

# Rajalakshmi Engineering College

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Department: AI & ML - Section 1

Batch: 2028

Degree: B.E - AI & ML

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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.Scanner;

class PinValidator {
    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 pin = sc.nextLine();
            if (isValidPin(pin)) {
                System.out.println("YES");
            } else {
                System.out.println("NO");
            }
        }
        sc.close();
    }

    private static boolean isValidPin(String pin) {
        if (pin.length() != 4) {
            return false;
        }
    }
}
```

```
    }
    if (!pin.matches("\\d{4}")) {
        return false;
    }

    char first = pin.charAt(0);
    for (int i = 1; i < 4; i++) {
        if (pin.charAt(i) != first) {
            return true;
        }
    }

    return false;
}
```

**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**

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

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

        String[] words = sentence.split(" ");
        StringBuilder validWords = new StringBuilder();

        for (String word : words) {
            if (word.matches("[a-zA-Z]{2,}")) {
                validWords.append(word).append(" ");
            }
        }

        if (validWords.length() > 0) {
            System.out.println(validWords.toString().trim());
        } else {
            System.out.println("No valid words.");
        }
    }
}
```

**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**

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

class MobileNumberValidator {
    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 number = sc.nextLine();

            if (isValidMobileNumber(number)) {
                System.out.println("YES");
            } else {
                System.out.println("NO");
            }
        }

        sc.close();
    }

    private static boolean isValidMobileNumber(String number) {
```

```
if (number.length() != 10) {  
    return false;  
}  
  
if (!number.matches("[1-9][0-9]{9}")) {  
    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\_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***

```
import java.util.*;

class KeywordSorter {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        sc.nextLine();

        String[] keywords = sc.nextLine().split(" ");
        Arrays.sort(keywords);

        for (int i = 0; i < n; i++) {
            System.out.print(keywords[i]);
            if (i != n - 1) {
                System.out.print(" ");
            }
        }
        System.out.println();
        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\_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***

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

```
class PunctuationCounter {
    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 passage = sc.nextLine();
            int commas = 0, periods = 0, questions = 0;

            for (int j = 0; j < passage.length(); j++) {
                char ch = passage.charAt(j);
                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

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

Attempt : 1  
Total Mark : 15  
Marks Obtained : 10

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

1. 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

2. 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

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

Error: no suitable method found for toString(float)

Status : Wrong

Marks : 0/1

4. 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

5. 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**

appleorangepear

**Status :** Wrong

**Marks :** 0/1

6. 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**

7. 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: 7

**Status : Wrong**

**Marks : 0/1**

8. 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**

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

```
241501078 class Main {  
241501078     public static void main(String args[]) {  
241501078         StringBuffer sb = new StringBuffer("Hello");  
241501078         System.out.println("buffer = " + sb);  
241501078         System.out.println("length = " + sb.length());  
241501078         System.out.println("capacity = " + sb.capacity());  
241501078     }  
241501078 }
```

**Answer**

buffer = Hello length = 5 capacity = 21

**Status : Correct**

**Marks : 1/1**

10. 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**

11. 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**

12. 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**

13. 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**

14. 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**

true false

**Status : Wrong**

**Marks : 0/1**

15. 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