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

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.Scanner;
class RepetitiveWords {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      String sentence = sc.nextLine();
      String[] words = sentence.split(" ");
      String result = "";
      for (String word : words) {
         if (hasRepeatedChar(word)) {
            result += word + " ";
         }
      }
      if (result.equals("")) {
         System.out.println("No repetitive words found");
      } else {
         System.out.println(result.trim());
      }
   }

   private static boolean hasRepeatedChar(String word) {
      int[] freq = new int[256];
      for (int i = 0; i < word.length(); i++) {
         char c = word.charAt(i);
         freq[c]++;
         if (freq[c] > 1) return true;
      }
      return false;
```

```
    }
}
```

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

2. 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.*;

class Main {
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
        String sentence = sc.nextLine();
        String[] words = sentence.split(" ");
        boolean found = false;
        for (String word : words) {
            if (word.length() >= 5) {
                System.out.print(word + " ");
                found = true;
            }
        }
        if (!found) {
            System.out.print("No long words found");
        }
    }
}
```

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

3. Problem Statement

A bookstore wants to analyze the titles of books to determine their longest word in each title. This helps in designing banners and covers.

Your task is to write a program that, given a sentence (book title), finds and prints the longest word. If multiple words have the same maximum length, print the first one.

Input Format

The input contais a single line containing a sentence representing the book title.

Output Format

The output prints a string representing the longest word in the sentence (book title).

Refer to the sample output for formatting specifications.

Sample Test Case

Input: The Chronicles of Narnia
Output: Chronicles

Answer

```
import java.util.Scanner;
class LongestWord {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      String sentence = sc.nextLine();
      String[] words = sentence.split(" ");
      String longest = "";
      for (String word : words) {
         if (word.length() > longest.length()) {
            longest = word;
         }
      }
      System.out.println(longest);
   }
}
```

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

4. 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

```
import java.util.Scanner;
class WordsWithDigits {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String sentence = sc.nextLine();
        String[] words = sentence.split(" ");
        String result = "";
        for (String word : words) {
            if (containsDigit(word)) {
                result += word + " ";
            }
        }
        if (result.equals("")) {
            System.out.println("No words with digits found");
        } else {
            System.out.println(result.trim());
        }
    }

    private static boolean containsDigit(String word) {
        for (int i = 0; i < word.length(); i++) {
            if (Character.isDigit(word.charAt(i))) return true;
        }
        return false;
    }
}
```

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