

Series N°03

Loops

Exercise 01 Factorial of a Number

Write a program that calculates the factorial of a given number N using a **do-while** loop.

Exercise 02 Print Multiplication Table

Write a program that takes an integer N from the user and prints the multiplication table for that number using a **for** loop

Exercise 03

Write a program that counts the number of digits in a given integer using a while loop.

Exercise 04

Write a program that calculates the nth power of a number x, where n is a positive integer. n and x are given by the user.

$$x^n = \underbrace{x * x * \dots * x}$$

Exercise 05

Write a program asking the user to enter a positive integer. The input will be repeated until the number is positive. Same question for a positive integer multiple of 3.

Exercise 06

Write a program that asks the user for an integer N, then buys N rows of integers from 1 up to the row number (Display A).

Modify the program so that it displays N columns of integers from 1 up to the column number (Display B).

Example: for N = 5, the program should display :

(A)	(B)
1	1
1 2	2 1
1 2 3	3 2 1
1 2 3 4	4 3 2 1
1 2 3 4 5	5 4 3 2 1

Exercise 07

Write a program to represent a game whose aim is to guess an integer given by the first player. The number must be between 0 and 100. The program asks the second player to

guess the number, telling him whether his guess is bigger or smaller than the number to be guessed, until he finds the right answer. The number must be found at the lowest possible cost. Here's an example:

```
> Est-ce 12 ?  
> Trop grand  
> Est-ce 6 ?  
> Trop petit  
> Est-ce 9 ?  
> Trop grand  
> Est-ce 7 ?  
> Bravo! vous avez gagné en 4 coups.
```