Mila University Center
Institute of Mathematics and Computer Science
Department of Mathematics
1st Year LMD

DIRECTED WORK SERIES NO.6

Module: Algorithmic and data structures1 Academic year: 2023/2024

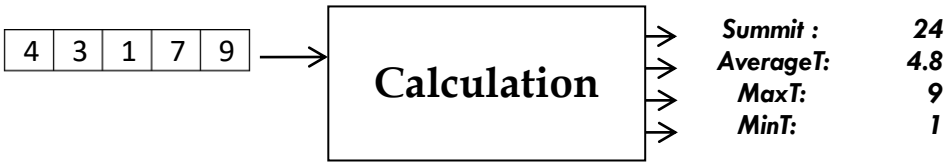
Exercise 1

Write an algorithm that fills a vector with **N** integer values, then display the values of this vector. **N** is given by the user.

Exercise 2

Create an algorithm that calculates and then displays the sum, average, maximum and minimum of the elements of an array of integers:

Example :



Exercise 3

Write an algorithm that reads a vector of **n** integer values and check if it is sorted in ascending order or not**.**

Exercise 4

Let **V** be a vector of **N** integer values. Construct two vectors **V_EVEN** and **V_ODD** from this vector. With the first containing the even elements of V and the second the odd elements of V. then display the elements of the vectors V_EVEN and V_ODD.

Exercise 5

The calculation of the elements of a matrix **C**, product of two matrices **A** and **B** respectively of dimensions (**n**, **r**) and (**r**, **m**), is given by the following relation: $C_{ij} = \sum_{k=1}^{r} \mathbf{a_{ik}} * \mathbf{b_{kj}}$

Write an algorithm to construct the matrix **C** product of two matrices **A** and **B**.

Exercise 6

Write an algorithm that allows you to tell whether a matrix is **dominated** by **even**, **odd** or **balanced** numbers.