Prof. Ralf Schenkel   Wintersemester 22/23
Tobias Zeimetz
Trier University

Exercises for the Class
Elements of Computer Science: Programming
Live Assignment 2
Submission of solutions for group 1 until 1:00 p.m. and for group 2 until 2:00 p.m.
at `moodle.uni-trier.de`

- Submission that can't be compiled are rated with **0** points!

- Please comment your solutions, otherwise you can lose points!

- If you try to cheat, you will lose your points and the classroom exercise will be over!

Exercise 1 (Evaluation: Numbers)   (10 Points)

Read in two numbers a and b via the scanner and determine the sum $a+(a+1)+(a+2)+...+b$ of all numbers that lie between these two numbers (both inclusive).

You may assume that $a \leq b$. (The case of $a = b$ is therefore possible!)

For the input `4  6` you need to calculate the sum $4 + 5 + 6 = 15$, analogous to input `1  10` you need to calculate $1 + 2 + 3 + ... + 10 = 55$.

```
1  Input:  4  6
2  Output:  15
```

Exercise 2 (Evaluation: Numbers)   (10 Points)

Read in two numbers a and b via the scanner and determine all numbers that lie between these two numbers (both exclusive).

For the output you will have to reverse the order of the numbers, i.e. you have to create the following sequence of numbers as output: $b-1\ b-2\ ...\ a+1$.

You may assume that $a < b$.

For the input of `3  8` you will have to create the output `7  6  5  4` as showed in the example below:

```
1 Input: 3 8
2 Output: 7 6 5 4
```

Exercise 3 (Evaluation: Numbers)   (10 Points)

Create a Program, that takes two Integers (`size` and `start`) as input. Afterwards an array `array` of size `size` has to be created and the fields of `array` should be filled with values starting by the value of `start`.

Output the content of `array` on the console as shown below.

```
Input:  5 2
Output: 2 3 4 5 6
```

Exercise 4 (Evaluation: Text)   (10 Points)

Write a program that can read 5 numbers via the scanner. These should then be used to fill an array `array` of size 5.

Then you have to count how many even and odd numbers are contained in this field and display them on the console as follows.

```
Input: 5 2 3 4 8
Even: 3
Odd: 2
```

Exercise 5 (Evaluation: Numbers/Text)   (10 Points)

Write a program that takes several **int** values as input. The first input (called `size`) is used to determine the size of an array `array`. Subsequently, the user has to pass as many numbers to the program as the array is sized.

After the array is filled with numbers given by a user, the program has to find the greatest index in the array for which yields `array[index] == index`.

```
Input: 5 0 1 2 3 4
Output: 4

Input: 4 1 1 2 6
Output: 2
```

If your array does not contain values so that the constraint `array[index] == index` yields, print your output as follows:

```
Input: 5 1 2 3 4 5
Output: No Index Found
```