

## A08 – Computing Fibonacci Series

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### Work to do

Fibonacci numbers are a series defined as follows:

0th Fibonacci number is 0

1st Fibonacci number is 1

2nd Fibonacci number is the sum of the 2 previous:

$$\text{Fib}(2) = \text{Fib}(0) + \text{Fib}(1)$$

...

$$n^{\text{th}} \text{ Fibonacci number is } \text{Fib}(n) = \text{Fib}(n-1) + \text{Fib}(n-2)$$

You have to write a program which will use 2 variables a and b to store the initial values of the Fibonacci series (respectively 0 and 1). You will then compute the next number in the Fibonacci series and store it in b while saving b's previous value in a. If you need additional temporary variables, go for it<sup>1</sup>. You will keep iterating like this and display, at each iteration, the values of a and b. The number of iterations you will compute will be given to you at the beginning of your program by the user as an integer. Make sure that you address the cases in which the user provides you with a negative number or a number which doesn't require you to enter your loop (e.g. 0 or 1).

### Example(s)

Here is an example of what the interaction with your program should look like (user input in bold)

How many Fibonacci numbers do you want me to compute: **5**

Iteration #1    a = 0    b = 1

Iteration #2    a = 1    b = 1

Iteration #3    a = 1    b = 2

Iteration #4    a = 2    b = 3

Iteration #5    a = 3    b = 5

### Hints

- This is a more classical exercise just meant to help you practice program design of based on simple combinations of conditional / iterative statements

### Testing

Input	Output	
	Expected Series	Observed Series
Number requested by user		

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<sup>1</sup> It is possible to use only 2 variables  $b = (a=b) + a$