

TD N°: 03

Exercice 1 :

1. Write an algorithm that displays the multiples table of an integer N,
2. Write an algorithm that displays the multiples an integer N which are less than an integer M given by the user.

Exercice 2 :

Write an algorithm that calculates the integer division of two integers (A / B) using successive subtractions method.

Exercice 3 :

Consider two positive integers A and B. Write an algorithm which calculates the greatest common divisor (PGCD) of A and B using successive subtractions method.

Exercice 4 :

Write an algorithm that asks the user to enter an integer and displays it in upside. For example, the user enters 13803 and the algorithm displays 30831.

Note. Use integer division and modulo.

Exercice 5 :

Let i, n and x three integers. Write an algorithm that calculates:

1. $\sum_{i=1}^n i$
2. $\sum_{i=1}^n x^i$
3. $\sum_{i=1}^n i !$

Exercice 6 :

Write an algorithm that calculates the N^{th} term of the Fibonacci sequence.

Reminder: The Fibonacci sequence is defined by:

$$\begin{cases} F_0 = 0 \\ F_1 = 1 \\ F_n = F_{n-1} + F_{n-2} , \quad n \geq 2 \end{cases}$$

Exercice 7 : (optional)

Starting from a declared constant integer value, write an algorithm that tries to find this constant value which is considered hidden for the user. For this, the user tries to guess by entering an integer value; if the entered value is greater or less than the hidden constant, the algorithm displays: (entered value less than the desired value) or (the entered value superior than the desired value), this process is repeated until the value is found or the user leave the research.

Exercice 8 : (optional)

Write an algorithm that displays the first N prime numbers (we take for example: N = 100).

NB. A number is prime, if it is divisible by 1 and itself.