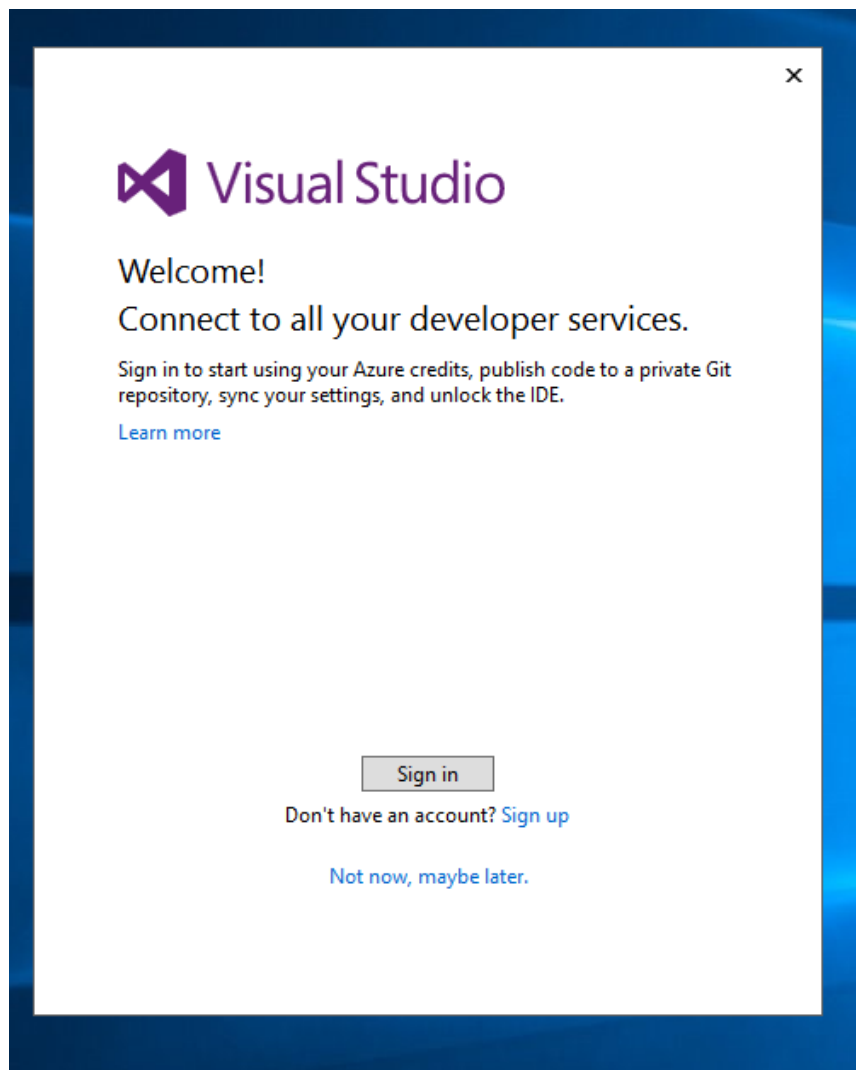


University of Wyoming
COSC 1030
Computer Science I, Fall 2023

Building Your First C++ Project with
Visual Studio on Windows 10 at UWYO

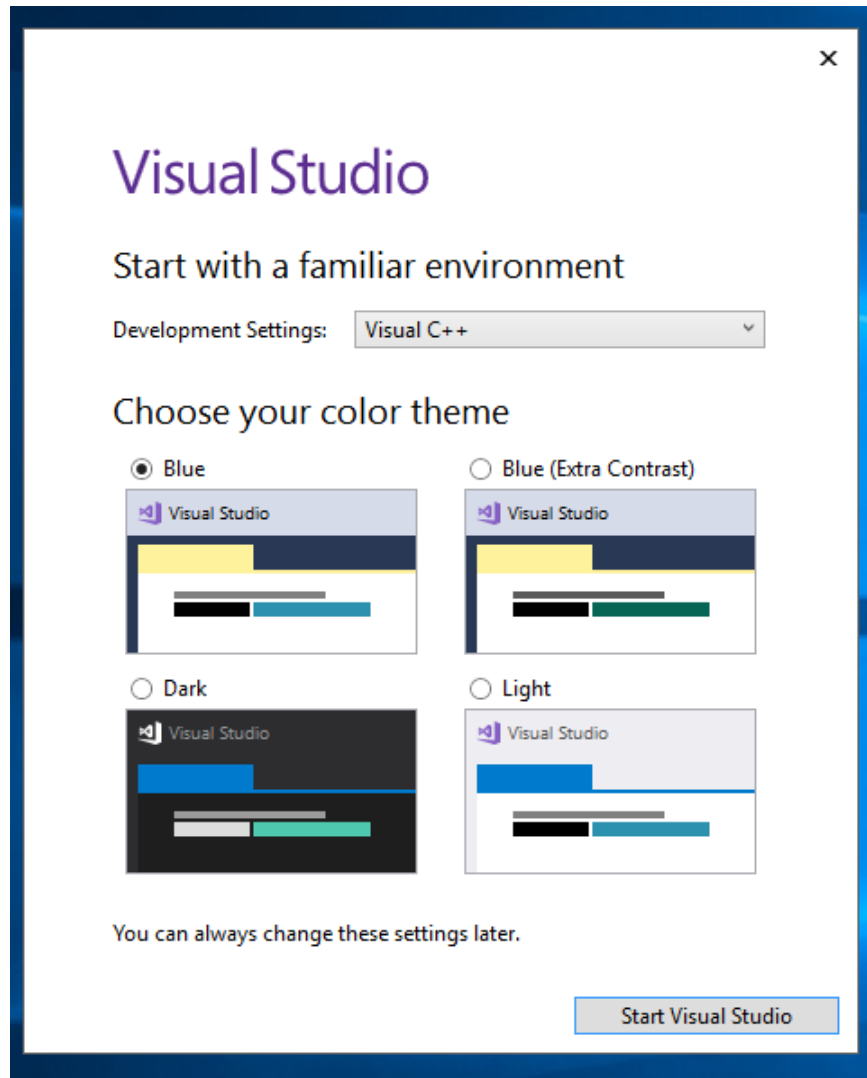
1. Start Microsoft Visual Studio. (On UWyoStudent labs, click start icon (little Window at bottom left) and select Visual Studio 2019 from the icons on the right in the start menu.

You should see a Visual Studio window that will immediately change to this if you have not used that particular computer before or a fresh installation has been made.

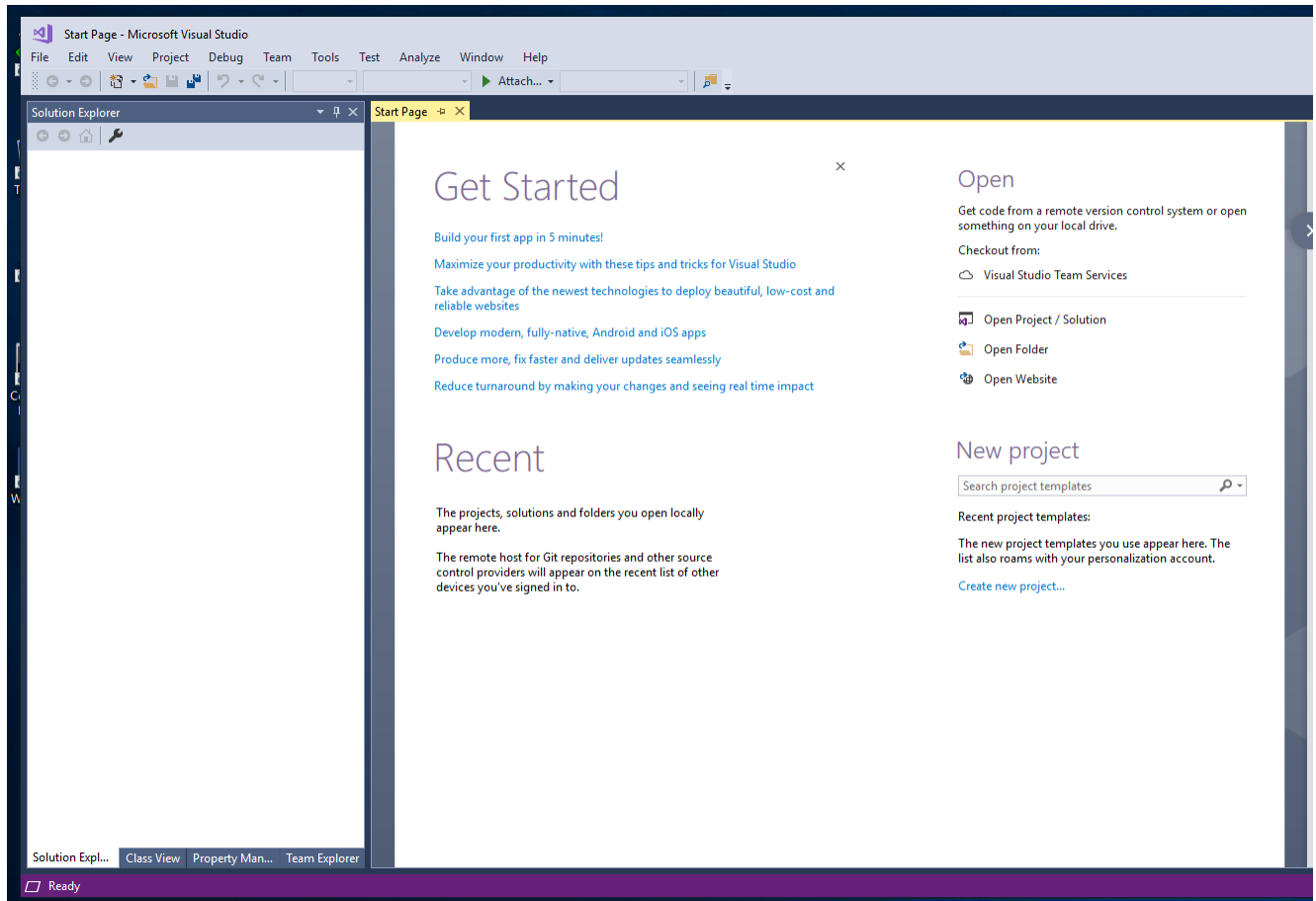


You can really ignore this, but if you have a Microsoft account you can sign in, otherwise select “Not now, maybe later” at the bottom.

You may also be asked for an initial configuration. The Development Settings drop down will probably default to **General** but you **NEED TO CHANGE THAT**. Be sure to select C++ (NOT C#) as the base language. You can change the color theme if you like but that is not really important. Finally, press Start Visual Studio.

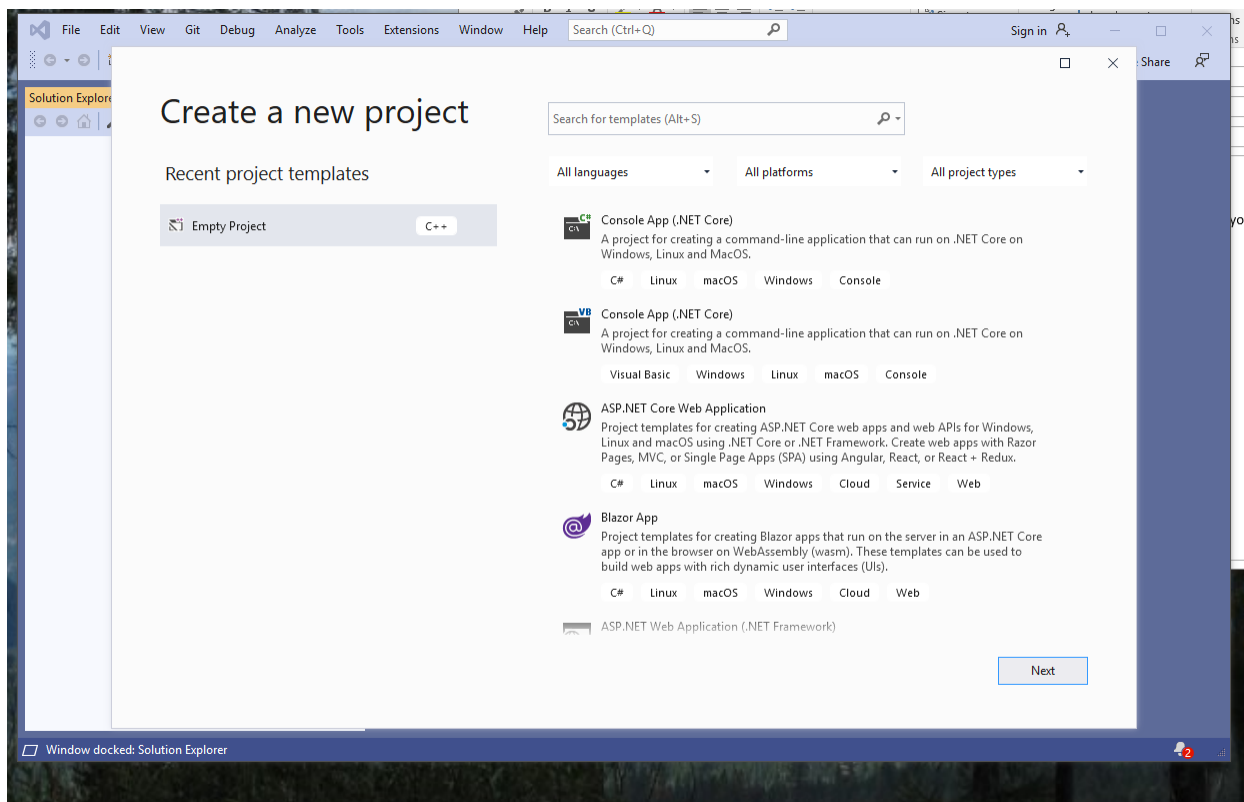


2. The typical Start Page application window should appear as shown below. As you begin to build projects, the “Recent Projects” sub-window will fill up with your work (and this WILL HAPPEN, on a DAILY BASIS, you WILL BE REGULARLY BUILDING NEW PROJECTS!!!!!!!!!!!!).



3. From the “File” menu, choose “New”, then select “Project ...” from the submenu (Ctrl+Shift+N) OR just press the “Create new project...” link on the Start Page.

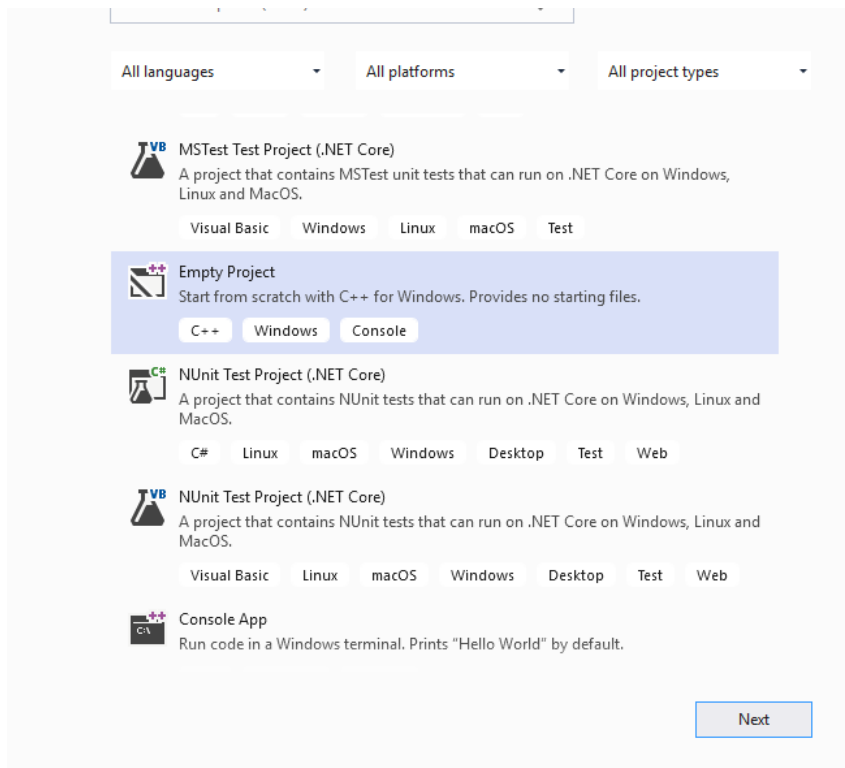
4. The New Project dialog should appear.



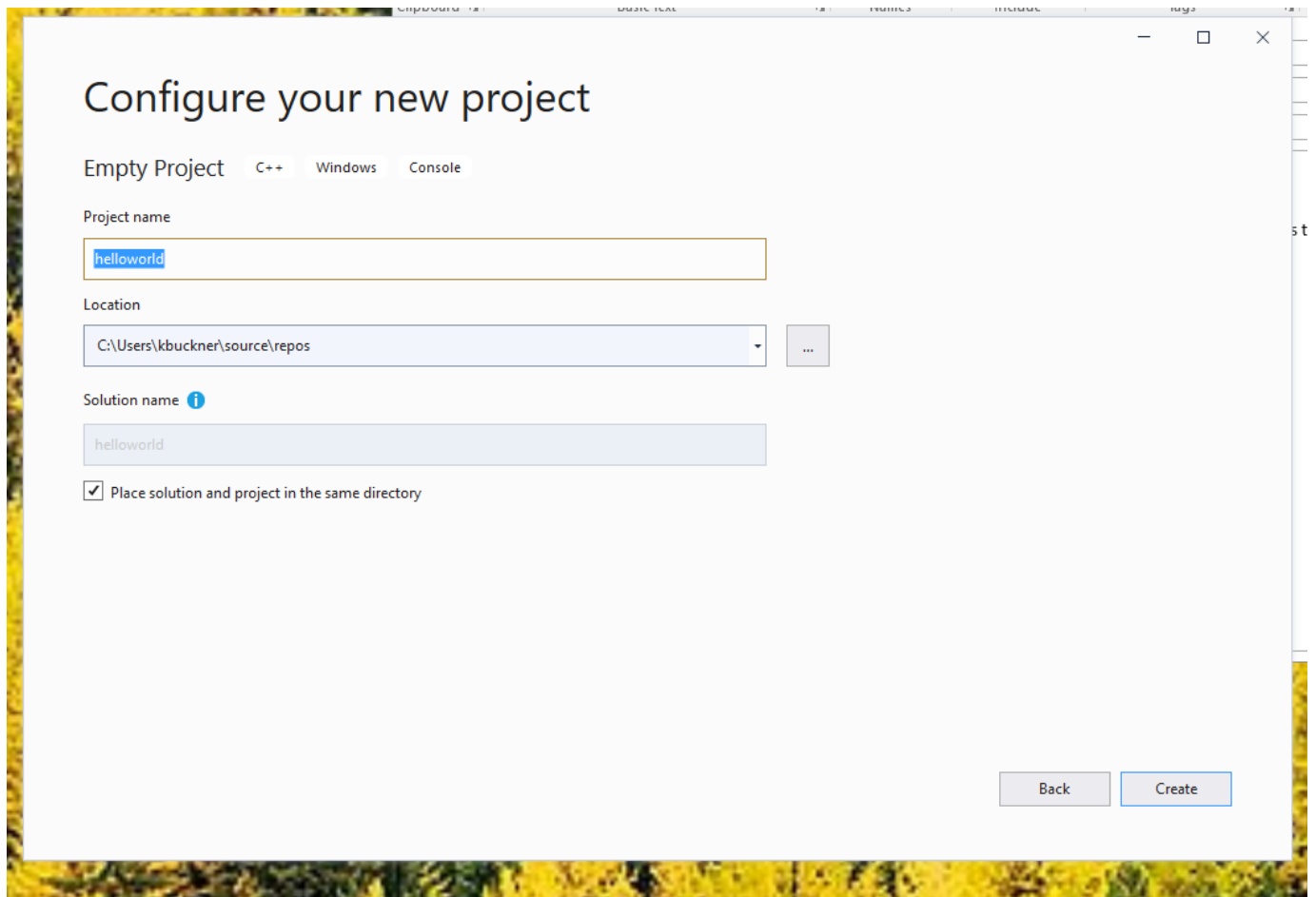
Notice that under *Recent project templates* I have “Empty Project” and the little icon has ++ in the upper right corner.

5. After the first use, the “Empty Project” may appear under the Recent project templates. If it does, great. Make sure you have selected it and press “Next.”

If it does not appear under Recent, on the right side scroll down until you find the “Empty Project” and then select it and press “Next.”

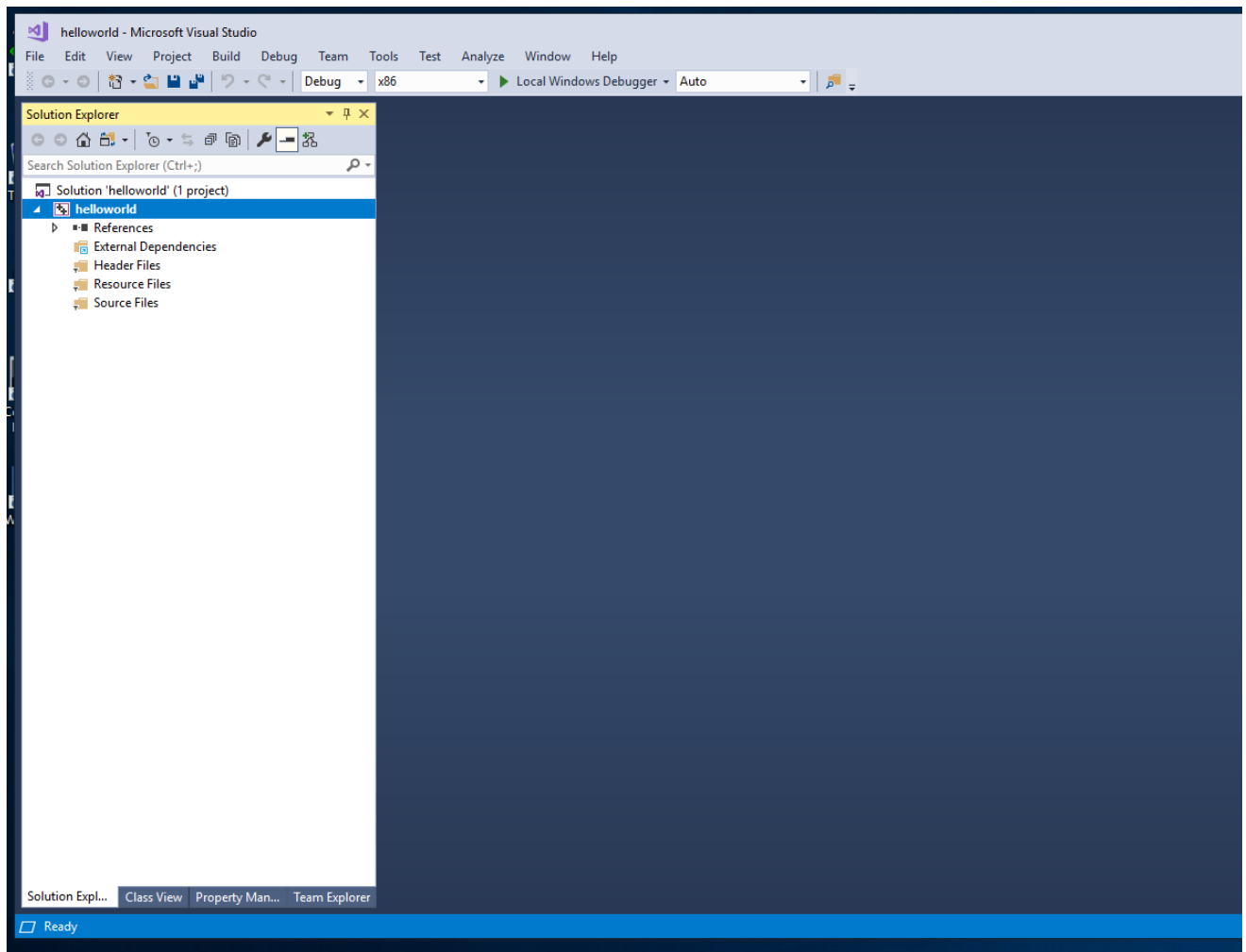


6. The next screen gives some options for naming and placing the project.



- The Name field should have an appropriate, meaningful alpha-numeric entry. Like the next screenshot. (I know it says helloworld, yours should be Lab01).
- The Location field should contain a directory suitable for your project storage. It is probably best to create this project on the local drive. You can take the default of `C:\Users\username\repos` or use my choice (on the IT physical lab machines), `C:\TEMP`. This keeps Visual Studio happy BUT it also means that you will need to ensure that you copy your entire project to a permanent personal storage at the end of your session. I suggest that you use your “H:\” drive. Some people like to use a thumb drive. You may have issues compiling from a remote (Cloud) type drive. If so just copy the entire project to the local (C:\) drive first.
- Solution name is not really necessary. It will default to the name of the project which seems pretty reasonable.
- The checkbox for “Place solution and project in the same directory” I usually CHECK. It keeps from adding an extra folder.
- Press the Continue button when all items are correct.

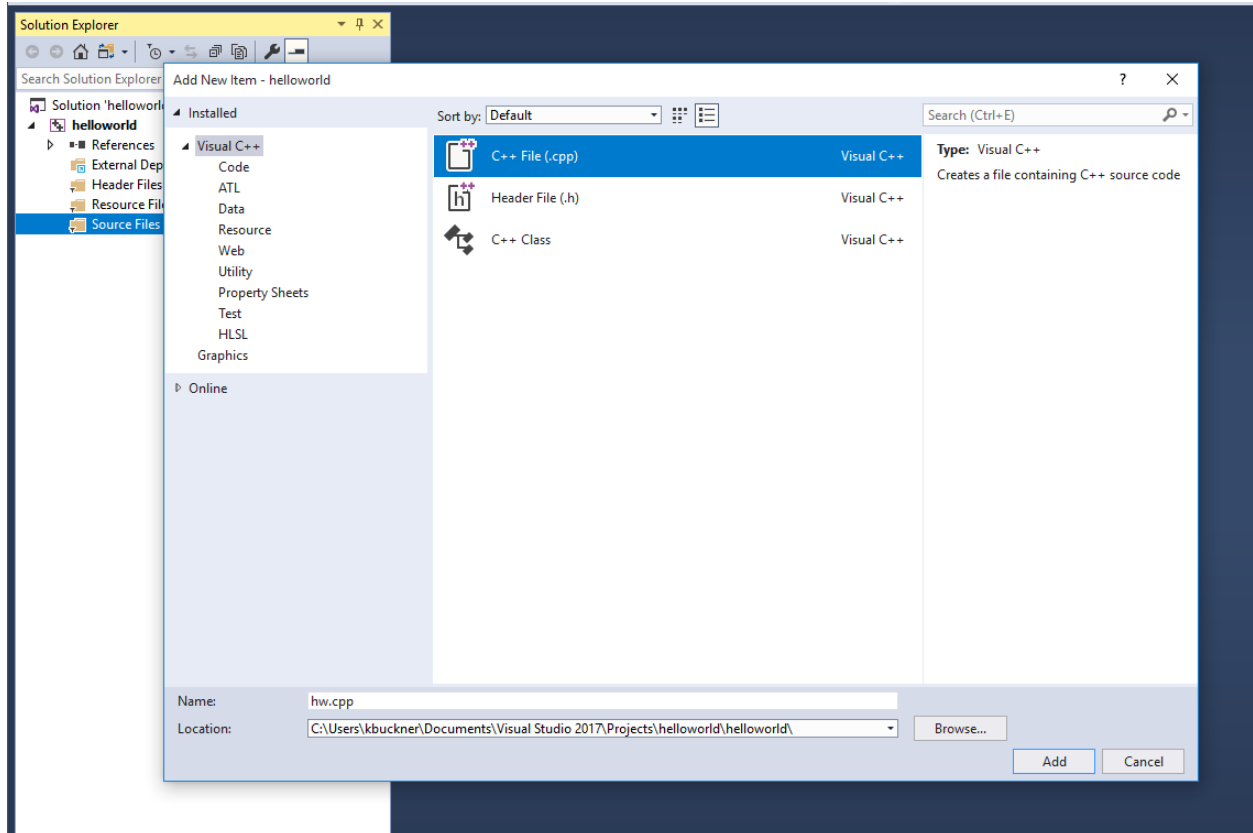
7. The Visual Studio Window should then appear essentially as shown here.



One of the problems I have with the Visual Studio is that it is designed to be very flexible. That means that things like the “Solution Explorer” and “Editor” sub-windows all float by default. They may not be where you want them and you will have play around to get them to a comfortable position.

Continue on next page

8. In the Solution Explorer, located (usually) on the left hand side of the window, right-click on the “Source Files” folder, choose “Add” from the menu, and then select “New Item...” from the resulting submenu. Alternatively, you can use the menu selections Project / Add New Item... (Ctrl+Shift+A). The new dialog which appears should be adjusted to read as shown below.

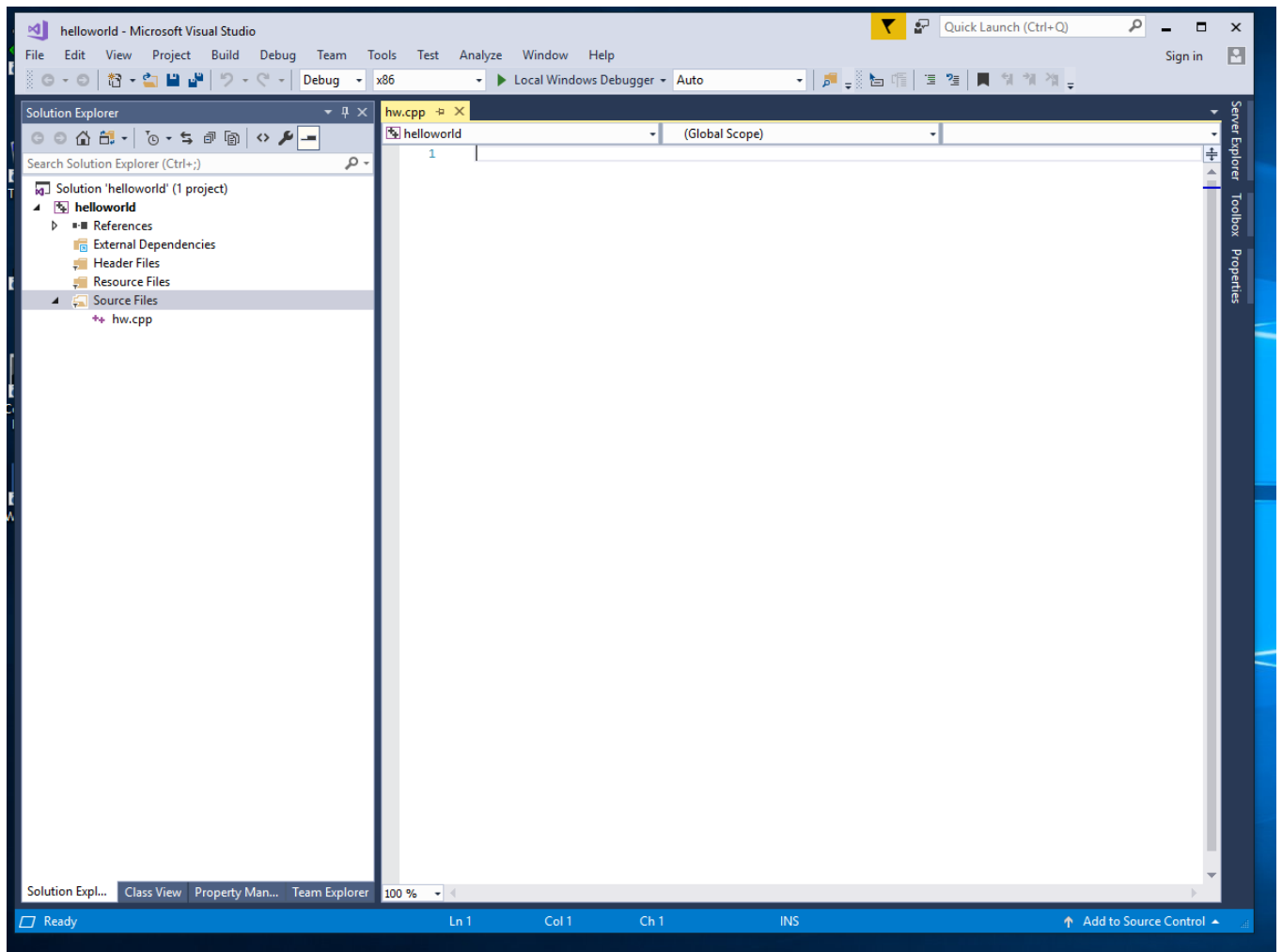


Note, the following selections were required to arrive at this point:

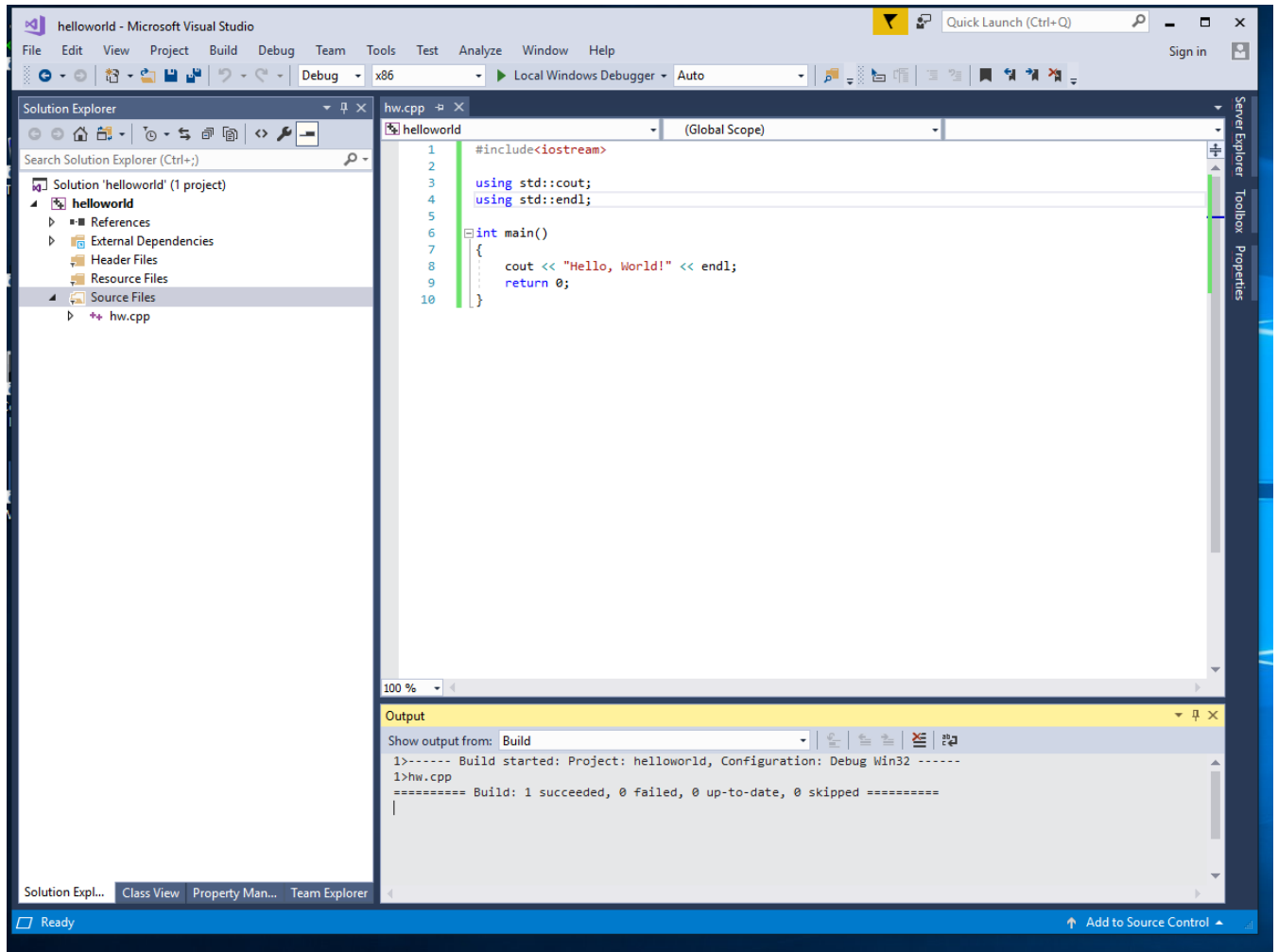
- The Installed Templates tree was expanded to Visual C++.
- The C++File (.cpp) choice was selected in the middle templates window.
- A suitable alpha-numeric name (NOT “Source”, not “hw” but Lab01) was entered in the Name field.
- VS automatically filled in the Location field.

Press the Add button to continue.

9. The resulting Visual Studio project window should then appear as follows.



10. You may now enter (by typing or cutting and pasting, etc.) the C++ code for your single-file program solution (we will soon learn how to use multiple source files to construct our designs). The resulting project window might appear as shown below. The code you need to enter is given below the image.



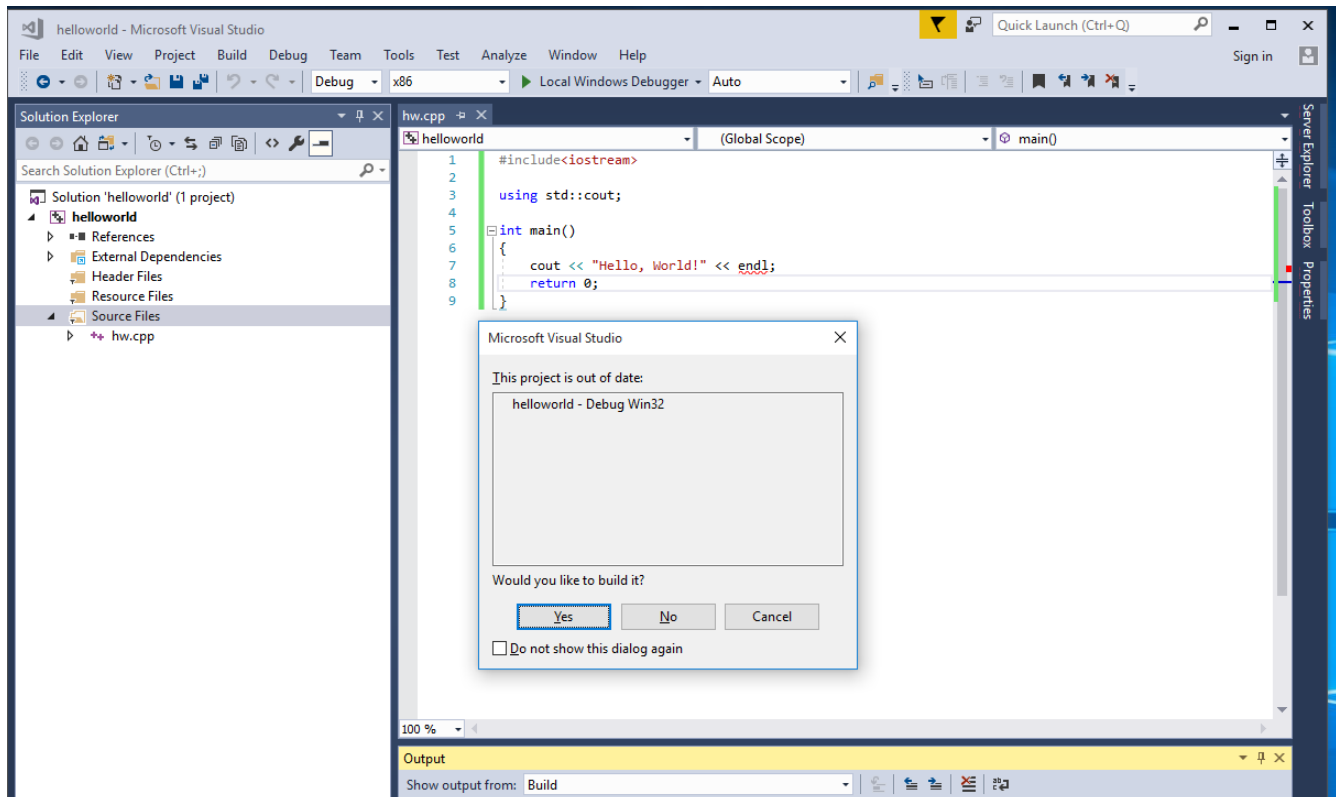
```
#include<iostream>

using std::cout;
using std::endl;

int main()
{
    cout << "Hello , World!" << endl;
    return 0;
}
```

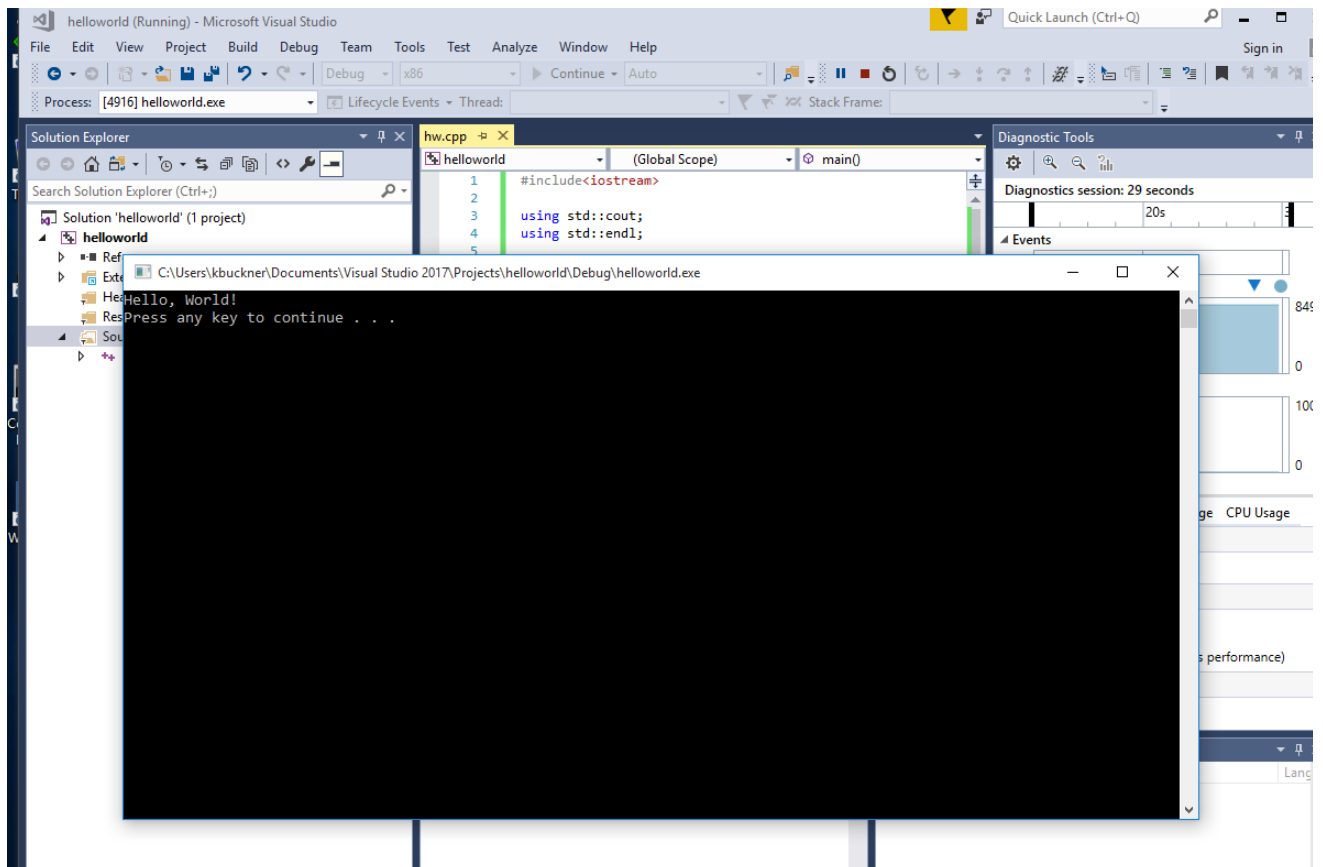
11. (You can skip this step and go right to 11.) To check your source-code file for syntactical correctness, select the Menu items Build / Compile (Ctrl+F7). Any compiler error messages as well as a summary result (“succeeded” is GOOD) will appear in the Output sub-window.

12. If everything is ok, Under the Debug menu, choose “Start without Debugging” (a keyboard short-cut is CTRL-F5). If a dialog appears, asking you “Would you like to build it,” select Yes. (That dialog will almost ALWAYS appear)



– After you select “Yes” and if you entered the program without error, a console window (plain, black window with white text) should appear with results.

Continue on next page



Press any keyboard key after confirming the results.

NOTE: Any other lines (that do not indicate an error occurred) including the “Press any key to continue . . .” message, are produced by Windows 10, the Command Prompt, and Visual Studio, NOT YOUR PROGRAM.

13. If you want to access it directly, the executable file for your project should be available in the Debug subdirectory of the project. For the example case demonstrated above, the file was Lab01.exe. Again, not really an issue at this time if it is or is not.

14. Now complete the following to finish up the lab and submit the assignment.

- a). Your source code (in fact all submitted files) should contain a heading comment block which identifies you and the assignment (Lab 01, COSC 1030, Section 1?) which you are completing.

That comment heading will start on the left margin at the top line of the file and should look like this

```
// Filename.ext
// Your Name
// COSC 1030, Section ??
// Lab 01
// 4 Sep 2018
```

or like this

```
/*
Filename.ext
Your Name
COSC 1030, Section ??
Lab 01
04 Sep 2018
*/
```

- Line 1: the name of the current file. You may have multiple files or copy your code from last weeks labs, so please update the information.
- Line 2: your name, should be easy.
- Line 3: the course and your lab section (10, 11, or 12).
- Line 4: the lab or program for which this file was created.
- Line 5: the date the file was last modified.
- Extra: You may include comments after the date describing the content of the file or goal of the source code.

b). Now that you have created the initial program, change the message displayed by the program from “Hello, World!” to

What do you want, Commander *Substitute-Your-Name-Here*?

c). What do you think the “Substitute-Your-Name-Here” means? It means instead of “Hello, World!”, MY version would print “What do you want, Commander Buckner?”

d). Computer Science students should be able to

- read and understand instructions,
- interpret technical elements of the instructions,
- **ask questions** for explanation of things you do not understand.

e). Assuming that all went well, using CTRL-F5 should run the program and pop up a command prompt window.

f). To copy text from a command prompt window:

Right click in the window and select Mark from the pop-up menu. Using the mouse, left click (and hold) at the beginning of the text you wish to copy and then drag the mouse to highlight all of the text you are copying. You can only Mark a rectangular area. Release the mouse button and press the Enter key. The text highlight should go away and the text is copied to the clipboard. You can now paste it into another window (editor). You cannot use Ctrl-C to copy from the command prompt.

Please see the document “Windows Command Prompt Guide” that is available from the link on the courses WyoCourses home page.

g). Note: You will be graded based upon the time of your last submission to the WyoCourses assignment. Each lab is due no later than **24 hours** after the end of the corresponding lab session. Late submissions will not be accepted. But if you figure out that there is a problem and fix it, you can resubmit until the deadline. WyoCourses WILL rename these submissions by adding numbers to the filenames. Do not worry about as long as you start with the correct name, such as Lab01.cpp.

h). After you have completed entering, compiling, debugging and revising your program, submit it electronically on the current week's WyoCourses assignment. This week's particular assignment is named **Lab01**.

i). You should submit (upload) **two** files:

- Lab01.cpp, the C++ source code file.
- Lab01Test.txt, the file containing the output of the program. Do not forget that you **must** edit this file and include the "heading" that is described above. I suggest that you use either Notepad or Wordpad for this, **not** Word.
- DO NOT submit the executable file (.exe) or any other files than those specified. We will compile your programs ourselves.
- MAKE SURE that you press the **Submit** button after uploading the files.

The above instructions **will not** work for this lab, as WyoCourses is **not** currently setup for the course. Hopefully, it will be available by the next lab and this will be the normal submission process.

FOR THIS LAB, please e-mail the above submissions to pgyreyir@uwyo.edu with a Subject line of

COSC-1030 Lab01 Submission

And be sure to attach the Lab01.cpp and Lab01Test.txt files to the e-mail.

Visual Studio Community Edition Installation notes.

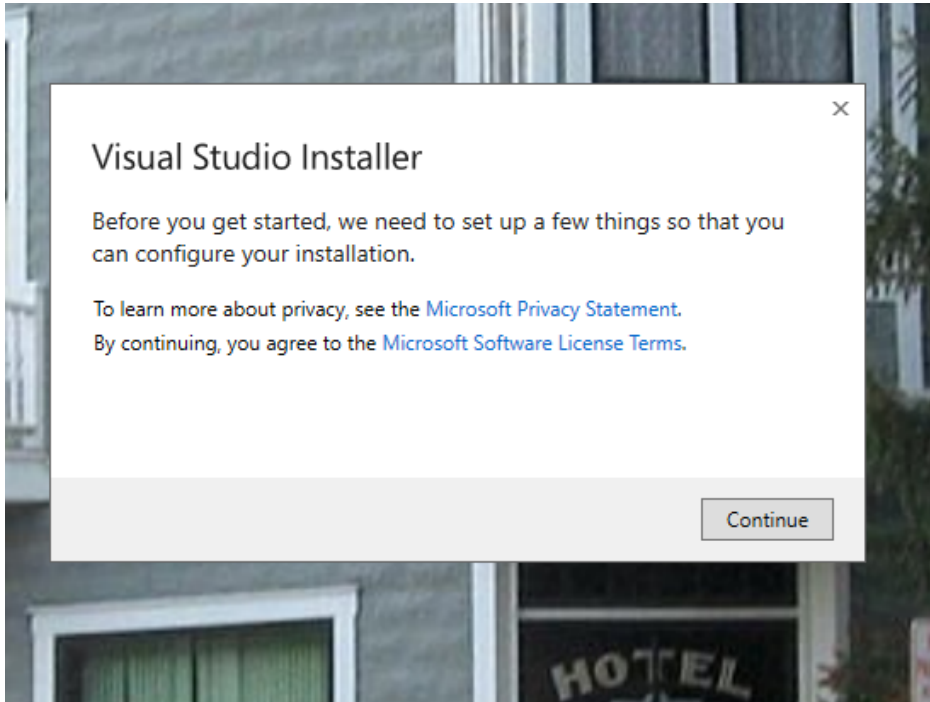
If you are going to install Visual Studio on your personal machine there are a couple of things to be aware of. This does assume you have Administrative privileges on the computer.

First, you want the COMMUNITY edition. It is free and works well.

Then, the first time Visual Studio prompts you to login or create a Microsoft Account, DO THAT. If you do not do that, you get something like a 30 day trial and then it locks up. And most people end up removing and reinstalling it to get it back working.

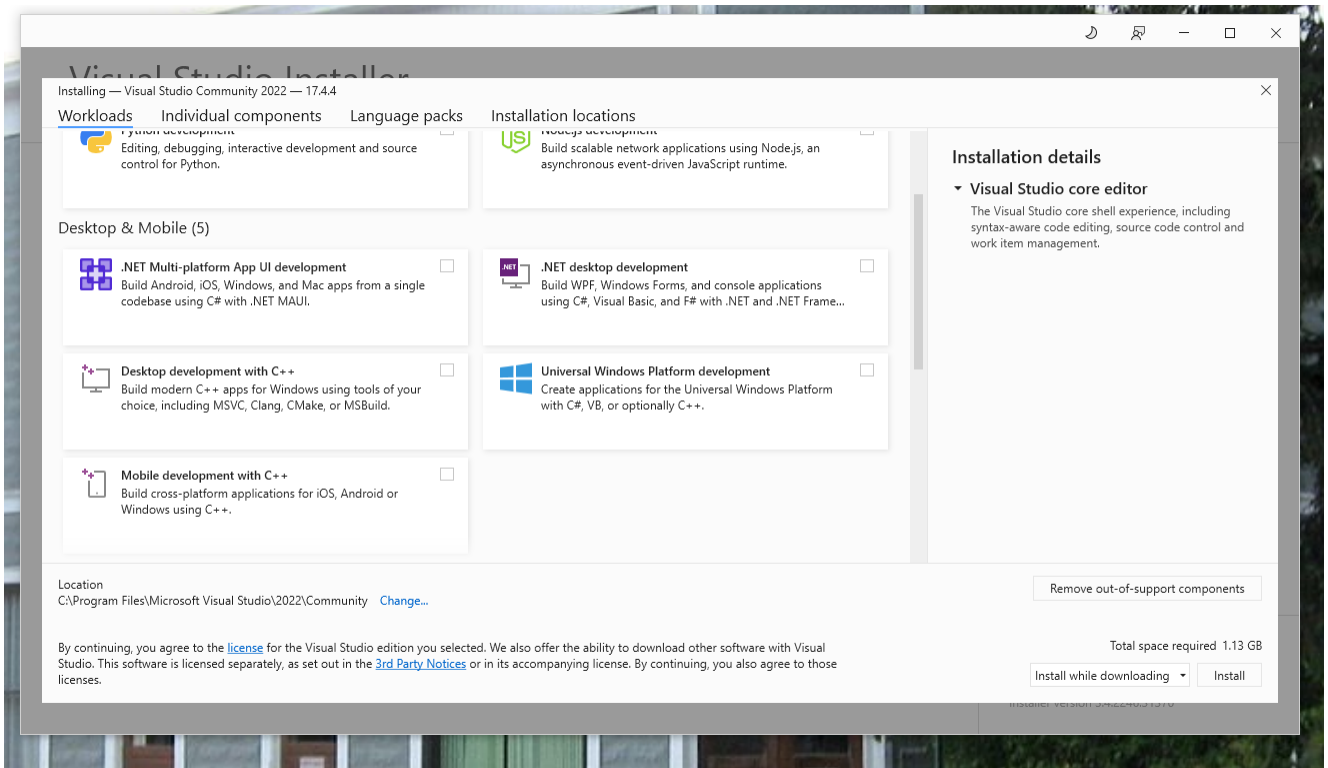
I have a couple of screenshots I will share of the simple installation process.

Make sure that you get the installer from Microsoft, not some third party. You will download a file (probably to "Downloads") and then you need to execute that. When it starts you should see

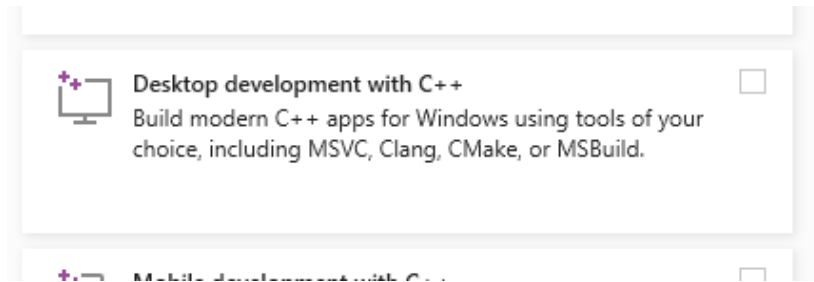


If you are that one in 10,000 who really CARES, you can read the Privacy Statement and the License Terms. Otherwise, press “Continue.”

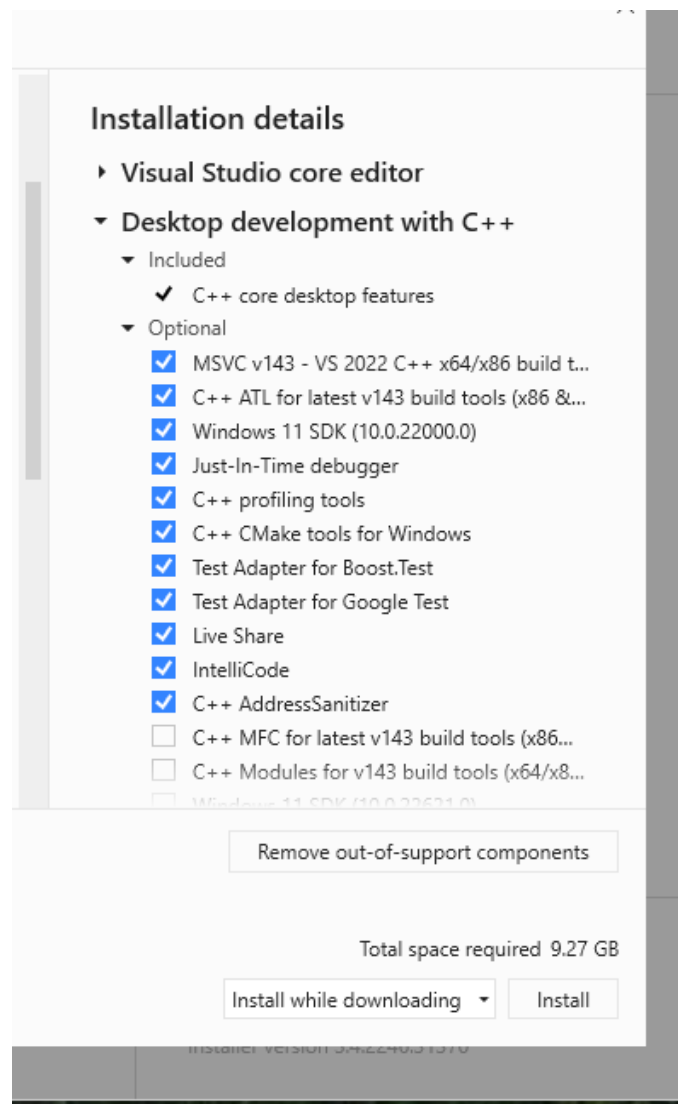
The next thing that you can do something about is



which has a number of different development environments you can choose. The one need to select (scroll to find it) is



Selecting that should change the right-hand side to something that looks like



Once you see this, you can select “Install” or one of the “Install while downloading” options. And that should be all the help you need.