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Wintersemester 23/24

Exercises for the Class

Elements of Computer Science: Programming

Live Assignment 2

Submission of solutions for group 1 until 2:00 p.m. and for group 2 until 3:00 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: Text) (10 Points)

Read in two numbers a and b via the scanner by using an input prompt of the form `Input:`.

There are 3 possibilities: $a < b$, $a = b$ oder $a > b$. Then generate one of the following outputs accordingly:

"`a is less than b`", "`a is equal to b`", or. "`a is greater than b`".

```
Input: 3 8
a is less than b
```

Attention: This task evaluates the **complete output text**, i.e. your solution should be in the same format than the example above.

Exercise 2 (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 $1 + 2 + 3 + ... + 10 = 55$.

```
Input: 4 6
Output: 15
```

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
```