

Chapter 1

Visual Studio

CS185

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Working in Visual Studio

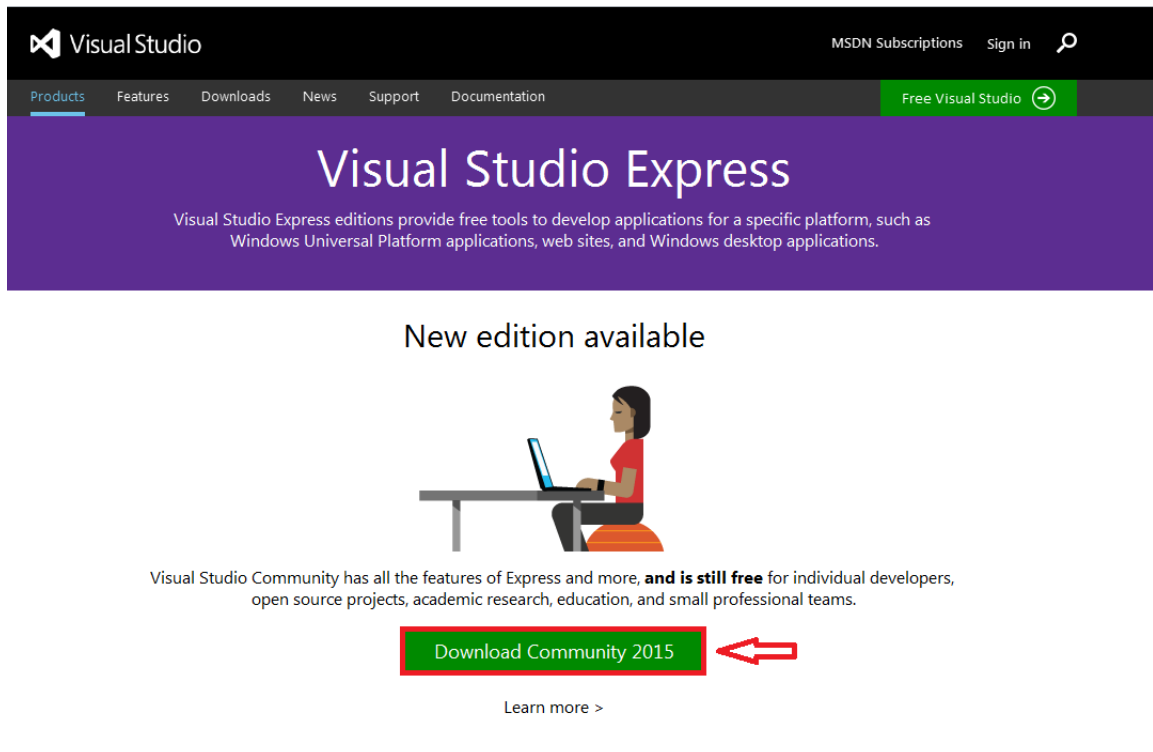
In this class, we will be using Microsoft's C++ compiler and Visual Studio as our IDE. Below you will find the instruction to download, install and create an empty project in Visual Studio.

Downloading and Installing Visual Studio

Microsoft provides an express version of its latest Visual Studio. You can use the following link to download it and install it.

<https://www.visualstudio.com/en-us/products/visual-studio-express-vs.aspx>

Note: You might need to make an account in order to download.

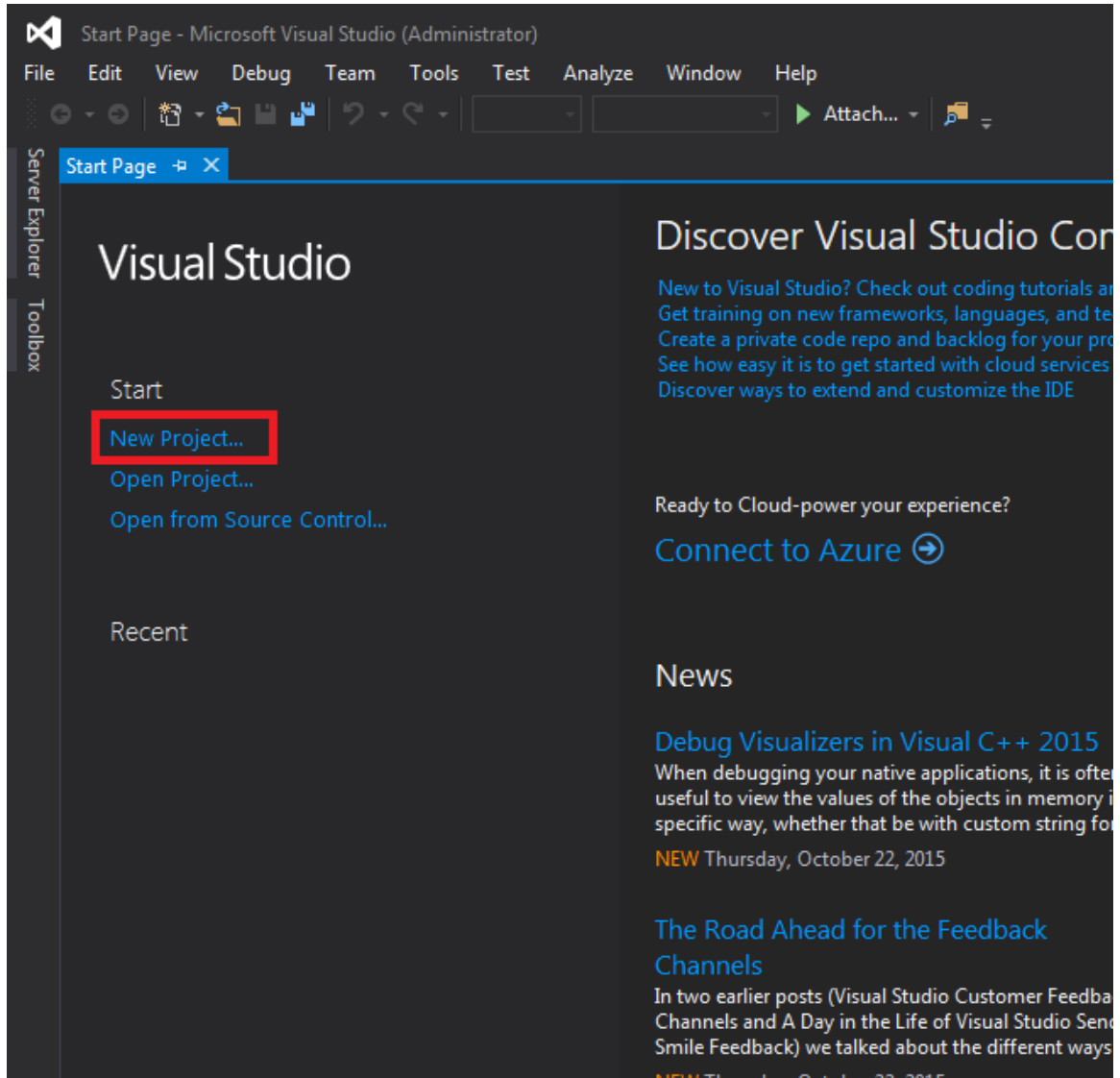


Note: The above picture is a screen shot of the current website and can change at anytime.

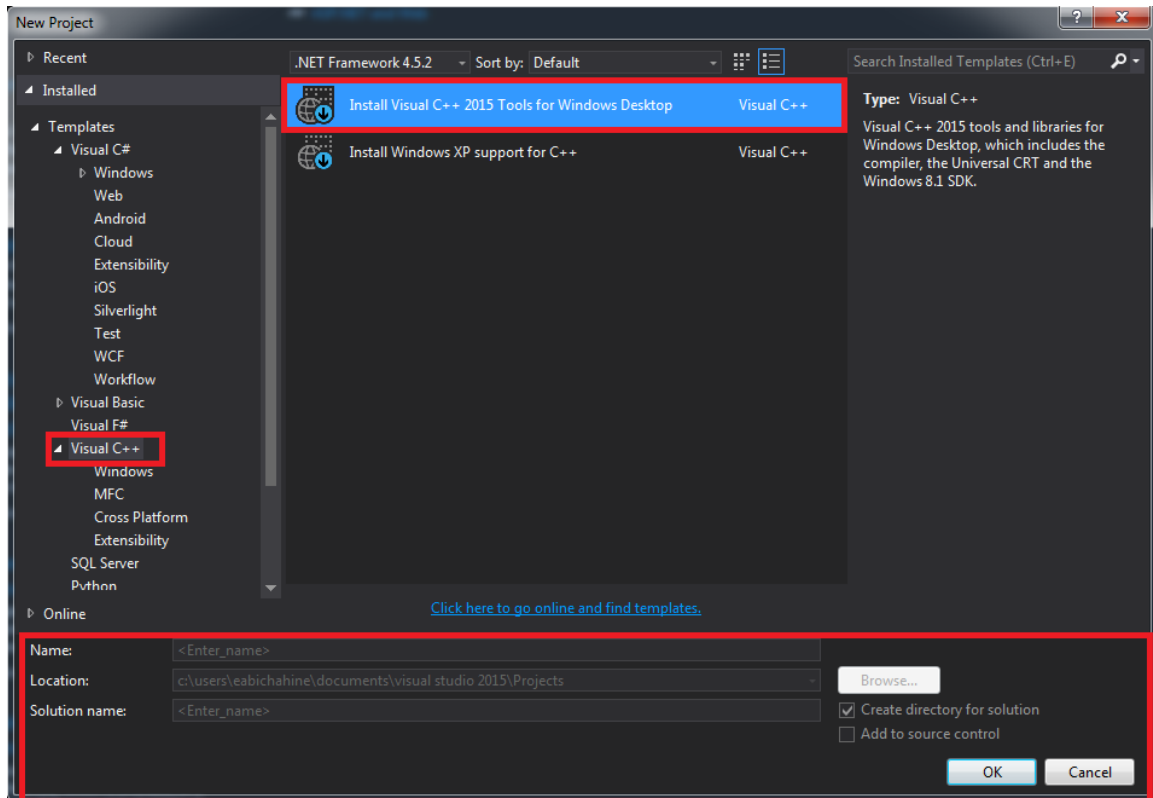
Creating an empty project

Now that we have installed Visual Studio, launch it and let us create our first project.

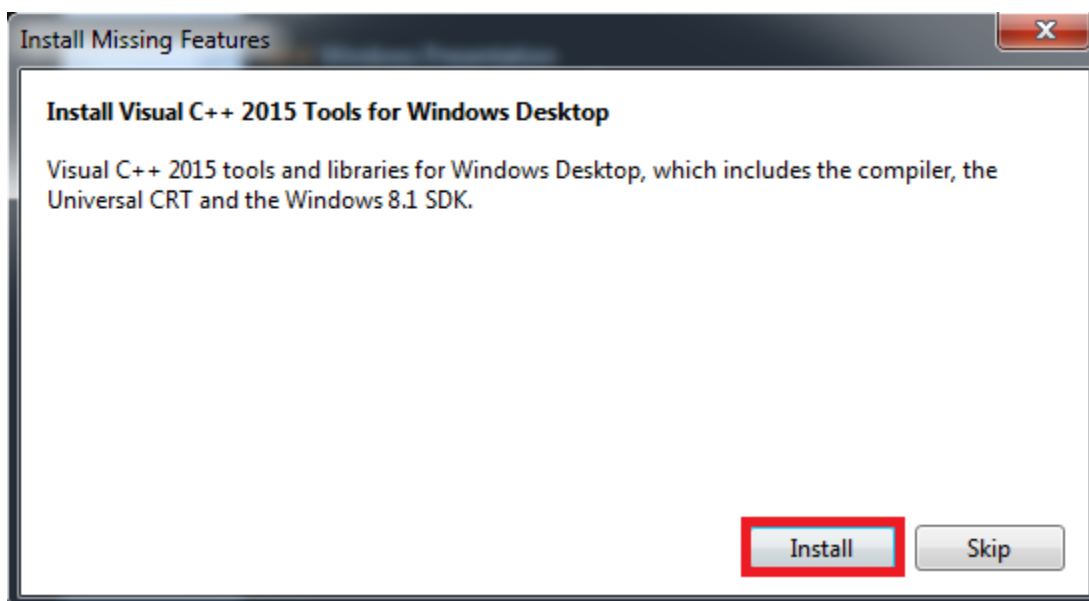
- When you first launch Visual Studio the following should show up.



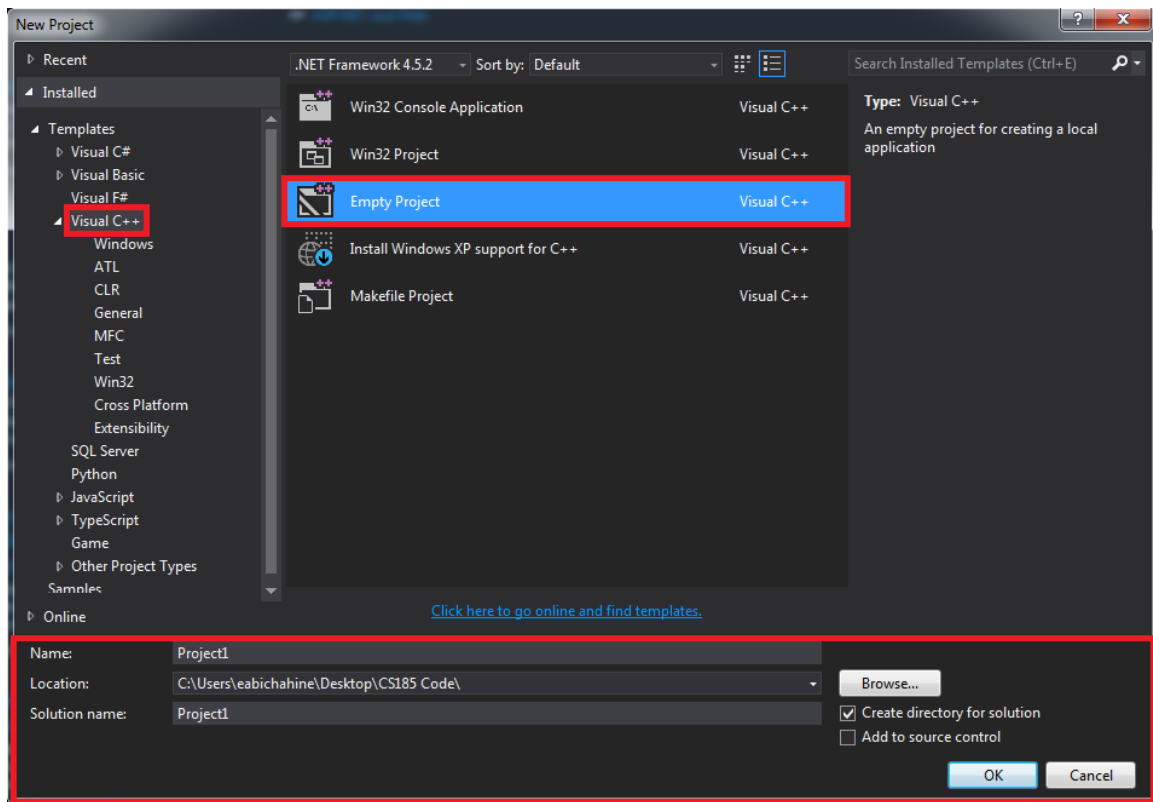
- Under Installed > Template, click on "Visual C++"
- If Visual C++ 2015 is not installed, you will have to install it by doing the following:
 - Click on "Install Visual C++ 2015 Tools for Windows Desktop"
 - Click "OK"



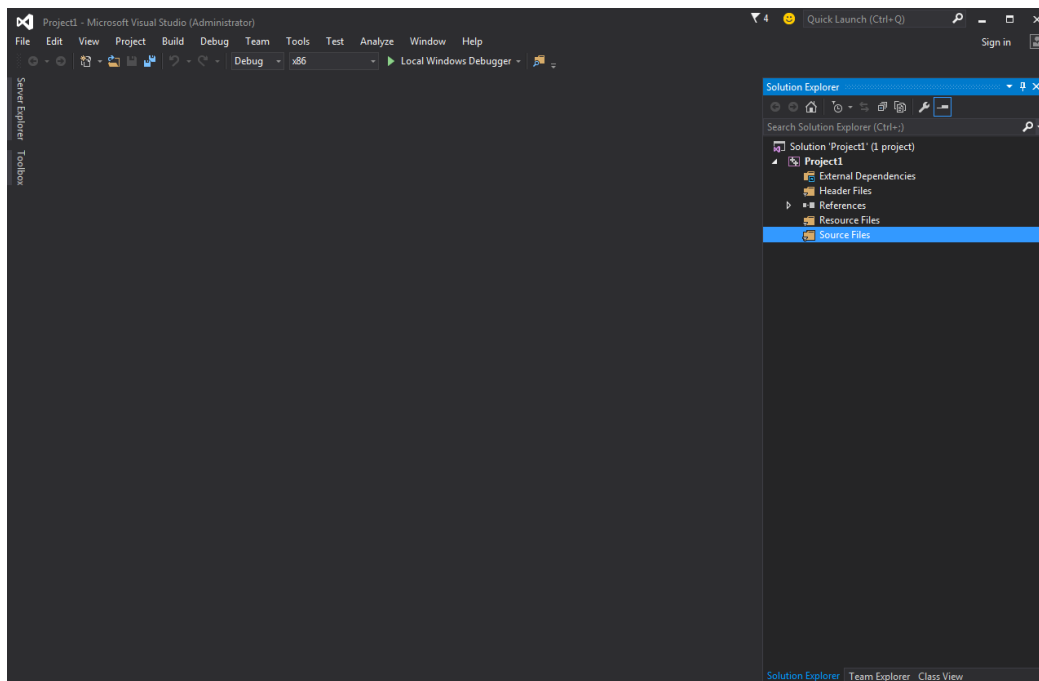
- The following dialogue box will show. Click "Install"



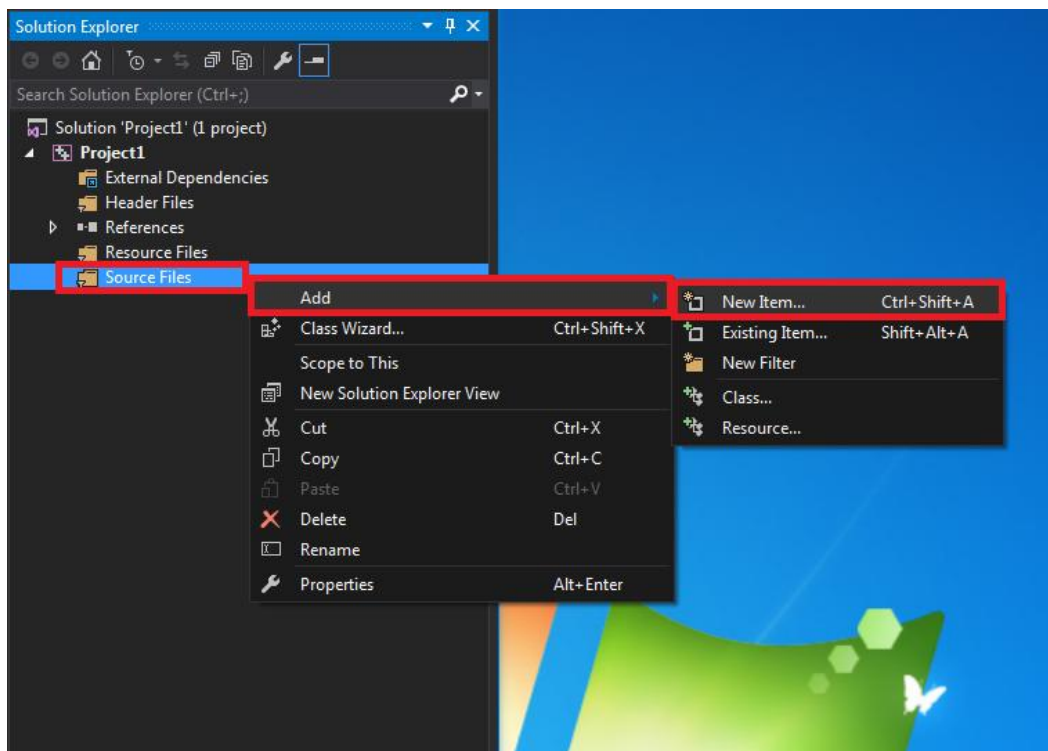
- After all the installation are done, re-launch Visual Studio and follow these steps:
 - Under Installed > Template, click on "Visual C++"
 - Select "Empty Project"
 - Set the project name, location and then click on "OK"



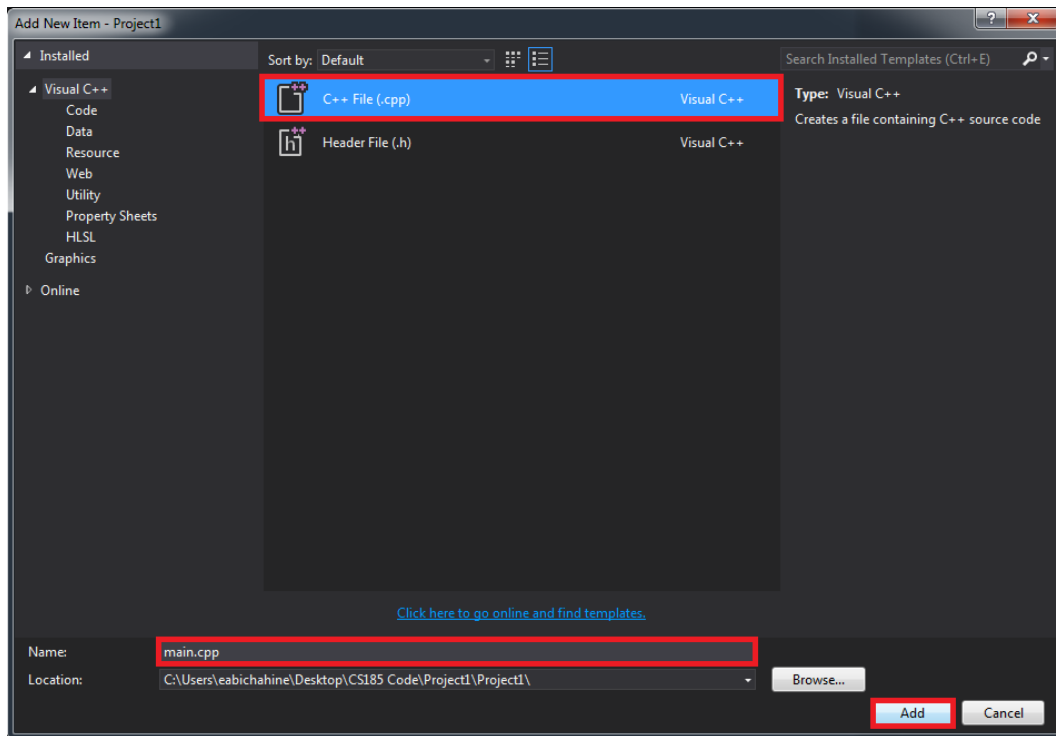
- This is how an empty project looks like.



- Now, let's add a .cpp file in order to write some code in it.



- Select "C++ File (.cpp)"
- Give the file a name (we will call this one main.cpp)
- Click the "Add" button



Smallest C++ Program

- A C++ program is essentially a collection of one or more functions.
- There must be a function named main; it must be in all lowercase.
- main is the program's starting point; it can call other functions by name
- There must be exactly one function named main in every program.

The general form of a C program looks like this: (The parts in bold are required)

```
include files

function declarations (prototypes)

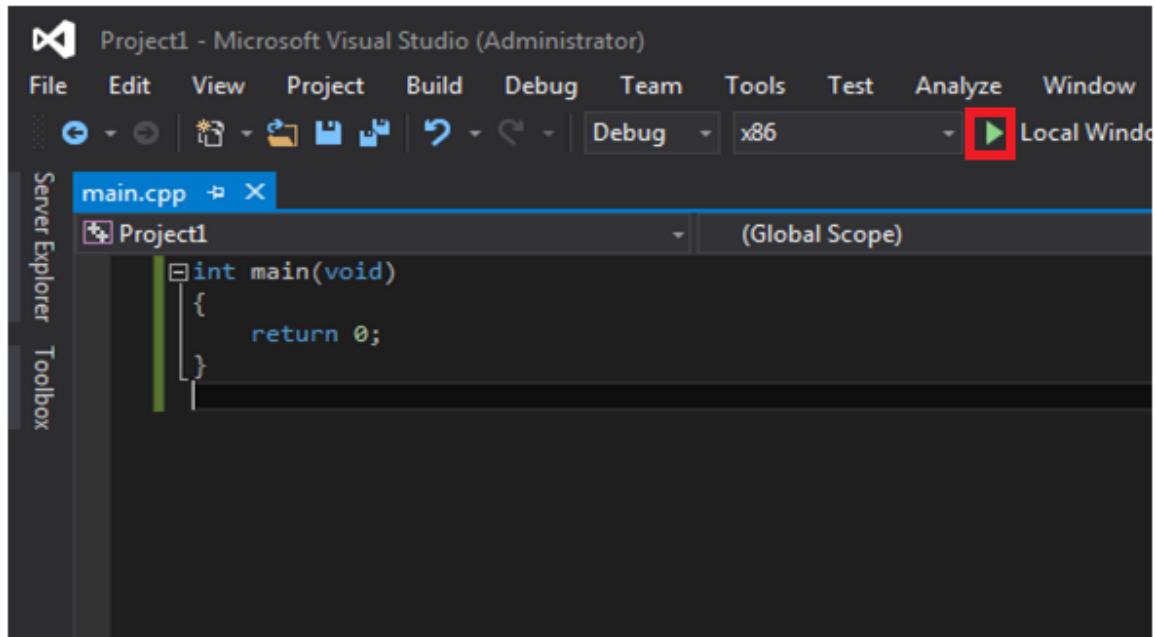
data declarations (global)

main function header
{
    data declarations (local)
    statements
}

other functions
```

Therefore, the simplest C++ program you can write:

```
int main(void)
{
    return 0;
}
```



It looks simple because it is. It does nothing of interest. But, nevertheless, it produces a "functional" program. This simple program demonstrates many characteristics of a C++ program.

Note: You press *F5* or click on the green arrow (highlighted in red in the above picture) in order to run this program. A console window should show up for a second and disappear right away since this program doesn't do anything.

Debug mode and Release mode

Programmers usually don't present applications from the first build.

Normally, there are mistakes (bugs) in the application and in order to debug the application they use the **Debug** mode in the compiler.

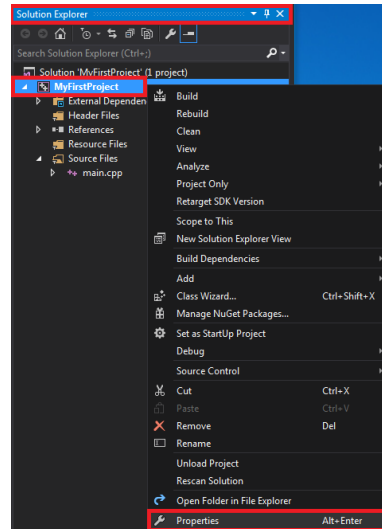
When the application is ready to be published (released), they switch to the **Release** mode in the Project settings.

In order to run the program in "Release Mode" you have to change the mode yourself in the editor or you can press "Ctrl + F5".

Redirecting the output:

When you run your code, your output is generally shown in a console window. We can redirect the output into a "txt" file by doing the following:

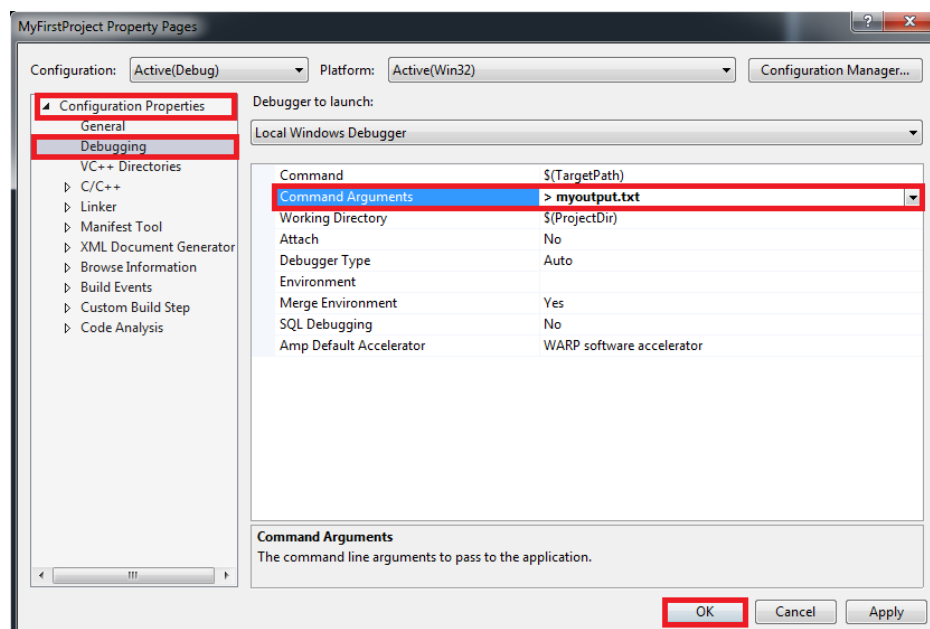
- In the project's *"Solution Explorer"* window, right click on the project's node and select *"Properties"*



- Under *"Configuration Properties"*, select *"Debugging"*
- Add the following command argument in the *"Command Arguments"* tab

> myoutput.txt

- Click *"OK"*



- Now, when you run your code, any output generated will be redirected to a file called "myoutput.txt" which is located in the project's folder:

