

Revision C/C++

1. Objectives

- to start using Visual C++ 2010
- revision C, C++
- the structure of a program (libraries, functions, the std namespace)
- using cout, cin, endl, comments;
- realize (compile and run) some simple programs in Visual C++ 2010

2. Introducing in C++

2.1 The structure of a program

The lines starting with # are preprocessing directives.

```
#include "stdafx.h"          /* meaning the including of a header file
                               This file includes several libraries which
                               we use */

using namespace std;        /* the std is a namespace in which there are
                               declared all the specific elements of the
                               standard library C++. By declaring that we
                               use this namespace we have access to its
                               functionality. */

void main()
{
    int nb; //the declararation of an integer variable
    system("color fc"); // try with and without this !!!
    cout<<"Our first program in C++"; //we use cout for printing
                                     //on the screen
                                     // cout is included in "iostream"
                                     // we have to include this library
                                     // #include <iostream>
                                     // in the stdafx.h file

    cout<<"The second line"<<endl; //We use endl for going to the
                                     // next line

    cout<<"Introduce a number";
    cin>>nb;                        //instead of scanf we use cin
                                     //for storing the number which
                                     // we entered on the keyboard
    _getch(); //in order to not immediately dissapear the console
               // requires us to include the conio.h library
}
```

For compile Build -> Build (The name of the project)

In order to run the program Debug ->Start Without Debugging

IMPORTANT: In C++ it is very important to use ; and { }
Attention to writing!

2.2 Problems

1. Write a function which returns true if a number is positive and false otherwise.
2. Write a function which returns the sum of squares of its digits. The number will be introduced from the keyboard.
3. Write a function which returns the reverse of a number.
4. Write a function which calculates the factorial of a natural number.
5. Write a function which calculates:

$$F(x) = \begin{cases} x-3 & \text{for } x < -3 \\ 4x^2 - 2x + 1, & \text{for } x \in [-3, 3] \\ x + 3, & \text{for } x > 3 \end{cases}$$

3. Homework

Problem 1. Write a C/C++ program which is able to realize the schooling management of the students from the Faculty of Mathematics and Computer.

Define a student type structure which contains:

- first name;
- last name;
- personal identification number;
- the class;
- group;
- the grade obtained at Mathematical Analysis;
- the grade obtained at C Programming;
- the grade obtained at Algorithms;
- the grade obtained at Logic for Computer Science;
- the grade obtained at English;
- final grade (the average);
- credits obtained.

The application allows you to save data of each record in a text file.

The user will enter only: first name, last name, the personal identification number, the class, the group, the grade obtained at Mathematical Analysis, the grade obtained at Programming C, the grade obtained Algorithms, the grade obtained at Logic for Computer Science, the grade obtained at English. The general average and the number of credits will be obtained according to the grades obtained, by considering that each discipline has allocated 6 credits. In a separate file will show First Name / Last Name of each student, the average and the number of credits obtained.

Te read:

http://en.wikibooks.org/wiki/C++_Programming/Code_Style

<http://www.cplusplus.com/files/tutorial.pdf> (A tutorial)

<http://www.youtube.com/watch?v=2sSMzRj7RTs&feature=fvwrel>
(Video the first C++ program)