Rajalakshmi Engineering College

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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 scanner = new Scanner(System.in);

        // Read number of PIN codes to check
        int T = Integer.parseInt(scanner.nextLine());

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

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

        scanner.close();
    }
```

```
    // Method to check if a PIN is valid
    public static boolean isValidPin(String pin) {
        // Check if PIN is exactly 4 digits
        if (pin.length() != 4 || !pin.matches("[0-9]{4}")) {
            return false;
        }

        // Check if all digits are not the same
        char firstChar = pin.charAt(0);
        if (pin.chars().allMatch(c -> c == firstChar)) {
            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

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

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

        // Read the full sentence
        String sentence = scanner.nextLine();

        // Split the sentence by space to get individual words
        String[] words = sentence.split(" ");

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

        for (String word : words) {
            // Check if word is at least 2 characters and only contains letters
            if (word.length() >= 2 && word.matches("[a-zA-Z]+")) {
                validWords.add(word);
            }
        }

        // Output the valid words or a fallback message
        if (validWords.isEmpty()) {
            System.out.println("No valid words.");
        } else {
            // Join and print the valid words with spaces
            System.out.println(String.join(" ", validWords));
```

```
        }

        scanner.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

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

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

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

        for (int i = 0; i < T; i++) {
            String number = scanner.nextLine();

            // Check if the number is valid
            if (isValidMobileNumber(number)) {
                System.out.println("YES");
            } else {
                System.out.println("NO");
            }
        }

        scanner.close();
```

```
    }

    // Method to check validity of mobile number
    public static boolean isValidMobileNumber(String number) {
        // Check if length is exactly 10
        if (number.length() != 10) {
            return false;
        }

        // Check if all characters are digits
        if (!number.matches("[0-9]+")) {
            return false;
        }

        // Check if first digit is not zero
        if (number.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_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 scanner = new Scanner(System.in);

        // Read number of keywords
        int n = Integer.parseInt(scanner.nextLine());

        // Read n space-separated keywords
        String[] keywords = scanner.nextLine().split(" ");

        // Validate that we have at least 5 keywords
        if (n < 5 || keywords.length < 5) {
            System.out.println("Please enter at least 5 keywords.");
            return;
        }

        // Sort the keywords alphabetically (case-sensitive)
        Arrays.sort(keywords);

        // Print the sorted keywords
        for (int i = 0; i < keywords.length; i++) {
            System.out.print(keywords[i]);
            if (i != keywords.length - 1) {
                System.out.print(" ");
            }
```

```
        }

        // Close the scanner
        scanner.close();
    }
}
```

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

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_MCQ

Attempt : 1
Total Mark : 15
Marks Obtained : 11

Section 1 : MCQ

1. What is the result of the following expression?

```
import java.util.*;

class ComplexExpressionExample {
    public static void main(String[] args) {
        int a = 5, b = 2, c = 3, d = 4;
        int result = a + b * c / d - b;

        System.out.println(result);
    }
}
```

Answer

6

Status : Wrong ***Marks : 0/1***

2. What is the output of the following code?

```
class TestClass {
   public static void main(String[] args) {
      int x = 5;
      int X = 10;

      int sum = x + X;
      int bitwiseResult = x | X;

      System.out.println(sum);
      System.out.println(bitwiseResult);
   }
}
```

Answer

Compilation error

Status : Wrong ***Marks : 0/1***

3. Which of the following is not a primitive data type?

Answer

string

Status : Correct ***Marks : 1/1***

4. What is the output of the following code?

```
class TestClass {
   public static void main(String[] args) {
      int a = 10;
      int b = 3;
      System.out.println(a / b);
   }
}
```

Answer

3

Status : Correct ***Marks : 1/1***

5. What is the output of the following program?

```
class Demo {
   public static void main(String[] args) {
      String text = "Hello, World!";
      System.out.println(text);
   }
}
```

Answer

Hello, World!

Status : Correct ***Marks : 1/1***

6. What will be the output of the following code snippet?

```
class DivisionExample {
   public static void main(String[] args) {
      double num1 = 10.5;
      double num2 = 3;
      int result = (int)(num1 / num2);
      System.out.println(result);
   }
}
```

Answer

3

Status : Correct ***Marks : 1/1***

7. What is the output of the following program?

```
class Arithmetic {
```

```
    public static void main(String[] args) {
        char ch = 'A';
        System.out.println(ch);
    }
}
```

Answer

A

Status : Correct ***Marks : 1/1***

8. Which of the following data types is used to store floating-point numbers with greater precision?

Answer

double

Status : Correct ***Marks : 1/1***

9. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int a = 5;
        int b = 10;

        int sum = a + b;
        int bitwiseAnd = a & b;
        int bitwiseOr = a | b;

        System.out.println(sum);
        System.out.println(bitwiseAnd);
        System.out.println(bitwiseOr);
    }
}
```

Answer

15015

Status : Correct ***Marks : 1/1***

10. Which of the following data types is used to store single characters?

Answer

char

Status : Correct ***Marks : 1/1***

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

```
class DataTypesMCQ {
    public static void main(String[] args) {
        int a = 10;
        double b = 5;
        System.out.println(a / b);
    }
}
```

Answer

2.0

Status : Correct ***Marks : 1/1***

12. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int count = 8;
        count = count ^ 1;

        System.out.println(count);
    }
}
```

Answer

Compilation error

Status : Wrong ***Marks : 0/1***

13. What will be the output of the following code snippet?

```
import java.util.*;

class OperatorPrecedenceExample {
    public static void main(String[] args) {
        int a = 5, b = 3, c = 2;
        int result = a + b * c;

        System.out.println(result);
    }
}
```

Answer

11

Status : Correct ***Marks : 1/1***

14. What is the output of the following code?

```
import java.util.*;

class RelationalOperatorExample {
    public static void main(String[] args) {
        int x = 8, y = 4;
        boolean result = (x != y);

        System.out.println(result);
    }
}
```

Answer

Compilation error

Status : Wrong ***Marks : 0/1***

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

```
import java.util.*;

class TernaryOperatorExample {
    public static void main(String[] args) {
        int a = 5, b = 10;
        int result = (a > b) ? a : b;
        System.out.println(result);
    }
}
```

Answer

10

Status : Correct ***Marks : 1/1***