

PW 03 : Arrays

Exercise 1 : filling

Write a Fortran program that declares an array **t** of 20 elements of real type, then

1.

- initialize these elements with 0.
- initialize these elements with 1 to 20 in order.
- displays its contents.

2. fill **t** with n element given by the user such as **n** less than 20.

Exercise 2 : calculate

1. Write a Fortran program that declares an array **t** of 20 elements of integer type, then
 - fill **t** with **n** element given by the user
 - calculate and display the **sum** of the elements of **t**
 - calculate and display the **product** of the elements of **t**
2. Write a FORTRAN constituting an array, from two previously entered arrays of the same length. The new array will be the **sum** of the elements of the two initial arrays.

example :

Array 1: 4 8 7 9 1 5 4 6

Array 2: 7 6 5 2 1 3 7 4

Table to create: 11 14 12 11 2 8 11 10

Exercise 3 : research

1. Write a fortran program allowing the user to enter M integer values into an array A. Once the entry is complete, the program will display:

- The number of **negative** values (NEG)
- The number of **even** elements (Pair)
- the Greatest value (**max**)
- Smallest value and its order in array A (**min** and **imin**)

2. Finds if a number **x** exists or not in the array A and then find the number of occurrences of **x** in an array A. with x is value given by the user.

Exercise 4 : Matrix

1. Write a fortran program which allows you to fill a 5*4 Array (matrix) with the numbers 0,1,2,3,.....,19 and display it on the screen.
2. allows you to enter a square matrix (n*n) and display the elements of its main diagonal.
3. Write a Fortran program which allow to **adds** two matrix **A** and **B** of the same dimensions $N * M$ and displays the result matrix.
4. Write a Fortran program which allow to **product** two matrix **A** and **B** of the dimensions $N * K$ and $K * M$ successively and displays the result matrix.