

# Rajalakshmi Engineering College

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Branch: REC

Department: AI & DS - Section 5

Batch: 2028

Degree: B.E - AI & DS

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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 = sc.nextInt();
        sc.nextLine(); // consume newline

        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();
    }
}
```

```
private static boolean isValidPin(String pin) {
    // Condition 1: must be exactly 4 characters
    if (pin.length() != 4) return false;

    // Condition 2: all must be digits
    for (char c : pin.toCharArray()) {
        if (!Character.isDigit(c)) return false;
    }

    // Condition 3: not all identical
    char first = pin.charAt(0);
    boolean allSame = true;
    for (int i = 1; i < pin.length(); i++) {
        if (pin.charAt(i) != first) {
            allSame = false;
            break;
        }
    }

    return !allSame;
}
```

**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().trim();
        String[] words = sentence.split(" ");

        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 {
            for (int i = 0; i < validWords.size(); i++) {
                System.out.print(validWords.get(i));
                if (i < validWords.size() - 1) System.out.print(" ");
            }
            System.out.println();
        }
    }

    sc.close();
```

```
}

private static boolean isValidWord(String word) {
    // Condition 1: length must be >= 2
    if (word.length() < 2) return false;

    // Condition 2: must contain only alphabets
    for (char c : word.toCharArray()) {
        if (!Character.isLetter(c)) 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\_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 = sc.nextInt();  
        sc.nextLine();  
        for (int i = 0; i < T; i++) {  
            String number = sc.nextLine().trim();  
  
            if (isValid(number)) {  
                System.out.println("YES");  
            } else {  
                System.out.println("NO");  
            }  
        }  
  
        sc.close();  
    }  
  
    private static boolean isValid(String number) {
```

```
if (number.length() != 10) return false;

for (char c : number.toCharArray()) {
    if (!Character.isDigit(c)) return false;
}

return number.charAt(0) != '0';
}
```

**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 : 6.5

#### **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**

```
import java.util.*;  
  
public class Main{  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
  
        int n = sc.nextInt();  
        sc.nextLine();  
  
        // Read keywords  
        String[] keywords = sc.nextLine().split(" ");  
  
        Arrays.sort(keywords, String.CASE_INSENSITIVE_ORDER);  
  
        for (int i = 0; i < n; i++) {  
            System.out.print(keywords[i]);  
            if (i < n - 1){  
                System.out.print(" ");  
            }  
        }  
    }  
}
```

**Status :** Partially correct

**Marks :** 6.5/10

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

            int commas = 0, periods = 0, questions = 0;

            for (char c : passage.toCharArray()) {
                if (c == ',') commas++;
                else if (c == '.') periods++;
                else if (c == '?') questions++;
            }

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

}

**Status : Correct**

**Marks : 10/10**