



BScv

Computer science Lab #1

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「 Function, array, matrix 」

NB : use good practices for naming and write code ¹!!!

└ Problem 1 ▸

Write in c++, codes which correspond to the following problem :

1. Swap 2 variables which have been input by keyboard
2. Test if 2 numbers inupt from keyboard have the same sign
3. Test if 2 numbers inupt from keyboard are even or odd
4. Print in the terminal 1 times the word "First"
5. Print in the terminal 3 times the word "First" or 2 times the word "second" depending of the user choice

└ Problem 2 ▸

Display in the terminal the following function :

$$f(x) = \sin(x) + \ln(x) \quad (1)$$

where $x \in [1 : 10]$

└ Problem 3 ▸

Write 2 versions of a function which to swap 2 integers. The first one have to use *int ** and the second will use *int &*.

¹<https://google.github.io/styleguide/cppguide.html>

▮ **Problem 4** ▮

Create functions which allows to make the following sort :

1. Buble sort : https://en.wikipedia.org/wiki/Bubble_sort
2. Quick sort : <https://en.wikipedia.org/wiki/Quicksort>

For each one evaluate the running time and the display it.

testNB : Use array allocate dynamicly

▮ **Problem 5** ▮

In this part we will manipulate Array and Matrix :

1. Transpose a matrix
2. Transform a matrix in a mono dimensional array.
3. Compute, store and display the N first line of Pascal Triangle