University of BATNA 2
Faculty: Mathematics and Computer
Department: Common Core in Mathematics and Computer Science
1st Year CC-MCS 2023-2024 academic year

Series of 2nd supervised exercises

Aims: master the basic instructions (assign, read, write)

Exercise 1

Consider the following algorithm:

Algorithm Algo_05 ;
Var   A, B : **integer** ;
Begin
   Read (A) ;
   Read (B) ;
   A ← B ;
   B ← A ;
   Write (A,B) ;
End.

Questions :

1. Trace the Algo_05 algorithm, introducing 5 and 10 as the values of A and B.
2. Do the instructions in the algorithm allow you to exchange the two values of B and A?
3. Reverse the order of the instructions (A ← B ;) and (B ← A ;) and trace the new algorithm.
4. If the problem of exchanging the values of A and B is not solved, propose an algorithm to solve this problem.

Exercise 2

Write an algorithm which displays :

- The text "the number is 12",
- The number Y and its successor; where Y is replaced by its value,
- The text "The result of calculating 323 minus 117 is X", where X is replaced by the result of the operation,
- The result of the expression : $exp = \frac{(4-ab)^2 - 3cd}{2e-a}$ Where: a,b,c,d and e are integers and (2e-a≠0).

Exercise 3

Algorithm Algo_06 ;
Var   A : **integer** ;
Begin
   Read (A) ;
   Write (A*A) ;
   Write (A*2) ;
End.

1. Trace the execution of the Algo_06 algorithm?
2. Deduce what it does?

Exercise 4

Write an algorithm and its C program that displays the text "Please enter a number:", then displays the message: "The number entered is:", followed by the value of the number.

Exercise 5

Write an algorithm to add, subtract and multiply three real numbers.