Programming languages (TC-2006)

Homework 04

In this homework, you will practice recursion by implementing three functions in C++.

1 Sum (30%)

Prepare a **recursive** function in C++ that sums all the elements in a vector .

2 Fibonacci numbers (30%)

The fibonacci numbers are the numbers in the following sequence and characterized by the fact that every number in it is the sum of the two preceding ones:

$$0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, \ldots$$

Write a **recursive** function in C++ that calculates the f_i number in the sequence, based on the following:

$$\begin{aligned} f(0) &= 0 \\ f(1) &= 1 \\ f(n) &= f(n-1) + f(n-2) \end{aligned}$$

3 Converting to binary (40%)

Impement a **recursive** function in C++ that converts an integer number into its binary equivalent.

Deliverables

Prepare a cpp file that contains your implementation of the requested functions and submit it to Canvas. **Please, do not submit other formats but** cpp.

I promise to apply my knowledge, strive for its development, and not use unauthorized or illegal means to complete this activity, following the Tecnológico de Monterrey Student Code of Honor.