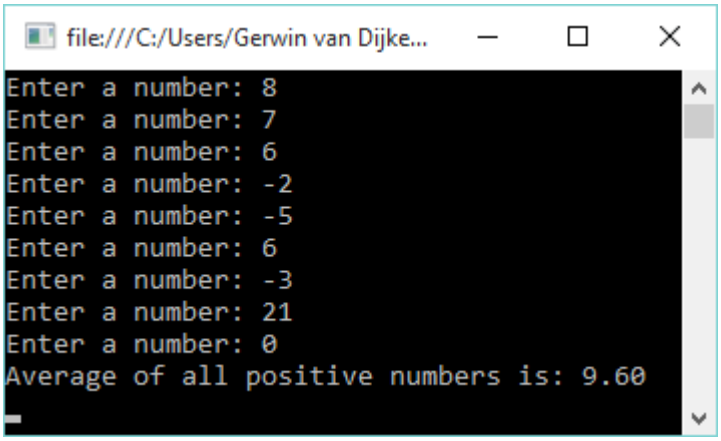
## Iteration assignments

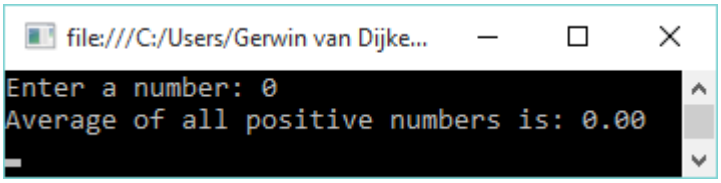
When creating the program code, you must apply the following basic principles:

- create a separate project for each assignment;
- create one solution for each week containing the projects for that week.

### Assignment 1 (Console Application)

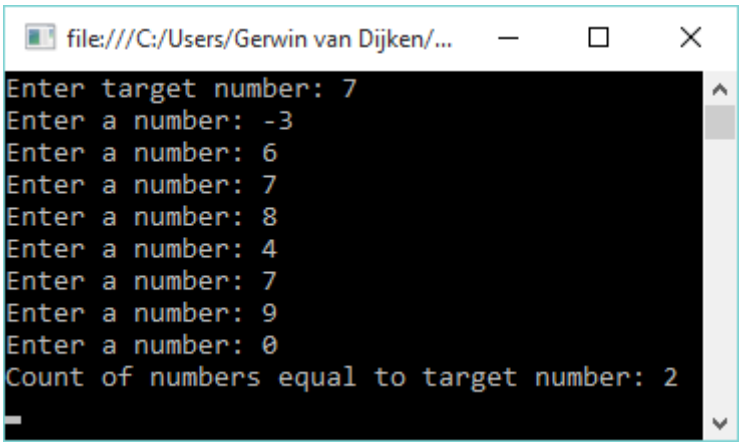
Several numbers are entered until number 0 is stated. Calculate and print the average of the positive numbers.

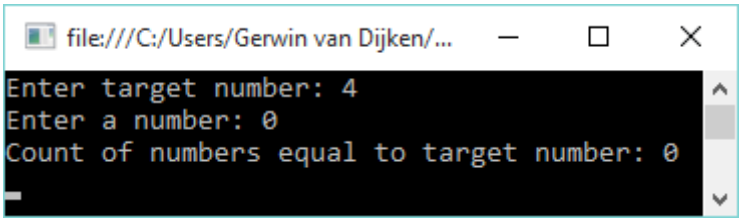


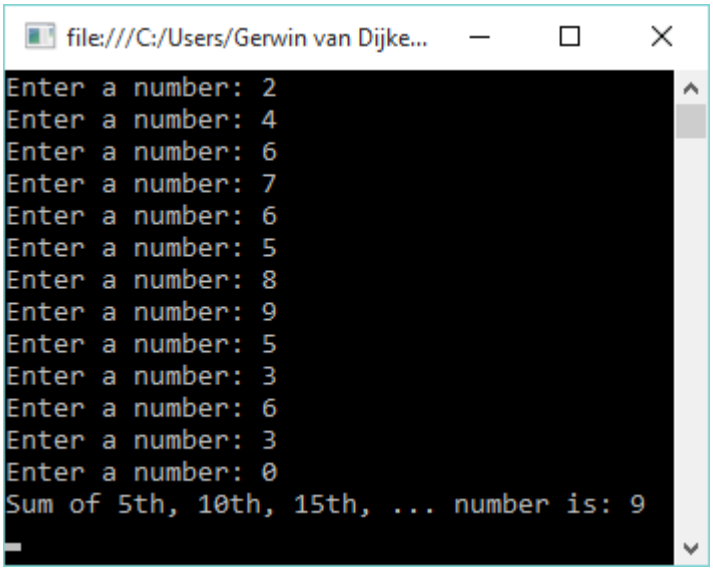

### Assignment 2 (Console Application)

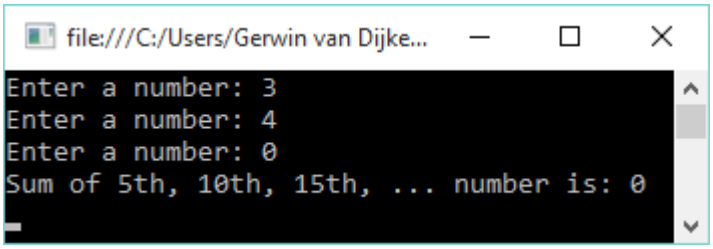
First, a target number is entered and then several numbers (the input again ends with 0). Determine and print the number of numbers that are equal to the target number.

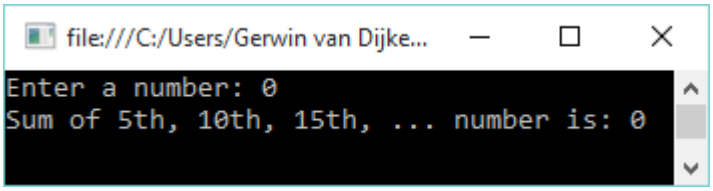


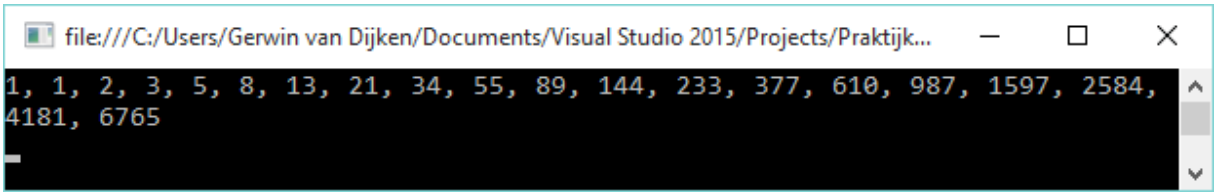
**Assignment 3 (Console Application)**
Several numbers are entered (the input again ends with 0). Determine and print the sum of the 5th, 10th, 15th number, etc.



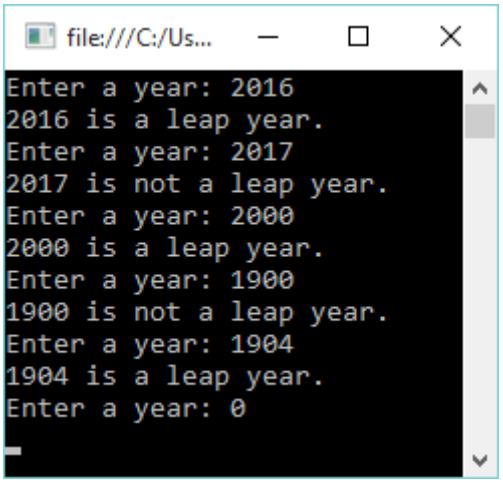



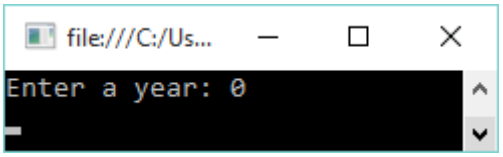



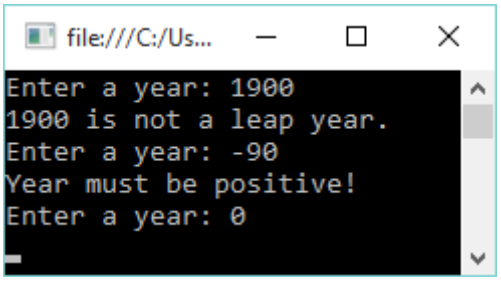

**Assignment 4 (Console Application)**
Determine the first 20 numbers in the (Fibonacci) series: 1 1 2 3 5 8 13 …….
(starting from the third element, the element is the sum of the preceding two).



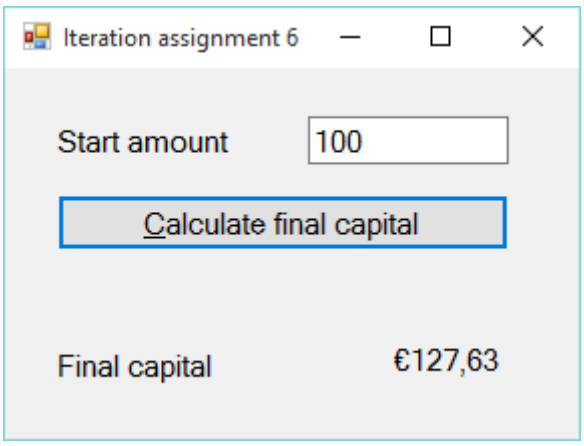
**Assignment 5 (Console Application)**
Enter a year. Show whether that year is a leap year. Reject non-positive numbers with an appropriate text. (A year is a leap year if it can be divided either by 400 or by 4, but not by 100). Keep repeating all of the above steps until 0 is entered as the year.

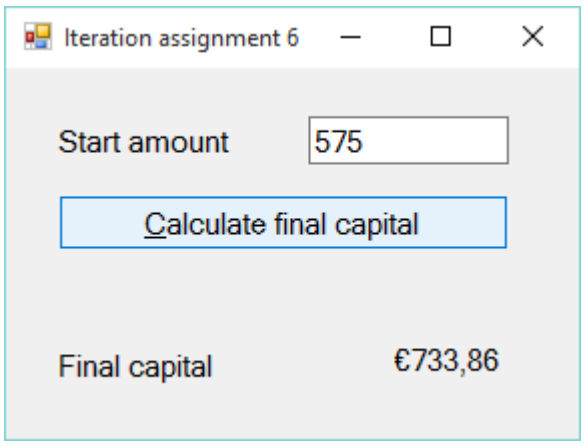



**Assignment 6 (Windows Application)**
I go to the bank on 1 January and put a sum of money on a fixed deposit with an annual interest rate of 5%. I would like to receive the deposit back after five years; no withdrawals have been made in the interim period. Enter the starting amount; calculate the final capital and print it.

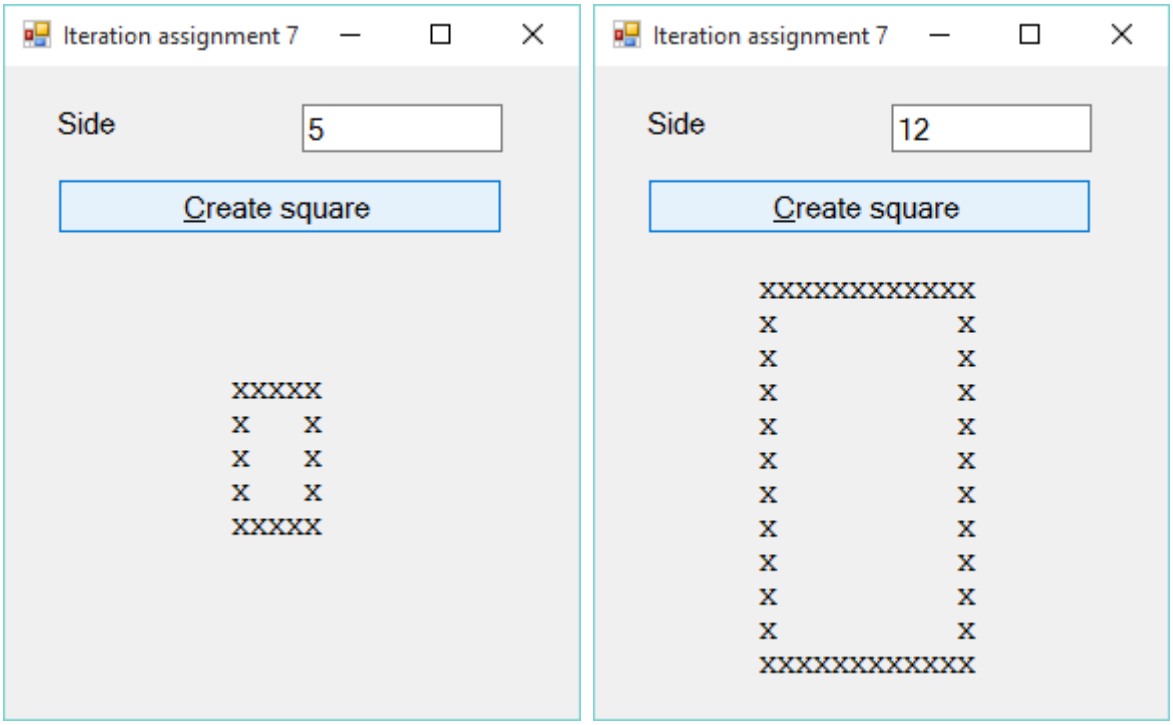


**Assignment 7 (Windows Application)**
Draw the following pattern, a square border with side n.
For example,n = 5 produces the following result.

NB:
- Use New Courier as the font for the label in which the square is shown.
- Use a font size that stands out for X, such as font size 14 in bold.
- Centre the text in the label of the square.
- To go to the next line with a string (text), use character code '\n'.

Tip: Do this assignment with a square completely filled with Xs first.




**Assignment 8 (Windows Application)**
Determine the following: sum = 0 + 1 + 2 + .... + n.
Check the result using the formula: sum = n × (n + 1) / 2.

State whether or not these sums are equal to each other.