

## Bereich: Strings

### Quersumme

### Musterlösung

**Package:** de.dhbwka.java.exercise.strings

**Klasse:** CrossTotal

```
package de.dhbwka.java.exercise.strings;

import java.util.Scanner;

/**
 * @author DHBW lecturer
 * @version 1.0
 *
 * Part of lectures on 'Programming in Java'.
 * Baden-Wuerttemberg Cooperative State University.
 *
 * (C) 2015 by J. Sidler, T. Schlachter, C. Schmitt, W. Süß
 */
public class CrossTotal {

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Bitte Zahl für Quersumme eingeben: ");
        String number = scan.next();
        int total = 0;
        for(int i=0; i<number.length(); i++)
            total += number.charAt(i) - '0';
        // Alternative Implementierung
        for (char c : number.toCharArray())
            total += (c - '0');
        System.out.println("Die Quersumme von " + number +
            " ist " + total);
        scan.close();
    }
}
```

**Bereich: Strings****Palindrom****Musterlösung****Package:** de.dhbwka.java.exercise.strings**Klasse:** Palindrome

```
package de.dhbwka.java.exercise.strings;

import java.util.Scanner;

/**
 * @author DHBW lecturer
 * @version 1.1
 *
 * Part of lectures on 'Programming in Java'. Baden-Wuerttemberg
 * Cooperative State University.
 *
 * (C) 2015-2024 by J. Sidler, T. Schlachter, C. Schmitt, W. Süß
 */
public class Palindrome {

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        System.out.print("Bitte Wort eingeben: ");
        String word = scan.nextLine();
        StringBuilder reverse = Palindrome.reverse(word);
        // Alternativ
        // StringBuilder reverse = new StringBuilder(word).reverse(); // RTFM!
        System.out.println("Umgekehrt: " + reverse);
        System.out.println(word + " ist "
            + (word.equalsIgnoreCase(reverse.toString()) ? "" : "k")
            + "ein Palindrom.");
        scan.close();
    }

    public static StringBuilder reverse(String s) {
        StringBuilder sb = new StringBuilder();
        for (int i=s.length()-1; i>=0; i--)
            sb.append(s.charAt(i));
        return sb;
    }
}
```

## Bereich: Strings

### Römische Zahlen

### Musterlösung

**Package:** de.dhbwka.java.exercise.strings

**Klasse:** RomanNumber

```
package de.dhbwka.java.exercise.strings;

import java.util.Scanner;

/**
 * @author DHBW lecturer
 * @version 1.0
 *
 * Part of lectures on 'Programming in Java'.
 * Baden-Wuerttemberg Cooperative State University.
 *
 * (C) 2015 by J. Sidler, T. Schlachter, C. Schmitt, W. Süß
 */
public class RomanNumber {

    /** Get the decimal value of a Roman digit.
     * 0 is returned for invalid chars.
     * @param c Roman digit (char)
     * @return decimal value of a single Roman digit */
    private static int getValue(char c) {
        switch (Character.toUpperCase(c)) {
            case 'I' : return 1;
            case 'V' : return 5;
            case 'X' : return 10;
            case 'L' : return 50;
            case 'C' : return 100;
            case 'D' : return 500;
            case 'M' : return 1000;
        }
        return 0;
    }

    /** Get the decimal value of a Roman number.
     * The syntax is not checked.
     * @param c Roman number (String)
     * @return decimal value of the Roman number */
    public static int getValue(String s) {
        int result = 0;
        // Add all numbers but the last
        for(int i=0; i<s.length()-1; i++) {
            int valueAti = getValue(s.charAt(i));
            result += (valueAti < getValue(s.charAt(i+1)))
                ? -valueAti : valueAti;
        }
        // Add last number
        result += getValue(s.charAt(s.length()-1));
        return result;
    }
}
```

```
public static void main(String[] args) {  
    Scanner scan = new Scanner(System.in);  
    System.out.print("Bitte geben Sie eine röm. Zahl ein: ");  
    String rome = scan.nextLine();  
    System.out.println("Der Wert der Zahl " + rome + " ist "  
        + getValue(rome));  
    scan.close();  
}  
}
```