

Rajalakshmi Engineering College

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Scan to verify results



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 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

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

```
class Solution {
```

```
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);  
        int T = scanner.nextInt();  
        scanner.nextLine();
```

```
        for (int i = 0; i < T; i++) {  
            String username = scanner.nextLine();  
            if (isValidUsername(username)) {  
                System.out.println("YES");  
            } else {  
                System.out.println("NO");  
            }  
        }  
        scanner.close();  
    }
```

```
    public static boolean isValidUsername(String username) {
```

```

    if (username == null || username.length() < 5 || username.length() > 15) {
        return false;
    }

    if (!Character.isLetter(username.charAt(0))) {
        return false;
    }

    for (int i = 0; i < username.length(); i++) {
        char ch = username.charAt(i);
        if (!Character.isLetterOrDigit(ch)) {
            return false;
        }
    }
    return true;
}
}

```

Status : Correct

Marks : 10/10

2. Problem Statement

Neha is analyzing text messages to identify words that have repeated characters. A word is considered “repetitive” if any character appears more than once in that word.

Your task is to write a program that extracts all words that contain repeated characters from a given sentence.

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

Input Format

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

Output Format

The output prints all words that contain repeated characters separated by a space.

If no word contains repeated characters, print "No repetitive words found".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: letter balloon apple tree

Output: letter balloon apple tree

Answer

```
import java.util.HashSet;
import java.util.Scanner;
import java.util.Set;

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

        String[] words = sentence.split(" ");
        StringBuilder result = new StringBuilder();
        boolean foundRepetitiveWord = false;

        for (String word : words) {
            if (hasRepeatedCharacters(word)) {
                result.append(word).append(" ");
                foundRepetitiveWord = true;
            }
        }

        if (foundRepetitiveWord) {
            System.out.println(result.toString().trim());
        } else {
            System.out.println("No repetitive words found");
        }
    }

    public static boolean hasRepeatedCharacters(String word) {
        Set<Character> seenCharacters = new HashSet<>();
        for (char c : word.toCharArray()) {
            if (!seenCharacters.add(c)) {
                return true;
            }
        }
        return false;
    }
}
```

```
        return true;
    }
}
return false;
}
```

Status : Correct

Marks : 10/10

3. 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 ≥ 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

```
import java.util.Scanner;

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

        String[] words = sentence.split(" ");
        StringBuilder longWords = new StringBuilder();
        boolean found = false;

        for (String word : words) {
            if (word.length() >= 5) {
                longWords.append(word).append(" ");
                found = true;
            }
        }

        if (found) {
            System.out.println(longWords.toString().trim());
        } else {
            System.out.println("No long words found");
        }
    }
}
```

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.Scanner;

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

        String[] words = sentence.split(" ");
        StringBuilder result = new StringBuilder();
        boolean found = false;

        for (String word : words) {
            if (hasAtLeastTwoVowels(word)) {
                result.append(word).append(" ");
                found = true;
            }
        }

        if (found) {
            System.out.println(result.toString().trim());
        } else {
            System.out.println("No words with two vowels");
        }
    }
}
```

```
System.out.println("No words with two vowels");
}
}

public static boolean hasAtLeastTwoVowels(String word) {
    int vowelCount = 0;
    String vowels = "aeiouAEIOU";
    for (int i = 0; i < word.length(); i++) {
        if (vowels.indexOf(word.charAt(i)) != -1) {
            vowelCount++;
        }
    }
    return vowelCount >= 2;
}
}
```

Status : Correct

Marks : 10/10