Introduction to Computer Programming

01. Introduction

Exercises

1. Write a program which will print `"Hello, World!"` to the console.

2. Write a program which will calculate an area of a rectangle with dimensions stored in variables a and b. Store the result in an additional variable before printing it to the console.

3. Given the code presented below, do the following exercises without copying the code into the code editor:
   - Indicate errors which will occur during compilation.
   - Indicate errors which will occur during execution.
   - Fix the errors.

```
int x = 5
y = 0;

int x = Console.ReadLine();

Console.WriteLine(x / y);
```

4. Write a program which will convert a value from PLN to USD. For now, do not read the value from the console.

5. Modify the solution to the previous exercise so that this time the value to be converted comes from the console as user input.

6. Write a program which will compute the value of a quadratic function $y = ax^2 + bx + c$ at a given point x. The coefficients a, b, c and point x should be provided by the user during the execution. Make sure the program has a reasonably clear interface.

7. Add comments to the solution of the previous exercise which will explain the significance of each line of code.

8. Run the program from the previous exercise in the debug mode, stop its execution at any point and see the current values of the variables.

9. Run the program from the previous exercise directly from the operating system (not from Visual Studio).

10. Run the program from the previous point once more in the debug mode, pause it at any time and explore **Watch** and **Immediate Window**.

11. Write a program which will ask a user to provide a (non-integer) number and output it as an integer.

12. Draw a filled rectangle made with "*" of width 5 and height 3.

13. Draw a tic-tac-toe board using console symbols.

14. Modify the program from the previous exercise by adding 9 variables which will hold the game state. Assume that only spacebar, "X" and „O" are allowed. Next, draw the board again, however, this time make it reflect the state that is stored in the variables.

15. Modify the solution from the previous exercise so that the program will draw the board with a state provided by the user. An example execution is presented below:

```
Welcome to tic-tac-toe!

What's the state of the first field: X
What's the state of the second field:
What's the state of the third field: O
What's the state of the fourth field: X
What's the state of the fifth field: O
What's the state of the sixth field: O
What's the state of the seventh field:
What's the state of the eights field:
What's the state of the ninth field:

 X |   | O
---+---+---
 X | O | O
---+---+---
   |   |
```