Rajalakshmi Engineering College

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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

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

```
// You are using Java
import java.util.*;
class main{
    public static void main(String [] args){
        Scanner n=new Scanner(System.in);
        String s=n.nextLine();
        String [] words=s.split(" ");
        int f=0;
        for(String word:words){
            int v=0;
            for(char i:word.toCharArray()){
            if(i=='a'||i=='e'||i=='i'||i=='o'||i=='u'){
                v+=1;
            }
        }
        if(v>=2){
            System.out.print(word+" ");
            f=1;
        }
        }
        if(f==0){
            System.out.print("No words with two vowels");
        }
    }
}
```

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

2. Problem Statement

Anjali is preparing a report on text complexity. She wants to identify all words in a sentence that contain at least one digit so she can analyze numeric mentions.

Your task is to write a program that extracts and prints all words containing at least one digit from a given sentence.

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

Input Format

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

Output Format

The output prints all words containing at least one digit separated by a space.

If no word contains a digit, print "No words with digits found".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: The model X100 and Y200 are available
Output: X100 Y200

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().trim();

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

```
        for (String word : words) {
            if (word.matches(".*\\d.*")) {   // checks if the word contains at least one
digit
                result.add(word);
            }
        }

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

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.*;

class main{
    public static void main(String [] args){
        Scanner n=new Scanner(System.in);
        int test=n.nextInt();
        String sq=n.nextLine();
        int f=0;
        while(test!=0){
            String s=n.nextLine();
            if(s.length()>=5 && s.length()<=15){
                        if((s.charAt(0)>='A'&&s.charAt(0)<='Z')||
(s.charAt(0)>='a'&&s.charAt(0)<='z')){
                            for(char i:s.toCharArray()){
                                if((i>='A'&&i<='Z')||(i>='a'&&i<='z')||((i>='0'&&i<='9'))){
                                    f=1;
                                    continue;
                                }
                                else{
                                    f=0;
                                  System.out.println("NO");
                                  break;
                                }
                                }
                        }
                         else{
                             f=0;
```

```
                System.out.println("NO");
                   }

            }
            else{f=0;
                System.out.println("NO");
                   }
            if(f==1){
                 System.out.println("YES");
            }
            test--;

        }
    }
}
```

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

4. 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

```
// 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().trim();

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

      for (String word : words) {
         if (hasRepeatedCharacters(word)) {
            result.add(word);
         }
      }

      if (result.isEmpty()) {
         System.out.println("No repetitive words found");
      } else {
         System.out.println(String.join(" ", result));
      }
   }

   // Function to check if a word has any repeated characters
   private static boolean hasRepeatedCharacters(String word) {
      Set<Character> seen = new HashSet<>();

      for (char ch : word.toCharArray()) {
         if (seen.contains(ch)) {
            return true;  // repetition found
         }
         seen.add(ch);
      }
```

```
        return false;
    }
}
```

Status : Correct

Marks : 10/10