Al-Mustaqbal University
College of Engineering & Technology
Biomedical Engineering Department

Computer

Lab 1

Introduction to C++ programming

PhD. BEng. Ahmed Hasan Janabi
PhD in Cybersecurity
Email: Ahmed.Janabi@uomus.edu.iq

Teiba Samer
Hadeer Husam

Learn how to create, compile, and run a simple C++ program in Code::Blocks that prints "Hello, World!" to the console.

For your information the file name with C execution can be written as filename.c, while in C++ can be written as filename.cpp.

C++ Getting Started

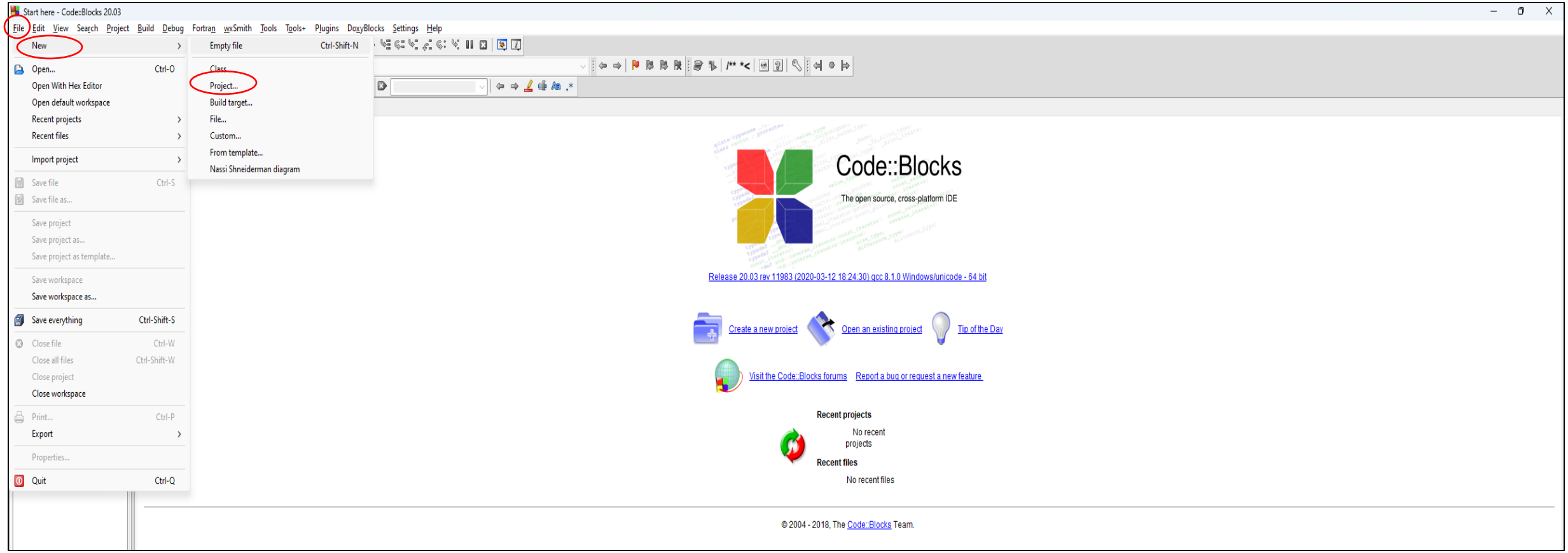
To start using C++, you need two things:

- ❑ A text editor, like Notepad, to write C++ code
- ❑ A compiler, like GCC, to translate the C++ code into a language that the computer will understand

Popular IDE's include Code::Blocks, Eclipse, and Visual Studio

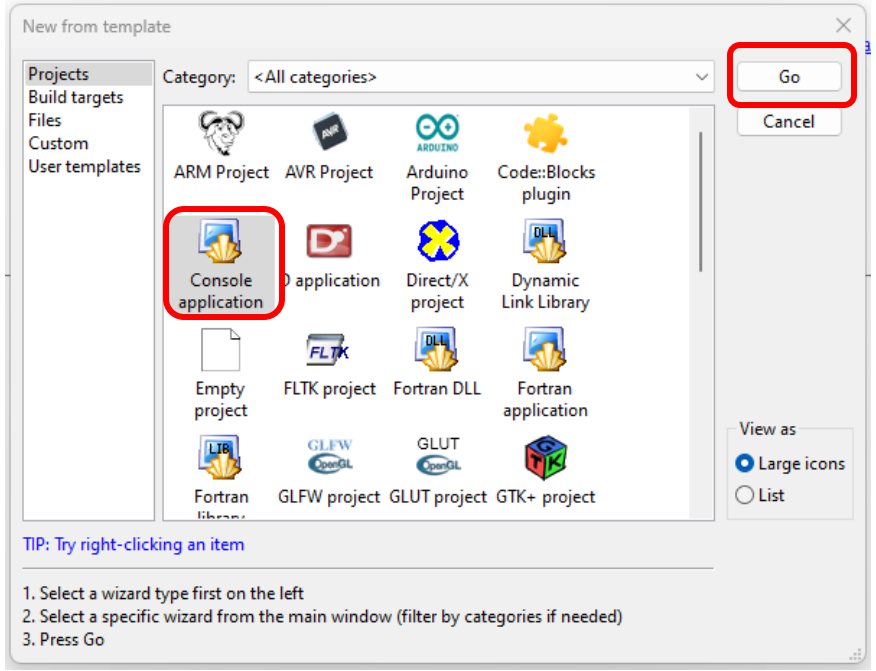
Visit the following link to download and install it.
https://www.codeblocks.org/downloads/binaries/

Step 1:
Select: File >> New >> Project, as shown in the screenshot below:



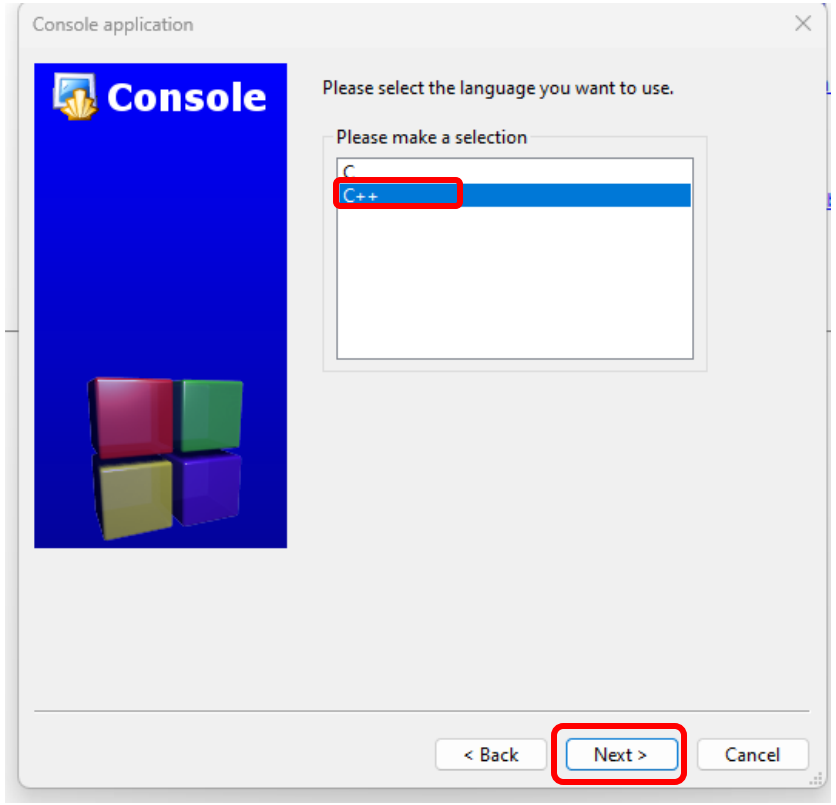
Step 2:

Select Console application from the project types and click Go, as shown below.



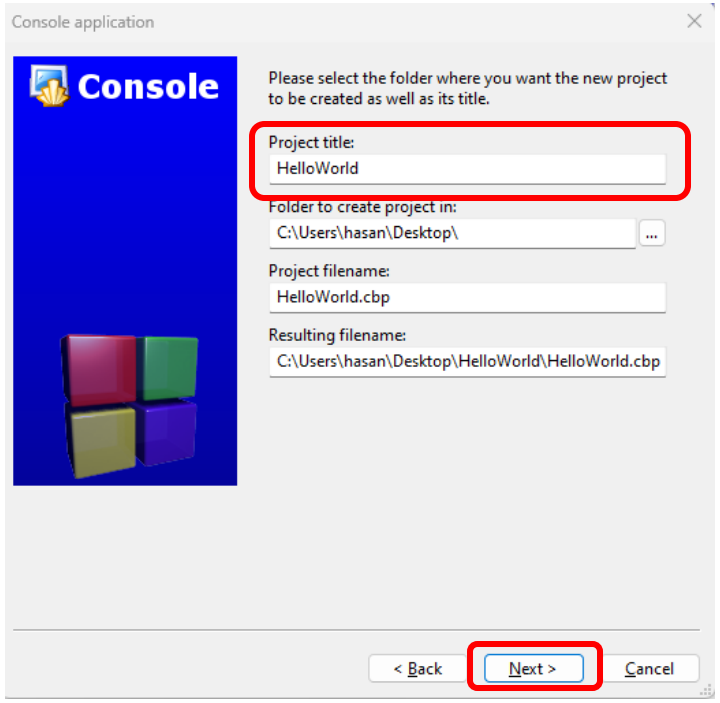
Step 3:

In the next window, make sure C++ is selected as the language and then click Next.



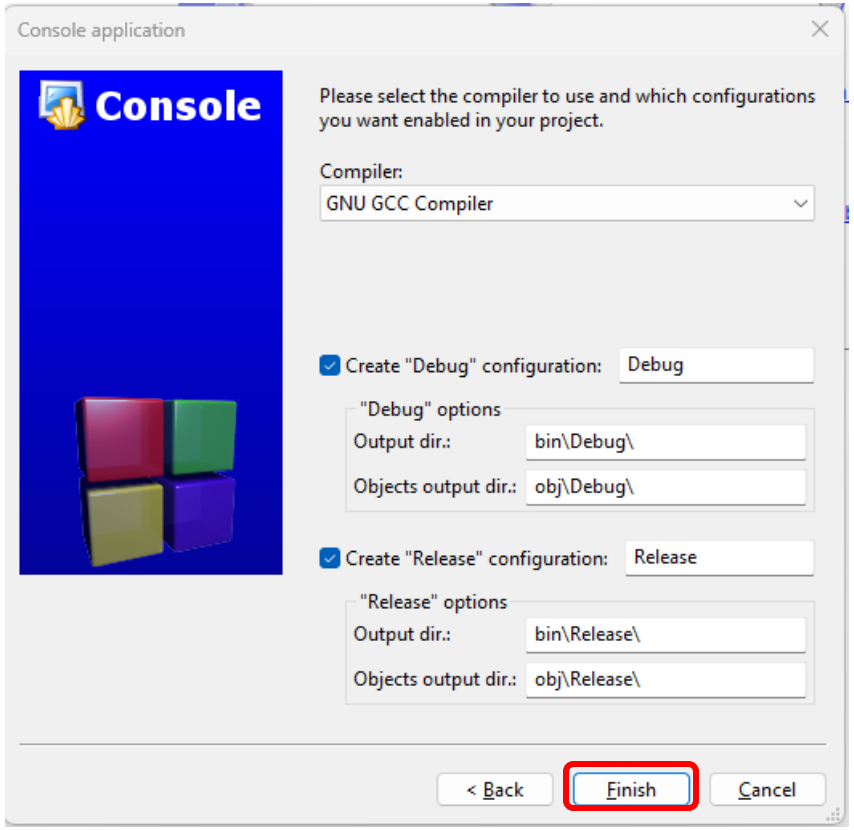
Step 4:

Enter a project title, e.g., HelloWorld. Choose a location to save your project and click Next.



Step 5:

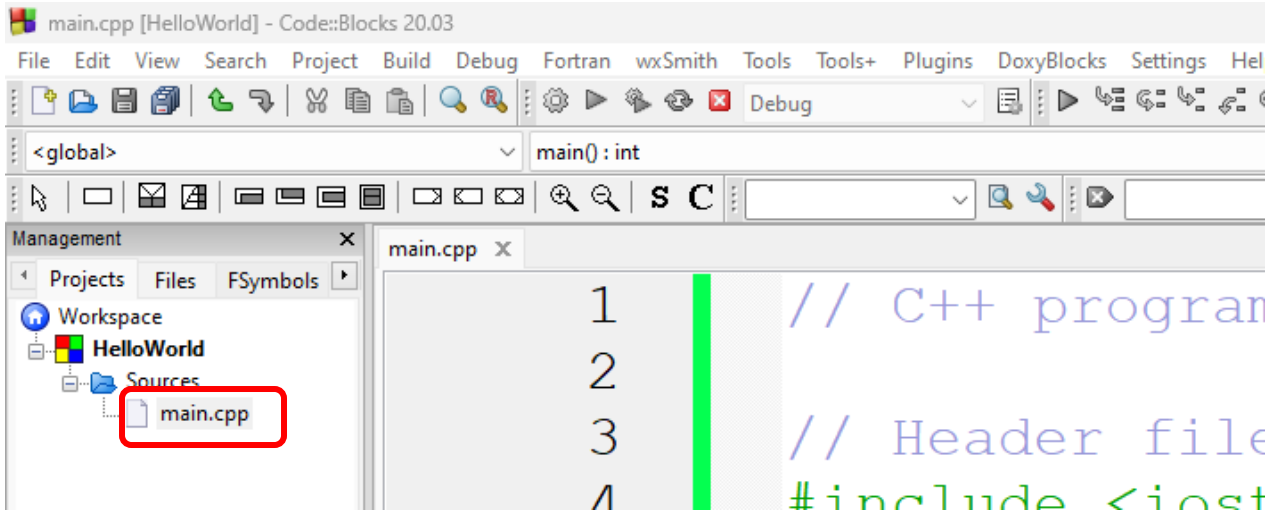
Skip the "Compiler and debugger" settings by clicking Finish



Write Your Code

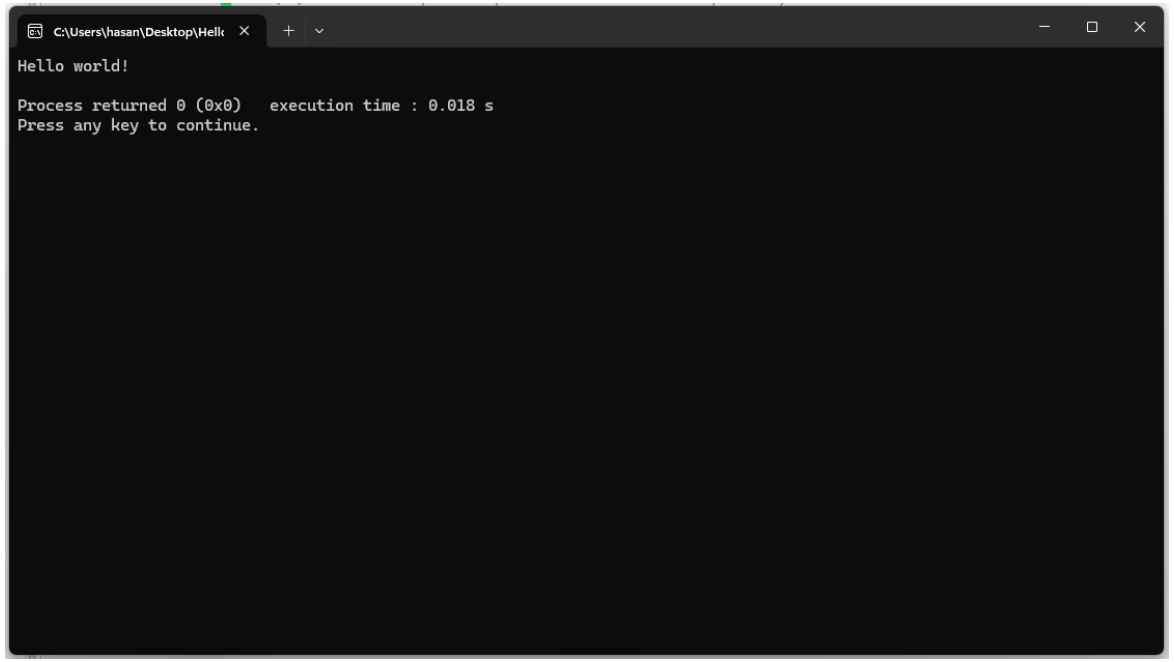
1. Code::Blocks will automatically create a basic C++ program. Locate the main.cpp file in the Sources tab in the left pane.
2. Open main.cpp. You will see some default code already present.
3. Replace the existing code with the following:

```
// C++ program to display "Hello World"

// Header file for input output functions
#include <iostream>
using namespace std;

// Main() function: where the execution of
// program begins
int main()
{
        // Prints hello world
        cout << "Hello World" ;

        return 0 ;
}
```



Compile and Run the Program

1. Save your file by clicking File > Save or Ctrl + s.
2. Compile the program by clicking the Build icon (a gear icon) or going to Build > Build.
3. After compiling, run your program by clicking the Run icon (a green play button) or going to Build > Run.



Exercise 1

The program you code early is the traditional first program presented in introductory C ++ programming courses.

```
#include <iostream>
using namespace
 int main
{
cout << "Hello World and this is my first program in C++ \n"
 return 0
}
```

#include <iostream>

Lines beginning with a hash sign (#) are directives for the pre-processor to compile the program. The #include <iostream> tells the preprocessor to include the iostream standard file. This specific file (iostream) includes the declarations of the basic standard input-output library in C++, and it is included because its functionality is going to be used in the program.

using namespace std

Using this command will inform the compiler to allow all the names in the std (std is the shortest of standard) namespace to be used.

int main()

It is a main function in the C++ language, where the programmer can write the main code.

The braces {

}

Delineate the extent of the function block. When a function completes, the program returns to the calling function.

This program contains just one statement: a function call to the standard library function cout , which prints a *character string* to standard output (usually the screen).

The \n at the end of the string is an *escape character* to start a new line.

return 0

In the case of main( ), the program terminates and control returns to the environment in which the program was executed. The integer return value of main( ) indicates the program's exit status to the environment, with 0 meaning normal termination.

Exercise 2:

```
include <iostream>
using namespace std;
int main() {
    cout << "Hello Computer.\n";
    cout << "This is my second program!\n";
    cout << "And my name is Hussein Muzahim Aziz.\n";
    cin.get();
    return 0;
}
```

Exercise 3:

```
include <iostream>
using namespace std;
int main() {
    cout << "1\n"; cout << "2\n";
    cout << "3\n";
    cout << "4\n";
    cout << "5"; cin.get();
    return 0;
}
```

Exercise 4:

```
include <iostream>
using namespace std;
int main() {
    cout << "1+1=2\n";
    cin.get();
    return 0;
}
```

Exercise 5:

```
include <iostream>
using namespace std;
int main() {
    int first_number = 1;
    int second_number = 2;
    int result = first_number + second_number; cout << result << endl; cin.get();
    return 0;
}
```

Exercise 6:

```
include <iostream>
using namespace std;
int main() {
    int first_number = 1;
    int second_number = 2;
    int result = first_number + second_number; cout << result; cin.get(); return 0;
}
```

Exercise 7:

```
include <iostream>
using namespace std;
int main() {
    float first_number = 1.25f;
    float second_number = 2.37f;
    float results = first_number + second_number; cout << results << endl; cin.get();
    return 0;
}
```

Exercise 8:

```
include <iostream>
include <iomanip> // for std::setprecision
using namespace std;
int main() {
    float first_number = 1.25f;
    float second_number = 2.37f;
    float results = first_number + second_number; cout << fixed << setprecision(2)
    << results << endl; cin.get();
    return 0;
}
```

Exercise 9:

```
include <iostream>
include <iomanip> // for std::setprecision
using namespace std;
int main() {
    float first_number = 1.256f;
    float second_number = 1.379f;
    float results = first_number + second_number; cout << fixed << setprecision(5) << results << endl;
    cin.get();
    return 0;
}
```

Exercise 10:

```
include <iostream>
include <iomanip> // for std::setprecision
using namespace std;
int main() {
	float first_number = 0.256f;
	float second_number = 0.379f;
	float results = first_number + second_number; cout << fixed << setprecision(1) << results << endl;
	cin.get();
	return 0;
}
```

Exercise 11:

```
include <iostream>
using namespace std;
int main() {
        int num_1, num_2;
        cout << " Enter Two Numbers \n";
        cout << " ..................\n";
        cout << " Enter the First Number :";
        cin >> num_1;
        cout << " Enter the Second Number :";
        cin >> num_2;
        cout << " The first number you entered is " << num_1 << " And the second number you entered " << num_2 << " \n";
        cin.get(); // to consume the newline character
        cin.get(); // to pause the program
        return 0;
}
```

Exercise 12:

```
include <iostream>
using namespace std;
int main() {
    int num; cout << " Enter the number of students in your class :";
    cin >> num;
    cout << "\n Are you sure !\n";
    cin.get(); // to consume the newline character
    cin.get(); // to pause the program
    return 0;
}
```

Exercise 13:

```
include <iostream>
using namespace std;
int main() {
	int x, y, sum;
	cout << " Enter the values of x and y \n";
	cout << " Enter the value of x:";
	cin >> x;
	cout << " Enter the value of y:";
	cin >> y; sum = x + y;
	cout << "x = " << x << " y = " << y << " sum = " << sum << endl;
	cin.get(); // to consume the newline character
	cin.get(); // to pause the program
	return 0;
}
```

Homework

Home Work 1:

It is required from you to write a code in C++ language to print out in the screen the following information:

Your Name,

Your Age,

Your College Name.

Home Work 2:

It is required from you to write a code in C language to find the average for any five numbers.

DO YOUR BEST
AS
YOU ARE THE BEST