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Exercise 1

Let be two integer sorted arrays A [N] and B [N].

1. Write a procedural C++ program (with functions), allowing to merge A and B into a C array.
2. Redo the solution using dynamic allocation.

Exercise 2

Write a C++ program, with functions, allowing to:

- **a.** read an integer array A [N]
- **b.** return the minimum and the maximum values of A and their respective indices
- **c.** sort A
- **d.** display A and the obtained results

1. Use static allocation.
2. Use dynamic allocation.

Exercise 3

Let be two integer two-dimensional arrays A [N] [N] and B [N] [N].
Propose a C++ program that uses the following functions:

- a function that initializes A then B
- a function that calculates their sum
- a function that calculates their product.
- a function that calculates the number of null values in A and then in B.
- a function that swaps the minimum value of A with the maximum value of B
- a function that displays arrays and results

1. Use static allocation.
2. Use dynamic allocation.

Exercise 4

Let be **Produc**t the type of the structure composed by three fields: **code, weight, and price.**

1. Write a C++ program, with functions, to declare two variables M1 and M2 of type **Product**, to initialize these variables, to modify them and to display their values before and after the modification. Use the different modes of parameter transfer between functions (by value, by address and by reference).
2. Redo the solution using dynamic allocation for the M1 and M2 variables.

Exercise 5

Write a C++ program with functions to swap the minimum values of two integer two-dimensional arrays A [N] [N] and B [N] [N] knowing their indices (rows and columns).

1. Give a solution passing the arrays as parameters.
2. Give a solution without passing the arrays as parameters