

Bereich: Arrays (mehrdimensional)

Subtraktion zweier Matrizen

Musterlösung

Package: de.dhbwka.java.exercise.arrays

Klasse: MatrixSubtraction

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

import java.util.Random;
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 MatrixSubtraction {

    public static void main(String[] args) {
        Scanner scan = new Scanner(System.in);
        Random rnd = new Random();
        System.out.print("Bitte Anzahl der Zeilen n eingeben: ");
        int n = scan.nextInt();
        System.out.print("Bitte Anzahl der Spalten m eingeben: ");
        int m = scan.nextInt();
        int[][] x = new int [n][m];
        int[][] y = new int [n][m];
        // fill arrays with random numbers
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < m; j++) {
                x[i][j] = rnd.nextInt(100);
                y[i][j] = rnd.nextInt(100);
            }
        }
        // output matrix x
        System.out.println("X:");
        for (int i = 0; i < n; i++) {
            for (int res : x[i]) {
                System.out.printf("%4d",res);
            }
            System.out.println();
        }
        // output matrix y
        System.out.println("Y:");
        for (int i = 0; i < n; i++) {
            for (int res : y[i]) {
                System.out.printf("%4d",res);
            }
            System.out.println();
        }
    }
}
```

```
        // output result x-y
        System.out.println("X-Y:");
        for (int i = 0; i < n; i++) {
            for (int j = 0; j < m; j++) {
                System.out.printf("%4d", x[i][j] - y[i][j]);
            }
            System.out.println();
        }
        scan.close();
    }
}
```

Bereich: Arrays (mehrdimensional)

Pascalsches Dreieck

Musterlösung

Package: de.dhbwka.java.exercise.arrays

Klasse: Pascal

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

/**
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 */
public class Pascal {

    public static void main(String[] args) {
        int maxRows = 9;
        int[][] pascal = new int[maxRows][];
        for (int i = 0; i < pascal.length; i++) {
            pascal[i] = new int[i+1];
            pascal[i][0] = 1;
            pascal[i][pascal[i].length - 1] = 1;
            if (i>1) {
                for (int j = 1; j < pascal[i].length-1; j++) {
                    pascal[i][j] = pascal[i-1][j-1]
                        + pascal[i-1][j];
                }
            }
        }
        for (int i = 0; i < pascal.length; i++) {
            // insert blanks for centered output
            for (int j = 1; j < maxRows-i; j++)
                System.out.print(" ");
            // output one row
            for (int j : pascal[i])
                System.out.printf(" %2d ",j);
            System.out.println();
        }
    }
}
```