DISCRETE MATHEMATICS 1

FIRST LABORATORY EXERCISE

2022/2023

TASK

Let it be

$$= 1 \ -1 + 2 \ -2 \qquad (1)$$

homogeneous linear recursive relation of the second order with constant coefficients $1, 2 \in$ .Let them be ( ) and ( ) two sequences that satisfy the recursive relation (1).

It is necessary to write a program that receives a non-negative integer as an input $\in 0$ and the first three members of the sequence ( ) and the string ( ) (so enter the numbers , $0, 1, 2, 0, 1$ and 2, where the terms of the sequence ( ) and a string ( ) they don't necessarily have to be integers) and prints the value of the number on the output .

REMARK: it is expected that for inputs that satisfy ≤ 40 and $|0|, |1|, |2|, |0|, |1|, |2| \leq 20$ program to calculate the value of a number in a maximum of 10 seconds. Teachers can still ask you to enter test examples outside these limits.

ENTRANCE

In the executable file of the program, prompts for entering each of the parameters specified in the task should be printed. Each prompt appears in a new line after entering the previous parameter from the keyboard.

```
Enter a non-negative integer:7
Enter the value of the number b_0:1
Enter the value of the number b_1:2
Enter the value of the number b_2:3
Enter the value of the number c_0:4
Enter the value of the number c_1:5
Enter the value of the number c_2:6
```

Example of program input (numbers marked in red should be able to be entered by the user independently)

EXIT

The program in the executable file should calculate and print the required string member with the appropriate message.

```
The value of the number b_n:8
```

Example of program output (numbers marked in green are printed by the program, in this case for examples of numbers from the input above)

PROGRAMMING LANGUAGES

You may write the program in the programming language of your choice.

PROGRAM

The entire source code of the program (*source code*) must be in only one file, regardless of the number of structures, classes, functions or procedures used.

You teach the program in your laboratory exercise schedule published in the system. You can run the program on your own laptop or on a computer in the practicum, but in the other case, take care that the program must be able to be executed on these computers (there is appropriate software installed, etc.). We recommend that you test whether your program works on the computers in the practicals before handing it in.

SCORING

You can get a maximum of 5 points for this task. In addition to the accuracy of the program itself, the teacher may ask you some additional questions related to the program during the presentation, and it is expected that you can make minor changes to your program in order to calculate and print some additional things.

You are expected to independently design, implement and test your program. Using someone else's program or pseudocode is strictly prohibited.