PPJ13

November 22, 2022

1 Problem 1

In program, define a two dimentional array of Strings which represents the scores of matches, for example:

```
String[][] arr =
{ {"Germany",  "2", "Scotland", "1"},
  {"Poland",   "2", "Germany",  "0"},
  {"Germany",  "1", "Ireland",  "1"},
  {"Poland",   "2", "Scotland", "2"},
  {"Scotland", "1", "Ireland",  "0"},
  {"Ireland",  "1", "Poland",   "1"},
  {"Ireland",  "1", "Scotland", "1"},
  {"Germany",  "3", "Poland",   "1"},
  {"Scotland", "2", "Germany",  "3"},
  {"Ireland",  "1", "Germany",  "0"},
  {"Scotland", "2", "Poland",   "2"},
  {"Poland",   "2", "Ireland",  "1"} };
```

and an four element array of int arguments which will repreent the scores of teams for Germany, Ireland, Poland and Scotland (in this order). The program should calculate the sum of points which were scored for every team and inserts them into the four-element array. The teams score 3 points for a winning match, 1 point for a tie and 0 point for a loosing match. The program should then print out the array.

2 Problem 2

Create a static function trans, which takes a two-dimentional rectangular(!) array of int arguments. The function must return a new array, created inside of that function which will be the transposition of the input array. The function should not print anything! For example given program:

```
    import java.util.Arrays;
public class Arr2DTr {
    // ...
    public static void main (String[] args) {
        int[][] a = { {1,2,3,4,5,6},
                      {2,3,4,5,6,7},
                      {3,4,5,6,7,8},
                      {4,5,6,7,8,9} };
        for (int[] r : a)
            System.out.println(Arrays.toString(r));
        System.out.println();
        for (int[] r : trans(a))
            System.out.println(Arrays.toString(r));
    }
}
```

Should print out:

```
[1, 2, 3, 4, 5, 6]
[2, 3, 4, 5, 6, 7]
[3, 4, 5, 6, 7, 8]
[4, 5, 6, 7, 8, 9]
[1, 2, 3, 4]
[2, 3, 4, 5]
[3, 4, 5, 6]
[4, 5, 6, 7]
[5, 6, 7, 8]
[6, 7, 8, 9]
```

3   Problem 3

Create a static function which will take a two-dimentional, rectangular array of int elements. For example:

```
int[][] arr = { {1,3,2}, {3,4,8}, {2,6,8}, {1,8,5} };
```

The function calculates and prints out the index of this "line" for which the sum of elements is the greates and index of "column" for which the sum of elements is the greatest. The function should work for any given rectangular array.

4 Problem 4

Write a function which will take as an argument a two dimentional, rectangular array of integers. The function will put 0 in all clumns and rows which contain a 0.
For example:

```
public class ZerosMatrix {
public static void main(String[] args){
    int[][] a = {
        {  4,  9, 10,  0,  1,  2 },
        {  7, -8, 20,  1,  5,  8 },
        {  1,  8,  3,  2,  1, -3 },
        {  1,  8, -3,  2, 11, -3 },
        { 17,  0,  5, -9, 21, 10 }
    };
    printArr(a, "Original matrix");
    setZeros(a);
    printArr(a, "Zeroing rows and columns containing zero");
}

public static void setZeros(int[][] arr) {
    // ...
}
public static void printArr(int[][] arr, String message) {
    // ...
}
}
```

Should print out:

```
Original matrix
4 9 10 0 1 2
7 -8 20 1 5 8
1 8 3 2 1 -3
1 8 -3 2 11 -3
17 0 5 -9 21 10
Zeroing rows and columns containg zero
0 0 0 0 0 0
7 0 20 0 5 8
1 0 3 0 1 -3
1 0 -3 0 11 -3
0 0 0 0 0 0
```

The function should not use any additional **two-dimentional** arrays but i can create two one-dimentional arrays.