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

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

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

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

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

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

        if (longWords.length() == 0) {
            System.out.println("No long words found");
        } else {
            System.out.println(longWords.toString().trim());
        }
        sc.close();
    }
}
```

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

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

class RepetitiveWordsFinder {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
```

```
        String sentence = sc.nextLine().trim();

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

        for (String word : words) {
            if (hasRepeatedChars(word)) {
                repetitiveWords.append(word).append(" ");
            }
        }

        if (repetitiveWords.length() == 0) {
            System.out.println("No repetitive words found");
        } else {
            System.out.println(repetitiveWords.toString().trim());
        }
        sc.close();
    }

    private static boolean hasRepeatedChars(String word) {
        HashSet<Character> seen = new HashSet<>();
        for (char ch : word.toCharArray()) {
            if (seen.contains(ch)) {
                return true;
            }
            seen.add(ch);
        }
        return false;
    }
}
```

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

3. 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.Scanner;

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

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

        for (String word : words) {
            if (containsDigit(word)) {
                wordsWithDigits.append(word).append(" ");
            }
        }

        if (wordsWithDigits.length() == 0) {
            System.out.println("No words with digits found");
```

```
        } else {
            System.out.println(wordsWithDigits.toString().trim());
        }

        sc.close();
    }

    private static boolean containsDigit(String word) {
        for (char ch : word.toCharArray()) {
            if (Character.isDigit(ch)) {
                return true;
            }
        }
        return false;
    }
}
```

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

4. 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

```
// You are using Java
import java.util.Scanner;
class LongestWordFinder {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        String sentence = sc.nextLine().trim();

        String[] words = sentence.split(" ");
        String longestWord = "";
        int maxLength = 0;

        for (String word : words) {
            if (word.length() > maxLength) {
                longestWord = word;
                maxLength = word.length();
            }
        }

        System.out.println(longestWord);
        sc.close();
    }
}
```

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