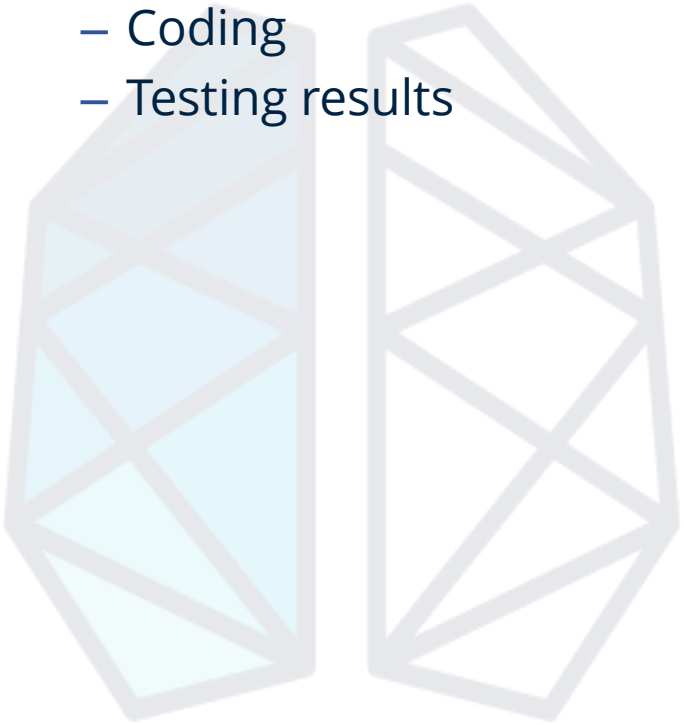
Basic principles of C #, CLR

Lab work "Operators"

MAIN ACADEMY

Lab work contents

- Basic principles of C #, CLR. Lab work Operators
  - Formulation of the tasks
  - Coding
  - Testing results



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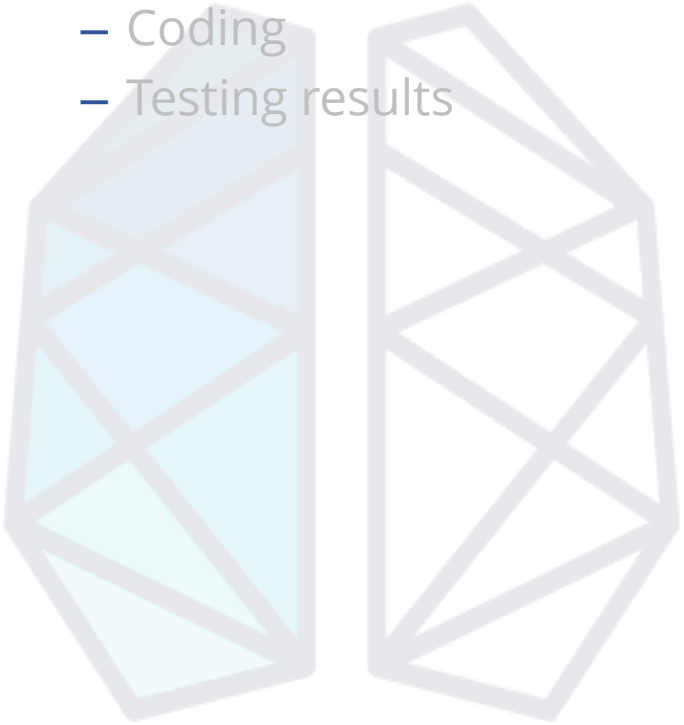

Formulation of the tasks (1/7)

- Please use the Hello_Operators_stud application template from the folder Begin to create a console application for the tasks:
  - Puzzle "The farmer, wolf, goat and cabbage"
  - Simple calculator
  - The factorial of the number
  - Guess the Number
- Verify that the template allows you to fork the task and are valid

Formulation of the tasks (2/7)

- Puzzle "Farmer, wolf, goat and cabbage“ description:
  - From one bank to another should carry a wolf, goat and cabbage
  - At the same time can neither carry nor leave together on the banks of a wolf and a goat, a goat and cabbage
  - You can only carry a wolf with cabbage or as each passenger separately
  - You can do whatever how many flights
  - How to transport the wolf, goat and cabbage that all went well?

Formulation of the tasks (3/7)

- Puzzle "Farmer, wolf, goat and cabbage“ description:
  - Please, code the whole sequence of increasing numbers starting from 1 by seven variables that will map to the following options:
    - "There: farmer and wolf - 1"
    - "There: farmer and cabbage - 2"
    - "There: farmer and goat - 3"
    - "There: farmer - 4"
    - "Back: farmer and wolf - 5"
    - "Back: farmer and cabbage - 6"
    - "Back: farmer and goat - 7"
    - "Back: farmer - 8"

Formulation of the tasks (4/7)

- Puzzle "Farmer, wolf, goat and cabbage“ description:
  - The correct sequence of answers is **3827183** or **3817283**.
  - Organize nested loops for serial input validation of each new option number
  - If the number is not correct, the program reports the failure and exits
  - **Please use the logical operators**

Formulation of the tasks (5/7)

- Calculator description:
  - Calculator should allow to enter the operation number according to the menu

```
Console.WriteLine(@"Select the arithmetic operation:
1. Multiplication
2. Divide
3. Addition
4. Subtraction
5. Exponentiation ");
```

Calculator must report about the operations, operands and results

Formulation of the tasks (6/7)

- Factorial description:
  - To calculate the factorial you must use a for loop with decreasing loop variable at every step. Note that 0! = 1

Formulation of the tasks (7/7)

- Guess the Number
  - Users must guess the Number between 1 and max number defined by program
  - They are told if they are too high, too low or if they have guessed the number correctly

```
Enter your guess: 23
23  - Too low!
Enter your guess: 67
67  - Too high!
Enter your guess: 54
54 is right! Congratulations.
```

- Each new logic block must have different font color output

General information

- For number reading from the console

```
a = long.Parse(Console.ReadLine());
```

or

```
int.Parse(Console.ReadLine());
```

- For the exponentiation operation please take `Math.Pow(a, b)`
- To change font color please use `Console.ForegroundColor = ConsoleColor.Yellow;`
  - Colors: `Yellow, Blue, Red, Magenta`

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