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//1. Write a program to count word frequencies in a given text.
import java.util.*;

public class wordFrequency {

   public static Map<String, Integer> mostFrequent(String str) {

      str = str.replaceAll("[^a-zA-Z0-9]", " ");
      String[] allWords = str.split(" +");

      Map<String, Integer> countingMap = new HashMap<>();

      for (String word : allWords) {
        word = word.toLowerCase();
        countingMap.put(word, countingMap.getOrDefault(word, 0) + 1);
      }
      TreeMap<String, Integer> mostFrequentMap = new TreeMap<>((e1, e2) -> {
         int freq1 = countingMap.get(e1);
         int freq2 = countingMap.get(e2);

         if (freq1 != freq2) {
           return freq2 - freq1;
         }

         return e1.compareTo(e2);
        });

        mostFrequentMap.putAll(countingMap);

        return mostFrequentMap;
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    }


    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter the text to get word frequency: ");
        String word = scan.nextLine();
        System.out.println(wordFrequency.mostFrequent(word));
        scan.close();
    }
}

/*
 2. Palindrome Checker
 Write a program that checks if a given word is a palindrome.
 */
import java.util.Scanner;

public class Palindrome {
    public static void main(String[] args){
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter string to check Palindrome:");
        String str = scan.nextLine();
        String revStr ="";
        scan.close();
        for(int i = str.length() - 1; i>=0; i--){
            revStr = revStr+str.charAt(i);
        }

        if(str.equals(revStr)){
            System.out.println("Given String is Palindrome");
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        } else {
            System.out.println("Given String is not Palindrome");
        }



    }
}
/*
3. List Manipulation Create a list of numbers, then write a program that prints the square of each number in the list.
*/
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;

public class SquareOfNumbers {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        List<Integer> numbers = new ArrayList<>();
        System.out.print("Enter the number of elements: ");
        int count = scanner.nextInt();
        System.out.println("Enter the elements:");

        for (int i = 0; i < count; i++) {
            System.out.print("Element " + (i + 1) + ": ");
            int num = scanner.nextInt();
            numbers.add(num);
        }

        scanner.close();
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        System.out.println("Original Numbers: " + numbers);

        System.out.println("Squares:");

        for (int num : numbers) {
            int square = num * num;
            System.out.println(square);
        }
    }
}
```