        sc.close();  
    }  
  
    // Function to check if word is valid  
    public static boolean isValidWord(String word) {
```

```
    if (word.length() < 2) {
        return false;
    }
    for (char ch : word.toCharArray()) {
        if (!Character.isLetter(ch)) {
            return false;
        }
    }
    return true;
}
```

**Status :** Correct

**Marks :** 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 4\_Q5

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

In a secure banking system, customers are required to create PIN codes for accessing their accounts. The bank wants to validate these PIN codes before accepting them.

A PIN code is considered valid if:

It consists of exactly 4 digits. All characters must be numeric (0–9). It cannot contain all identical digits (e.g., 1111 is invalid).

Your task is to determine whether each PIN code in the list is valid or not.

##### ***Input Format***

The first line of input contains an integer T, representing the number of PIN codes to check.

The next T lines each contain a string S, representing a PIN code.

#### ***Output Format***

For each PIN code S, the output print "YES" if it is valid.

Otherwise, the output print "NO".

Refer to the sample output for formatting specifications.

#### ***Sample Test Case***

Input: 1

1234

Output: YES

#### ***Answer***

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

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

        int T = Integer.parseInt(sc.nextLine()); // number of PIN codes

        for (int i = 0; i < T; i++) {
            String pin = sc.nextLine().trim();

            if (isValidPIN(pin)) {
                System.out.println("YES");
            } else {
                System.out.println("NO");
            }
        }

        sc.close();
    }

    // Function to validate PIN
}
```

```
public static boolean isValidPIN(String pin) {  
    // must be exactly 4 characters  
    if (pin.length() != 4) {  
        return false;  
    }  
  
    // must contain only digits  
    for (char ch : pin.toCharArray()) {  
        if (!Character.isDigit(ch)) {  
            return false;  
        }  
    }  
  
    // check if all digits are identical  
    char first = pin.charAt(0);  
    boolean allSame = true;  
    for (char ch : pin.toCharArray()) {  
        if (ch != first) {  
            allSame = false;  
            break;  
        }  
    }  
  
    return !allSame; // valid only if not all digits are same  
}
```

**Status :** Correct

**Marks :** 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### REC\_2028\_OOPS using Java\_Week 4\_PAH

Attempt : 1

Total Mark : 40

Marks Obtained : 40

#### **Section 1 : Coding**

##### **1. Problem Statement**

Ravi is analyzing text messages for his research on typing patterns. He wants to count the number of uppercase letters, lowercase letters, and digits in a sentence to understand typing trends.

Your task is to help Ravi by writing a program that takes a sentence and prints the count of uppercase letters, lowercase letters, and digits.

##### ***Input Format***

The input contains a single line containing a sentence (string).

##### ***Output Format***

The output prints three integers separated by spaces:

- Number of uppercase letters
- Number of lowercase letters
- Number of digits

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: Hello World 123

Output: 2 8 3

### **Answer**

```
import java.util.*;  
  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        String sentence = sc.nextLine();  
  
        int uppercase = 0, lowercase = 0, digits = 0;  
  
        for (char ch : sentence.toCharArray()) {  
            if (Character.isUpperCase(ch)) {  
                uppercase++;  
            } else if (Character.isLowerCase(ch)) {  
                lowercase++;  
            } else if (Character.isDigit(ch)) {  
                digits++;  
            }  
        }  
  
        System.out.println(uppercase + " " + lowercase + " " + digits);  
        sc.close();  
    }  
}
```

**Status : Correct**

**Marks : 10/10**

## **2. Problem Statement**

At a digital library, the system needs to analyze passages to identify the frequency of vowels, since they are key for linguistic research. You are asked to write a program that counts the number of vowels in each passage of text.

The vowels of interest are:

a, e, i, o, u (both uppercase and lowercase).

#### ***Input Format***

The first line of input contains an integer T, representing the number of test cases (passages).

Each of the next T lines contains a single passage of text.

#### ***Output Format***

For each test case, print a single integer representing the total number of vowels in the passage.

The first line of output corresponds to the first passage, the second line to the second passage, and so on.

Refer to the sample output for formatting specifications.

#### ***Sample Test Case***

Input: 1  
Hello World  
Output: 3

#### ***Answer***

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

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

```

int T = Integer.parseInt(sc.nextLine()); // number of test cases

for (int i = 0; i < T; i++) {
    String passage = sc.nextLine();
    int vowelCount = 0;

    for (char ch : passage.toCharArray()) {
        if (isVowel(ch)) {
            vowelCount++;
        }
    }

    System.out.println(vowelCount);
}

sc.close();
}

// Function to check if a character is a vowel
public static boolean isVowel(char ch) {
    ch = Character.toLowerCase(ch);
    return (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u');
}

```

**Status :** Correct

**Marks :** 10/10

### 3. Problem Statement

Sana is analyzing text for a secret code. She wants to find all words in a sentence that start and end with the same letter. These words are considered "special words" for her analysis.

Your task is to write a program that extracts and prints all words that start and end with the same letter (case-insensitive).

If no such word exists, print "No special words found".

#### ***Input Format***

The input contains a single line containing a sentence with multiple words.

### **Output Format**

The output prints all words that start and end with the same letter separated by a space.

If no word satisfies the condition, print "No special words found".

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: Anna went to the civic center

Output: Anna civic

### **Answer**

```
import java.util.*;  
  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        String sentence = sc.nextLine();  
        String[] words = sentence.split(" "); // split by space  
  
        List<String> specialWords = new ArrayList<>();  
  
        for (String word : words) {  
            if (word.length() > 0) {  
                char first = Character.toLowerCase(word.charAt(0));  
                char last = Character.toLowerCase(word.charAt(word.length() - 1));  
  
                if (first == last) {  
                    specialWords.add(word);  
                }  
            }  
        }  
  
        if (specialWords.isEmpty()) {  
            System.out.println("No special words found");  
        } else {  
            System.out.println(String.join(" ", specialWords));  
        }  
    }  
}
```

```
        }  
        sc.close();  
    }  
}
```

**Status :** Correct

**Marks :** 10/10

#### 4. Problem Statement

Riya is preparing a puzzle game for her friends. She wants to include a feature that highlights special words in a sentence — specifically, palindromic words (words that read the same forward and backward).

Your task is to help Riya by writing a program that extracts all palindrome words from the given sentence. If there are no palindromes, print "No palindromes found".

##### ***Input Format***

The input contains a single string S representing a sentence.

##### ***Output Format***

The output prints all palindromic words separated by a space.

If no palindrome exists, print "No palindromes found".

Refer to the sample output for formatting specifications.

##### ***Sample Test Case***

Input: madam went to school

Output: madam

##### ***Answer***

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

```
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        String sentence = sc.nextLine();  
        String[] words = sentence.split(" "); // split by space  
  
        List<String> palindromes = new ArrayList<>();  
  
        for (String word : words) {  
            if (isPalindrome(word)) {  
                palindromes.add(word);  
            }  
        }  
  
        if (palindromes.isEmpty()) {  
            System.out.println("No palindromes found");  
        } else {  
            System.out.println(String.join(" ", palindromes));  
        }  
  
        sc.close();  
    }  
  
    // Helper method to check palindrome  
    public static boolean isPalindrome(String word) {  
        int left = 0, right = word.length() - 1;  
        while (left < right) {  
            if (word.charAt(left) != word.charAt(right)) {  
                return false;  
            }  
            left++;  
            right--;  
        }  
        return true;  
    }  
}
```

Status : Correct

Marks : 10/10

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## 2024\_28\_III\_OOPS Using Java Lab

### **REC\_2028\_OOPS using Java\_Week 4\_CY**

Attempt : 1

Total Mark : 40

Marks Obtained : 40

#### **Section 1 : Coding**

##### **1. Problem Statement**

In a university library, librarians need to track the usage of special characters in students' notes.

To help them, you are asked to write a program that counts the number of specific symbols in each passage of text.

The symbols of interest are:

Exclamation marks (!) Colons (:) Semicolons (;

##### ***Input Format***

The first line of input contains an integer T, representing the number of test cases (passages).

Each of the next T lines contains a single passage of text.

### ***Output Format***

For each test case, print three integers separated by spaces, representing the number of exclamation marks, colons, and semicolons in the passage.

The first line of output corresponds to the first passage, the second line to the second passage, and so on.

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 1  
Hello! How are you  
Output: 1 0 0

### ***Answer***

```
import java.util.*;  
  
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        int T = Integer.parseInt(sc.nextLine()); // number of test cases  
  
        for (int i = 0; i < T; i++) {  
            String passage = sc.nextLine();  
  
            int exclamations = 0, colons = 0, semicolons = 0;  
  
            for (char ch : passage.toCharArray()) {  
                if (ch == '!') {  
                    exclamations++;  
                } else if (ch == ':') {  
                    colons++;  
                } else if (ch == ';') {  
                    semicolons++;  
                }  
            }  
        }  
    }  
}
```

```
        System.out.println(exclamations + " " + colons + " " + semicolons);
    }

    sc.close();
}
}
```

**Status : Correct**

**Marks : 10/10**

## 2. Problem Statement

Riya is preparing for a vocabulary test. Her teacher told her to focus on long words in her practice sentences, specifically words that have at least 5 letters.

Riya wants to write a program that will help her identify such words quickly.

Your task is to help Riya by printing all the words in a given sentence that have a length greater than or equal to 5.

If no such word exists, display "No long words found".

### ***Input Format***

The input contains a single line containing a sentence with multiple words.

### ***Output Format***

The output prints all words having length  $\geq 5$ , separated by a space.

If no such word is found, print "No long words found".

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: The quick brown fox jumps over the lazy dog

Output: quick brown jumps

### **Answer**

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

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String sentence = sc.nextLine();
        String[] words = sentence.split(" "); // split by space

        List<String> longWords = new ArrayList<>();

        for (String word : words) {
            if (word.length() >= 5) {
                longWords.add(word);
            }
        }

        if (longWords.isEmpty()) {
            System.out.println("No long words found");
        } else {
            // print words in the same order, separated by space
            for (String w : longWords) {
                System.out.print(w + " ");
            }
            System.out.println();
        }

        sc.close();
    }
}
```

**Status :** Correct

**Marks :** 10/10

### **3. Problem Statement**

In a college, students are required to create unique usernames for accessing the digital library.

The librarian needs your help to verify whether the usernames entered by students are valid.

A username is considered valid if:

It contains only letters (a–z, A–Z) and digits (0–9). Its length is between 5 and 15 characters (inclusive). It must start with a letter (not a digit).

Your task is to determine whether each username in the list is valid or not.

#### ***Input Format***

The first line of input contains an integer T, representing the number of usernames to check.

The next T lines each contain a string S, representing a username.

#### ***Output Format***

For each username S, the output print "YES" if it is valid.

Otherwise, the output print "NO".

Refer to the sample output for formatting specifications.

#### ***Sample Test Case***

Input: 1

Alice123

Output: YES

#### ***Answer***

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

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

        for (int i = 0; i < T; i++) {
            String username = sc.nextLine();

            if (isValidUsername(username)) {
```

```
        System.out.println("YES");
    } else {
        System.out.println("NO");
    }
}
sc.close();
}

public static boolean isValidUsername(String s) {
    // Length check
    if (s.length() < 5 || s.length() > 15) {
        return false;
    }

    // First character must be a letter
    if (!Character.isLetter(s.charAt(0))) {
        return false;
    }

    // Only letters and digits allowed
    for (char c : s.toCharArray()) {
        if (!Character.isLetterOrDigit(c)) {
            return false;
        }
    }

    return true;
}
```

Status : Correct

Marks : 10/10

#### 4. Problem Statement

Meera is practicing her English vocabulary. She wants to focus on words that have more vowels in them, as they help improve her pronunciation. She decides to extract only those words from a sentence that contain at least two vowels.

Your task is to help Meera by writing a program that finds such words from

the given sentence.

#### ***Input Format***

The input contains a string representing the sentence.

#### ***Output Format***

The output prints all the words that contain at least two vowels, separated by a space.

If no such word exists, print "No words with two vowels".

Refer to the sample output for formatting specifications.

#### ***Sample Test Case***

Input: This is an example sentence

Output: example sentence

#### ***Answer***

```
import java.util.*;

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

        String[] words = sentence.split(" ");
        List<String> result = new ArrayList<>();

        for (String word : words) {
            if (countVowels(word) >= 2) {
                result.add(word);
            }
        }

        if (result.isEmpty()) {
            System.out.println("No words with two vowels");
        } else {
            System.out.println(String.join(" ", result));
        }
    }

    private int countVowels(String word) {
        int count = 0;
        for (char c : word.toLowerCase().toCharArray()) {
            if (c == 'a' || c == 'e' || c == 'i' || c == 'o' || c == 'u') {
                count++;
            }
        }
        return count;
    }
}
```

```
    }
}

public static int countVowels(String word) {
    int count = 0;
    for (char c : word.toLowerCase().toCharArray()) {
        if ("aeiou".indexOf(c) != -1) {
            count++;
        }
    }
    return count;
}
```

**Status :** Correct

**Marks :** 10/10