



BScv

## Computer science Lab #1

Cedric Lemaitre  
c.lemaitre58@gmail.com

### [ C++ function, array, matrix ]

qqch

*NB : use good practice for naming and write code <sup>1</sup>!!!*

#### └ Problem 1 ┐

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

1. Permutate 2 variables which have been input by keyboard
2. Test if 2 numbers input from keyboard have the same sign
3. Test if 2 numbers input 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 ┐

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

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

#### ▮ Problem 4 ▮

Create functions which allows to make the following sort :

1. Buble sort : [https://en.wikipedia.org/wiki/Bubble\\_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