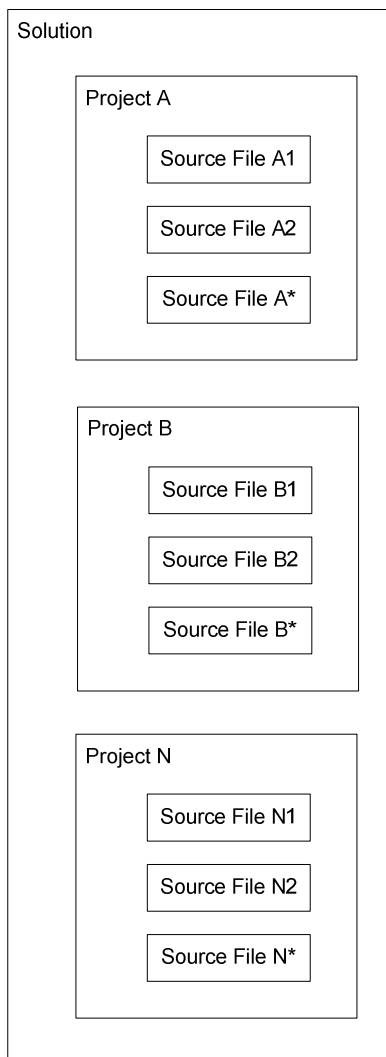


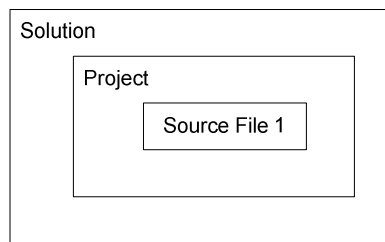
Visual Studio is a professional development environment, used for developing very large applications. As such, it contains many features and functions that are beyond the scope of this introductory course. However, you will have to understand a few of these features, even to build the simplest of programs.

In Visual Studio, an application is made up of 1 or more source files. Each source file must be contained in a *Project*. Each Project is contained in a *Solution*. However, our applications will consist of just one source file, in one Project, in one Solution. This is pictured below.

Large applications:



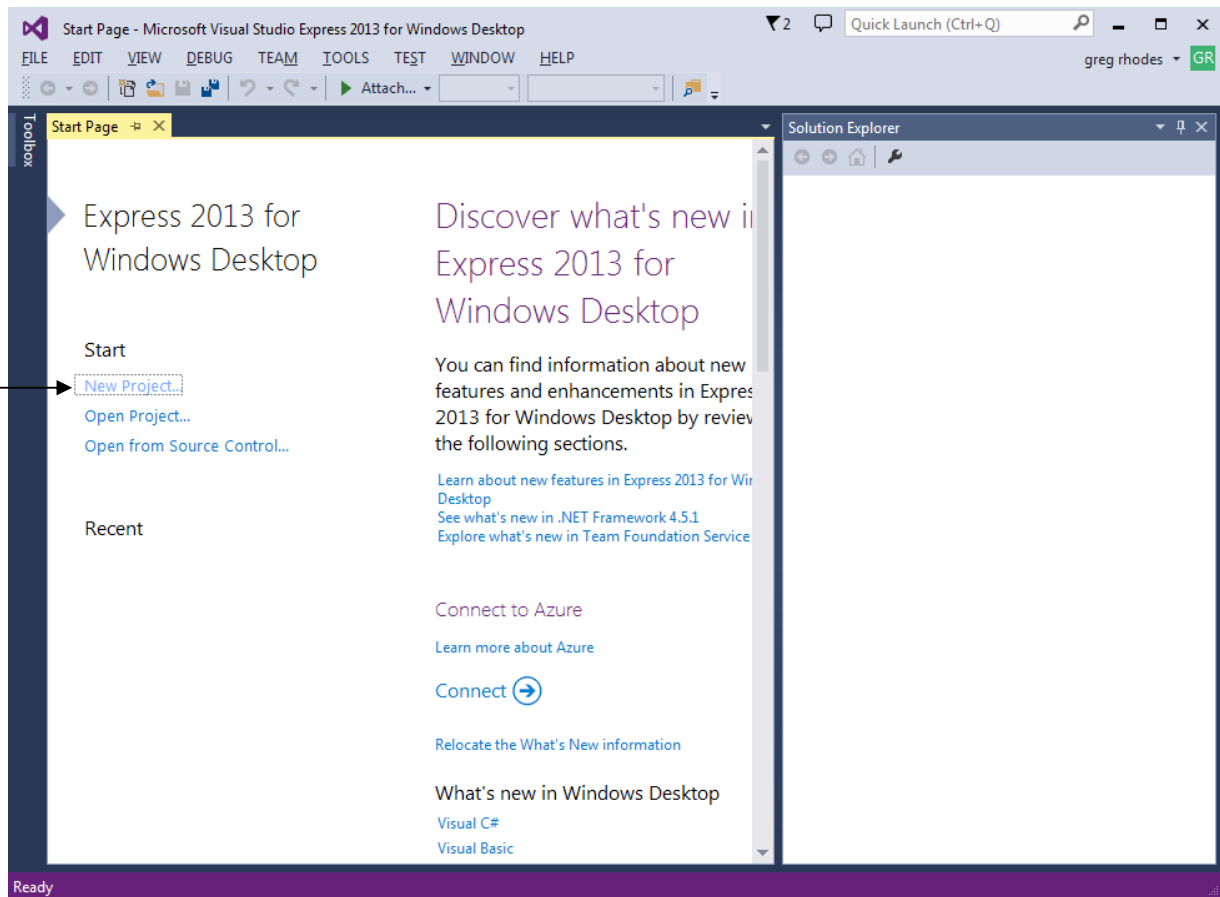
Our applications:



Start up Visual Studio 2013 Express:

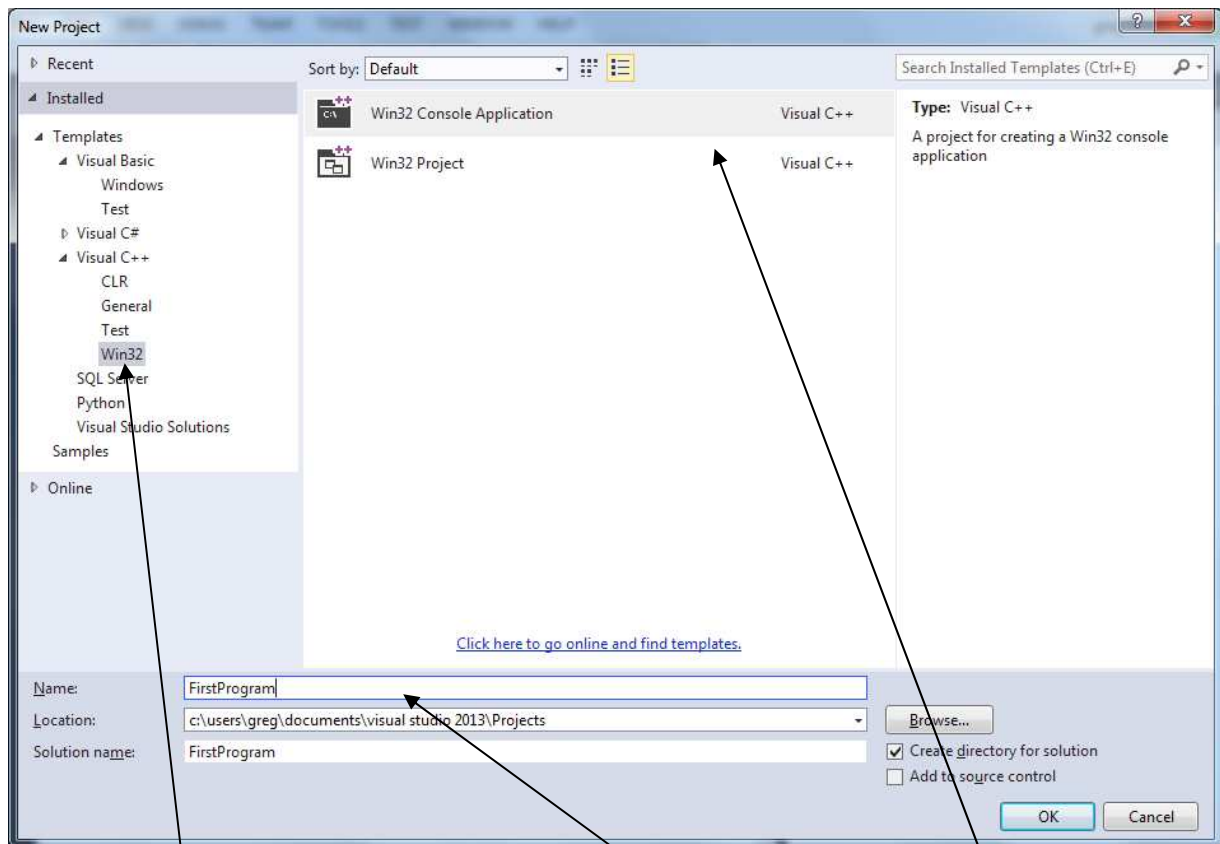
Start orb > All Programs > Visual Studio 2013 > VS Express 2013 for Desktop

The Visual Studio 2013 Express Integrated Development Environment (IDE) is displayed:



Click the “New Project...” link to create a new project. By default, this will also create the solution that will contain the project.

The New Project dialog is displayed.

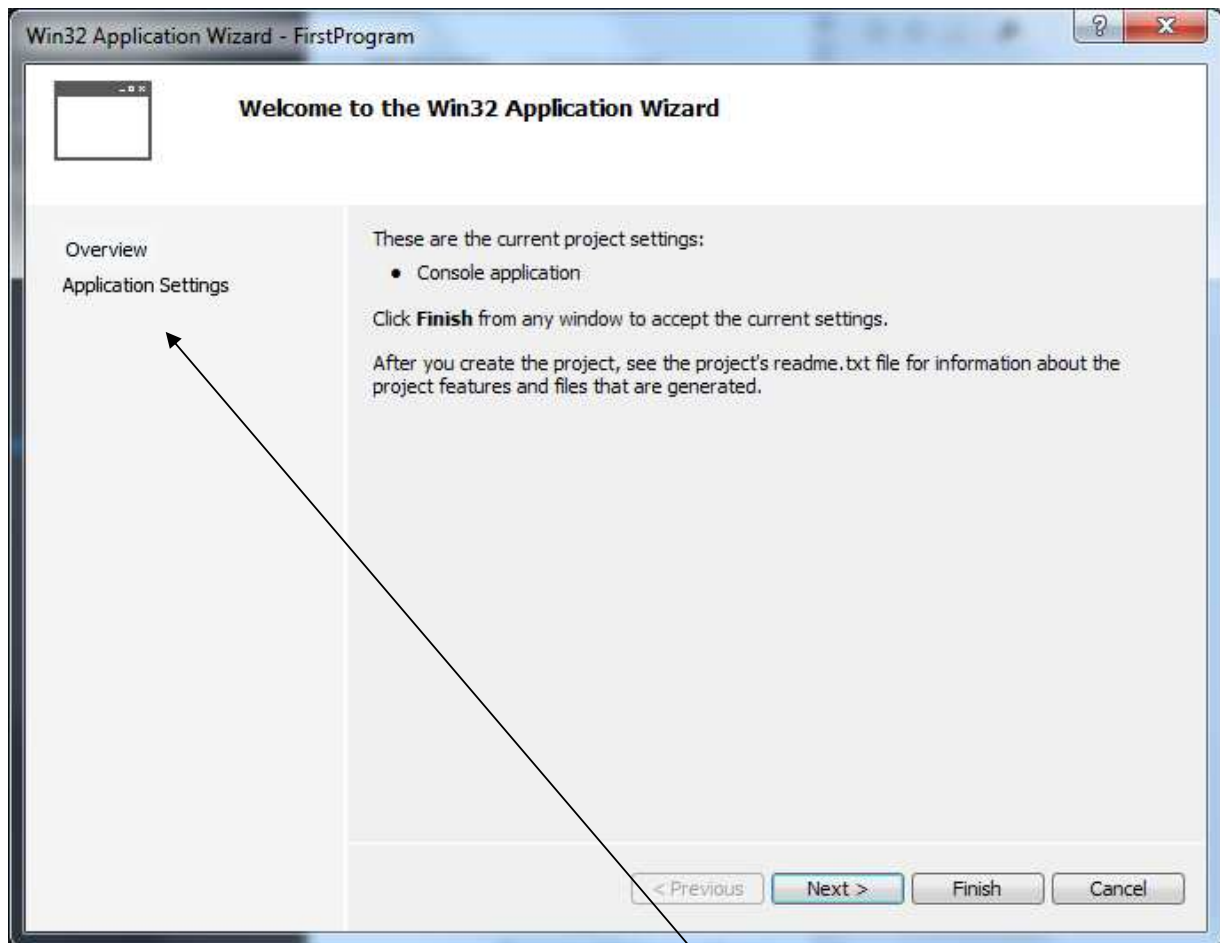


Select **Visual C++ > Win32** from the template list, then make sure you select **“Win32 Console Application”** from the displayed list. Then **enter a name for your project** (FirstProgram in the example above). You can change the default location if you like. Normally, we’ll keep our Solution name the same as our project name, since in this class they will be 1 for 1. Visual Studio will default the Solution name to the same name as your project name. You should probably keep them the same to avoid confusion.

A “Win32 Console Application” is one that will run in the Windows Command window. In this class, all of our programs will be console applications and will not include a Windows GUI (Graphical User Interface).

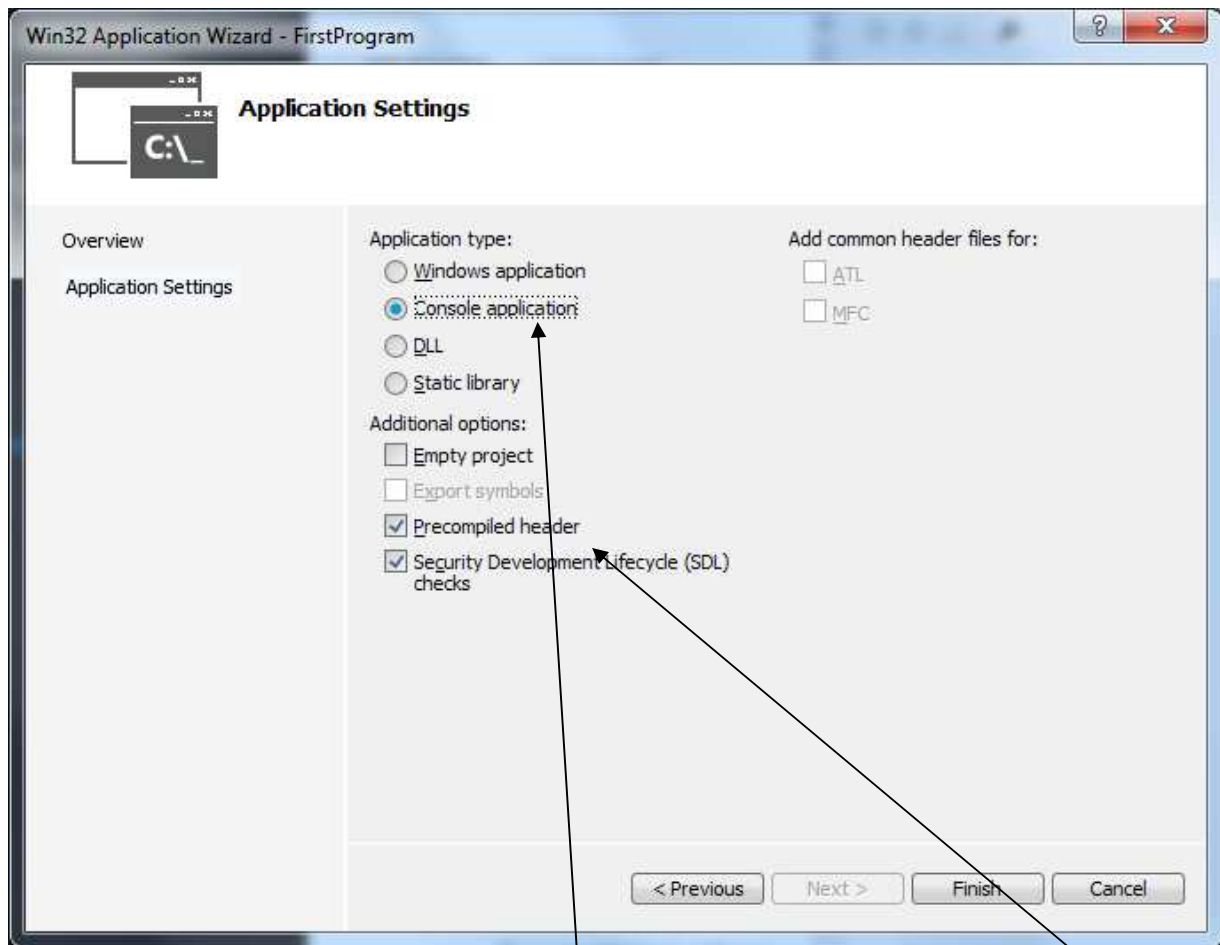
Click OK after entering the Project name.

The Application Wizard will be displayed.

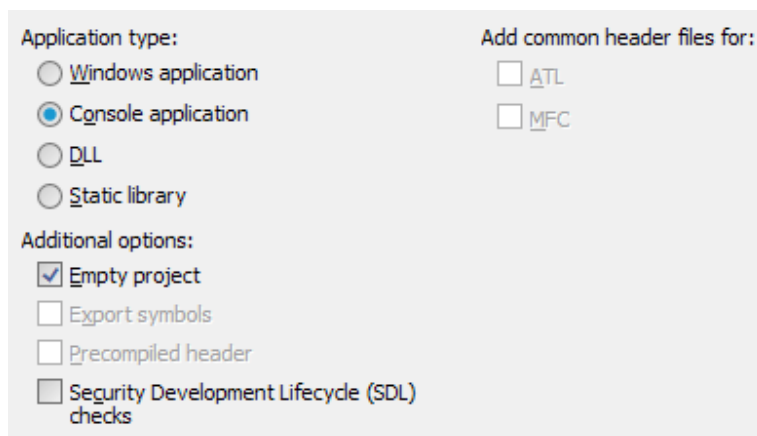


We need to make a change to the settings, so click on the **Application Settings** link.

The Application Settings page is displayed.

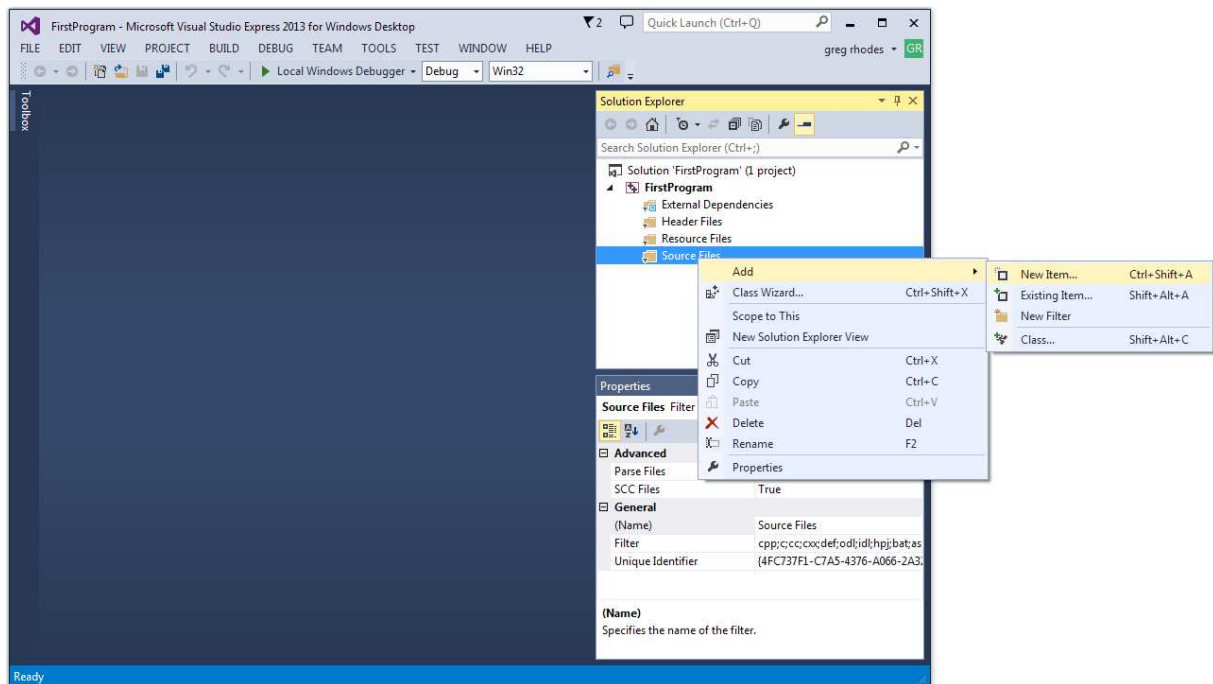


The Application Type should be “Console application”. Leave this checked. **Uncheck the “Precompiled header” option, uncheck the “Security Development Lifecycle checks” option and then check the “Empty project” option.** Your selected options should look like this:



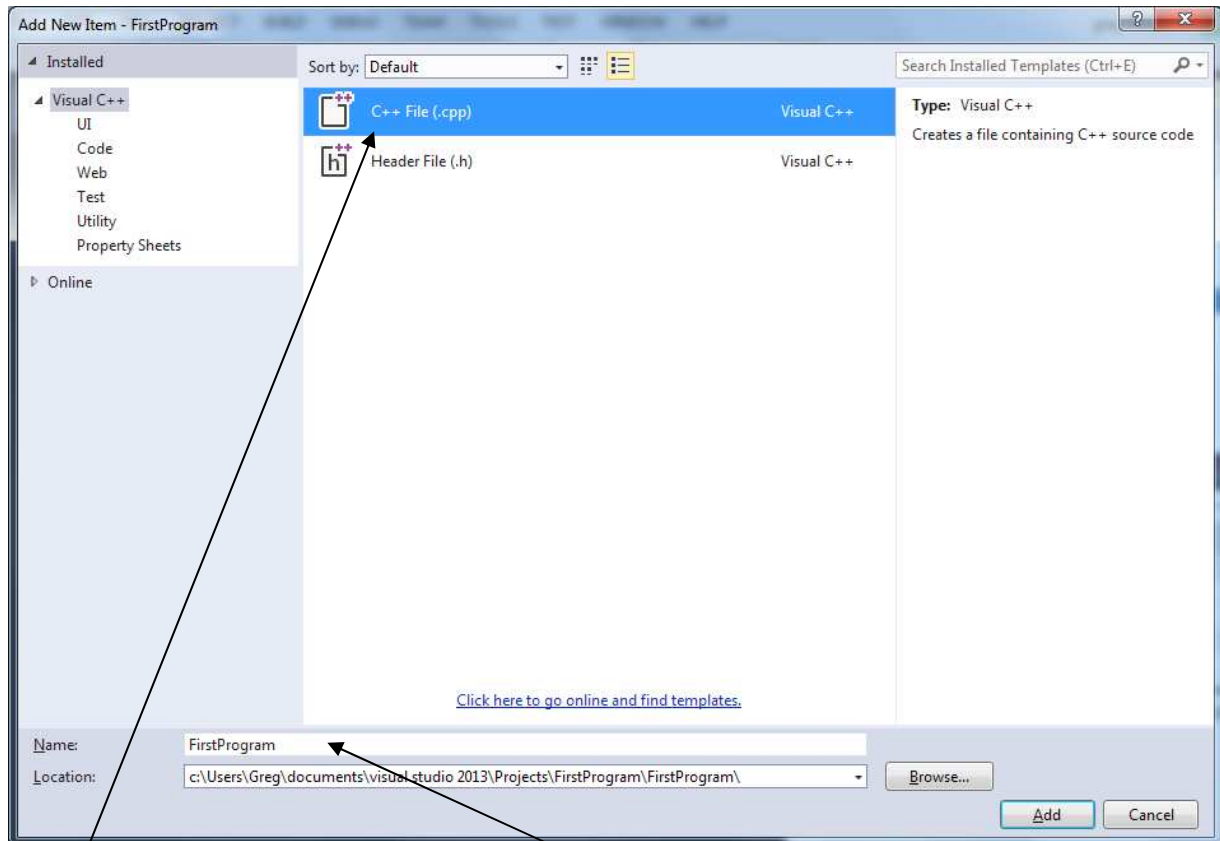
Click **Finish**.

The Solution will be displayed.

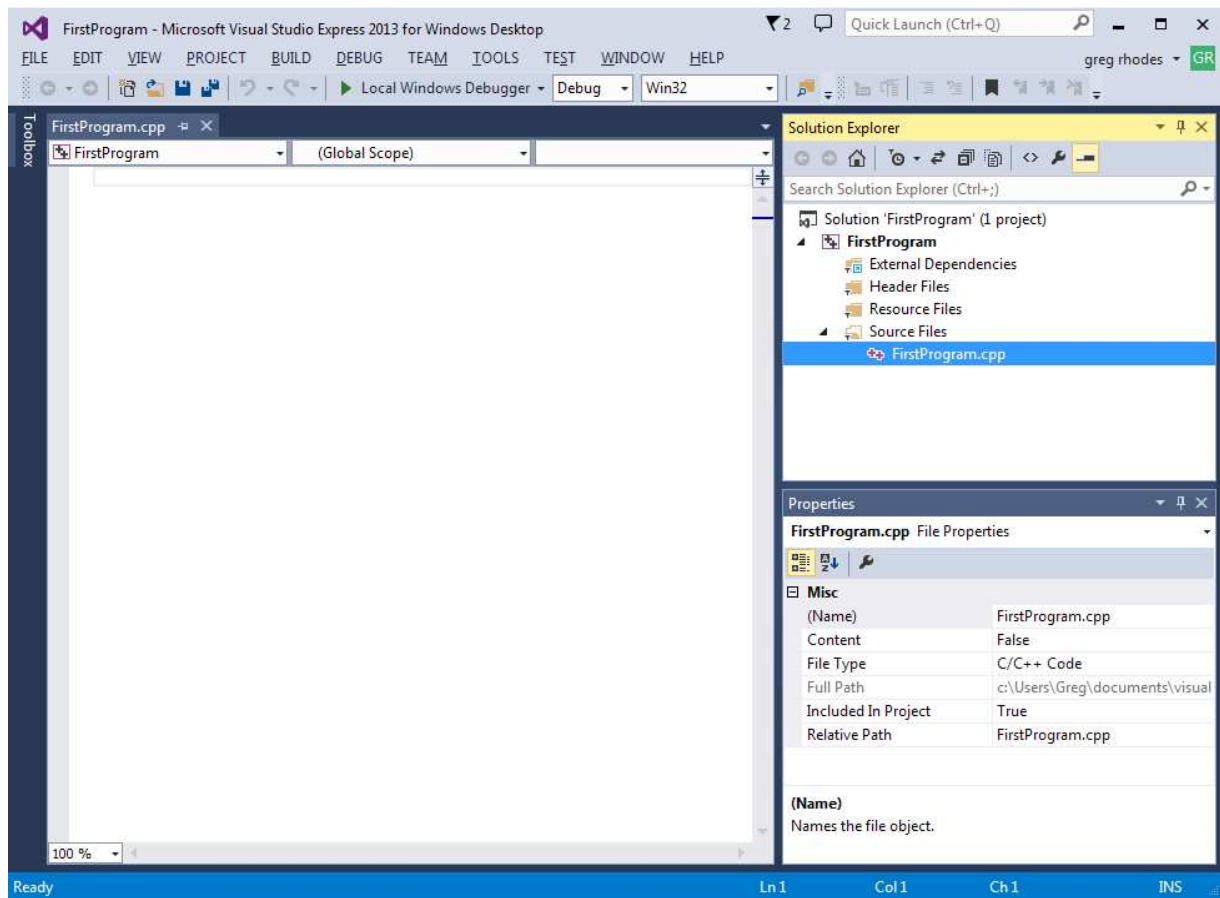


You will now have a solution named FirstProgram, that contains 1 project, also named FirstProgram. Select the “Source Files” folder and right click. On the popup menu, pick Add > New Item...

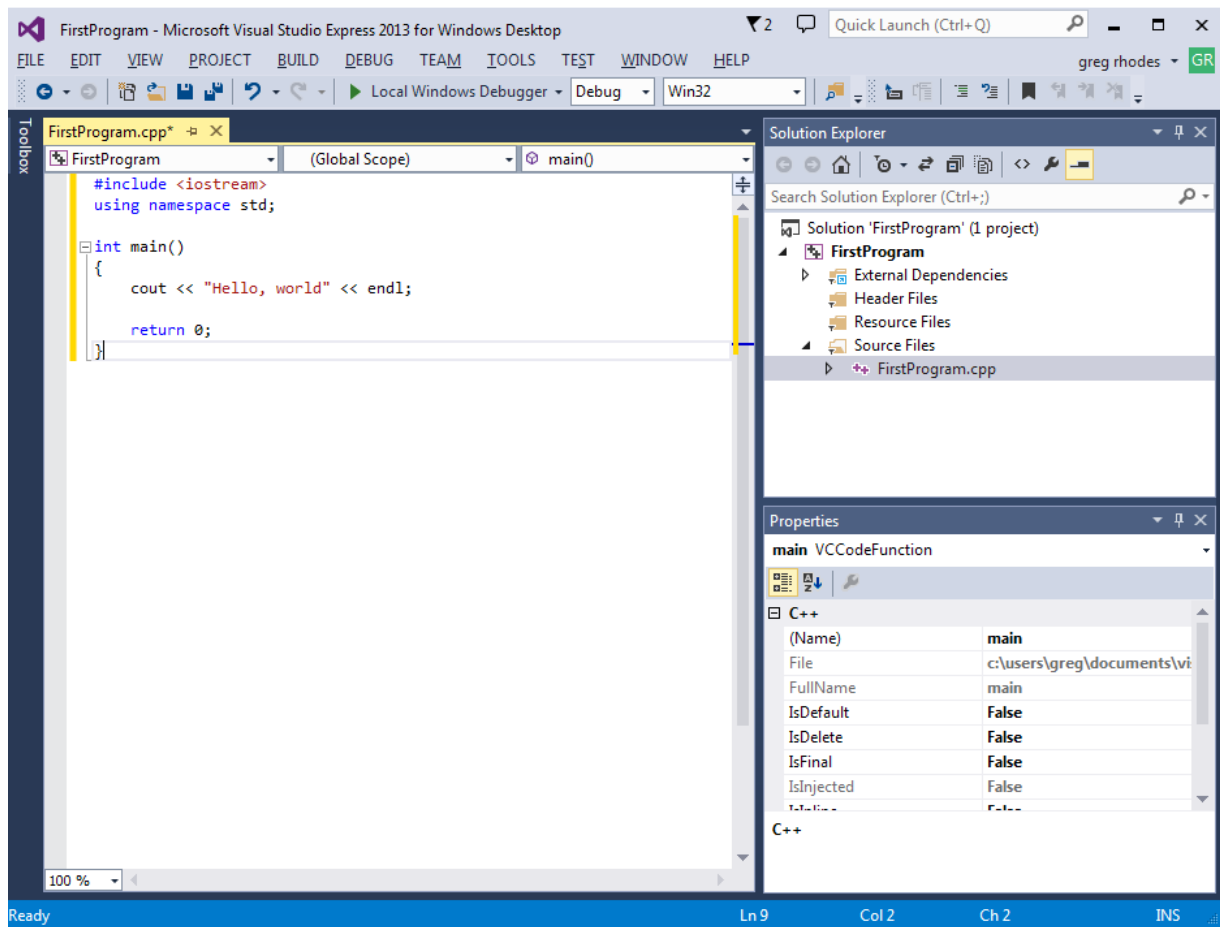
The Add New Item dialog is displayed.



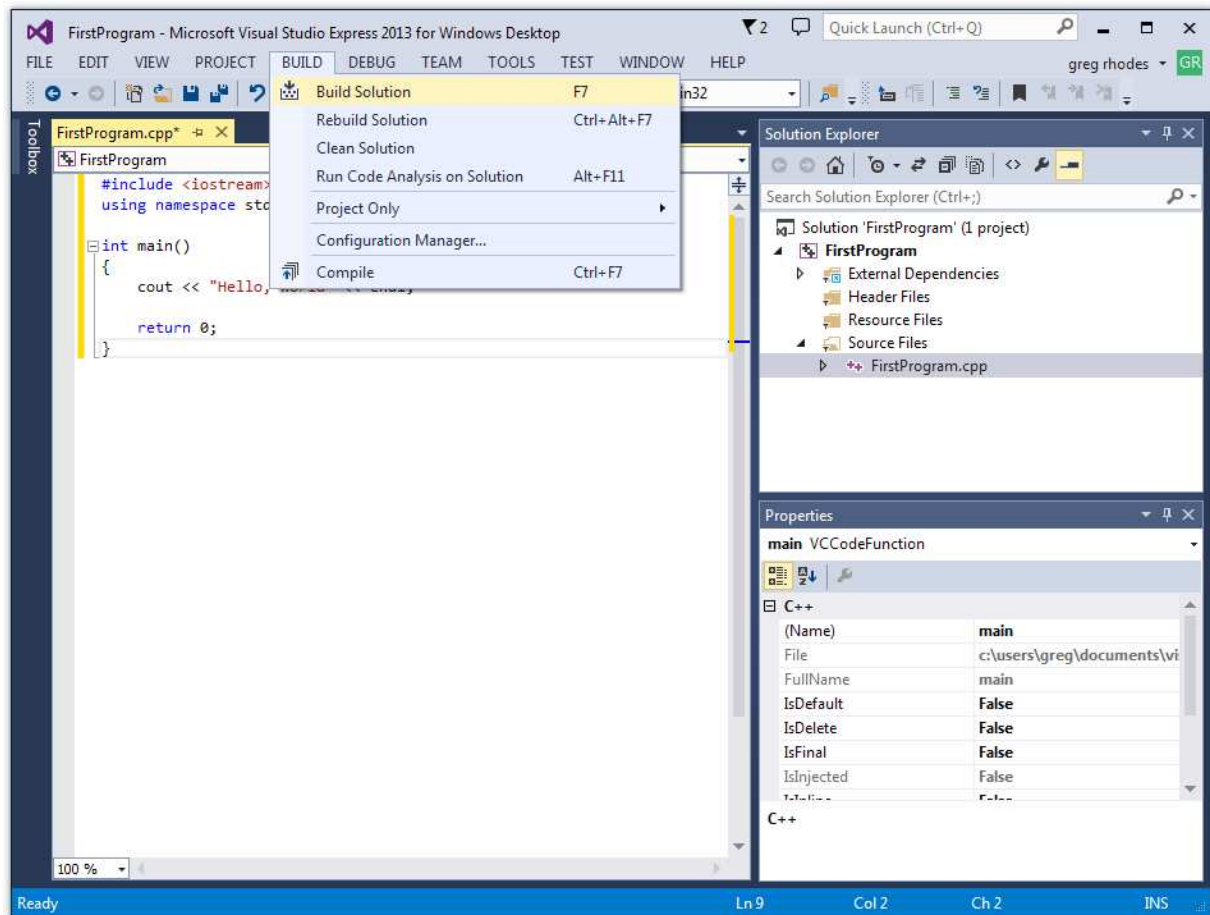
Select **"C++ File (.cpp)"** as the template, and **enter the source file name**. In this example, I've named it FirstProgram. Visual Studio Express will automatically add a .cpp file extension onto the filename. **Click Add.**



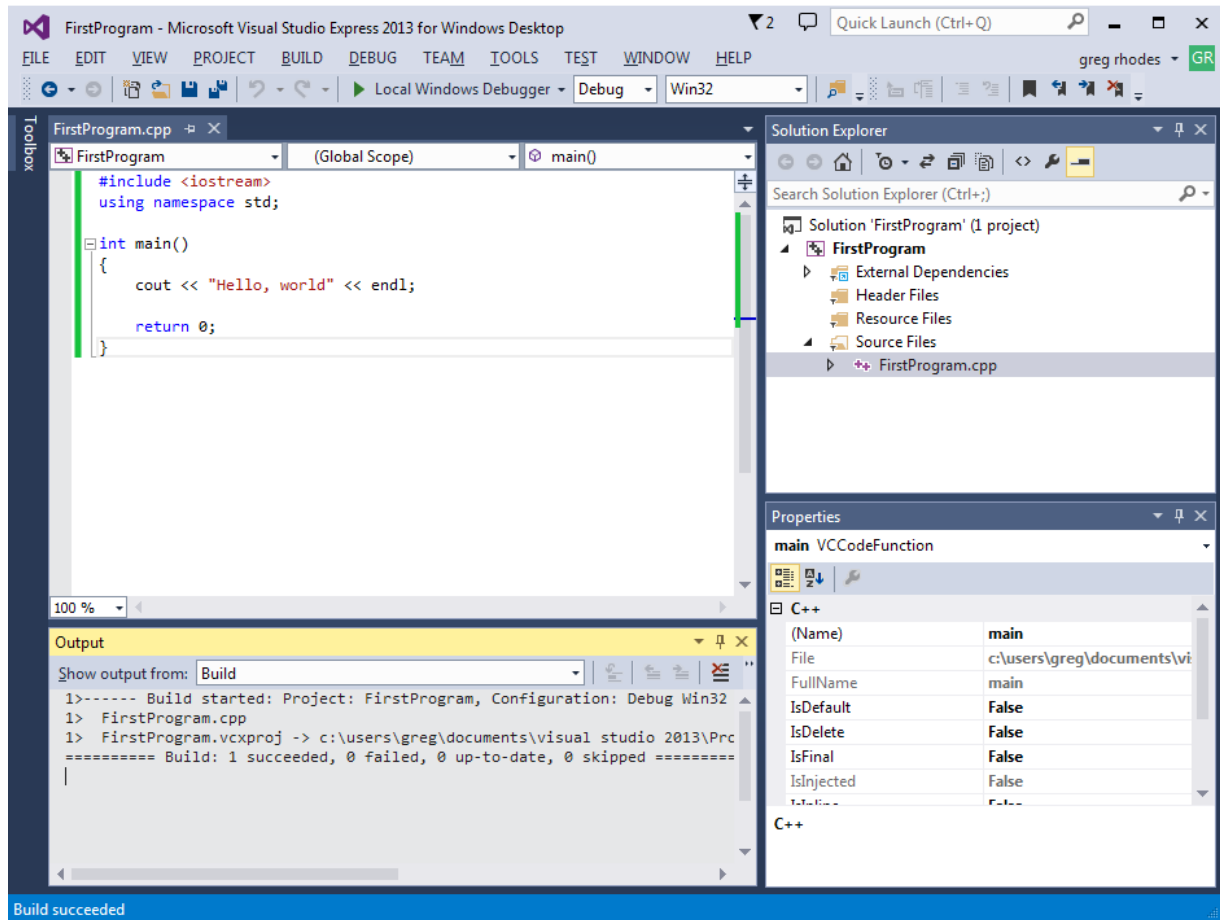
The source file will be added to the project, and will open up in an editor. It will be empty by default. Enter the following code into the editor:



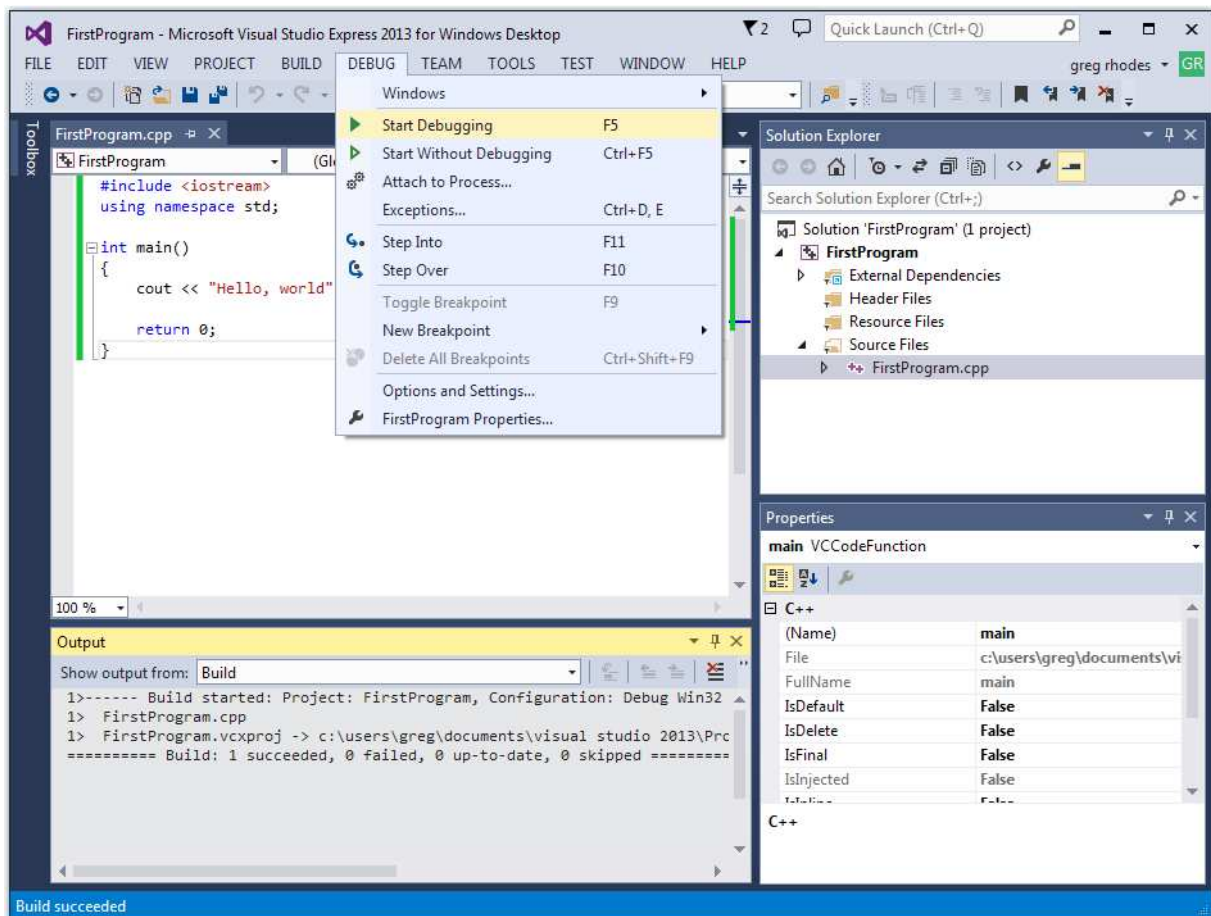
Be careful to enter the code exactly as shown – spelling, punctuation characters, and case (upper vs lower) all count!



After entering the source code, you're ready to compile it. Select the BUILD > Build Solution menu item (or press F7 as a shortcut.)

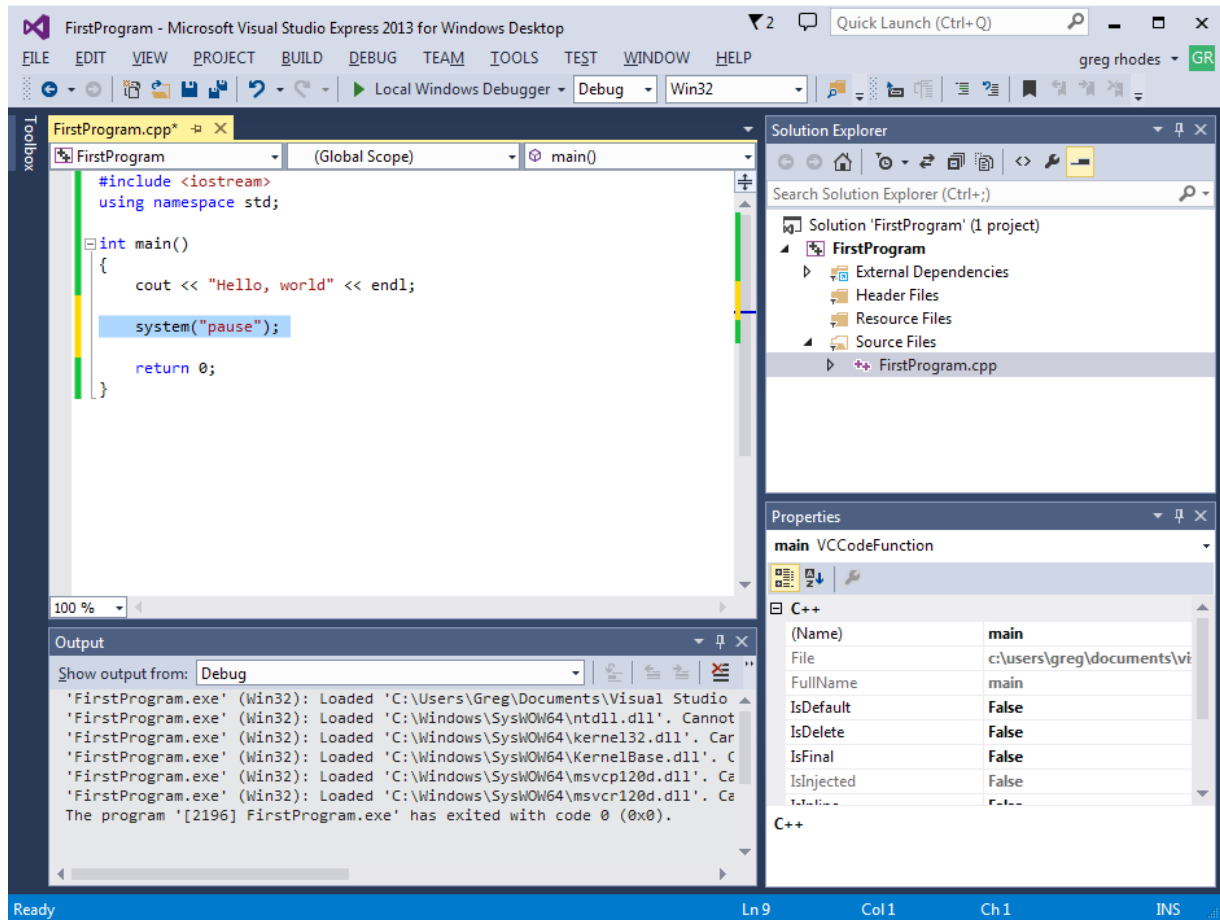


Assuming you made no errors, in the Output window that opens you should see some compile messages, including “Build: 1 succeeded” at the bottom if everything was successful. If you had errors, you’ll need to go back to the source code and fix them, then pick the BUILD > Build Solution menu item again.



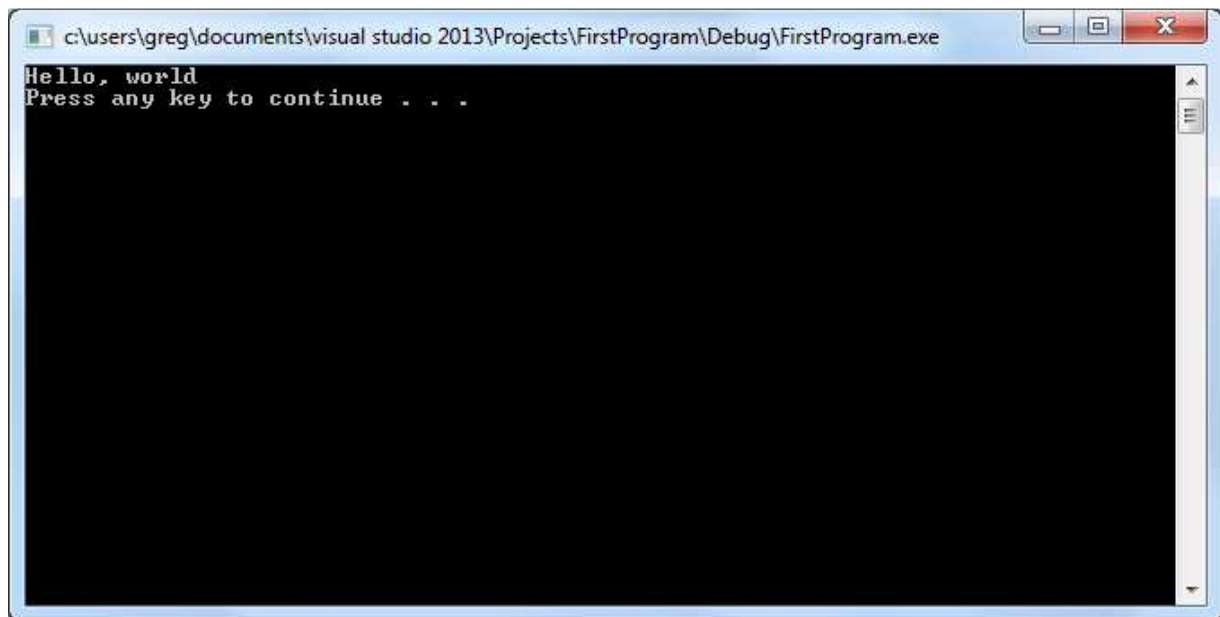
Once you have a “clean” compile (no errors), pick the `DEBUG > Start Debugging` menu item (or click F5 as a shortcut) to run the program.

If you pay attention, you’ll see a black window flash on the screen. What happened? The program ran in a “command window”, and then exited. In order to keep your output window around so you can see it, you’ll need to add an extra line at the end of all your programs, as the last line before the final `}` and before the `return 0;` line.



Enter the `system("pause");` line as shown below, then rebuild the solution (F7), and if you get no errors, start debugging (F5).

You should see something like this:

A screenshot of a Windows command prompt window. The title bar shows the file path: c:\users\greg\documents\visual studio 2013\Projects\FirstProgram\Debug\FirstProgram.exe. The window contains two lines of text: "Hello, world" and "Press any key to continue . . .". The rest of the window is black, indicating that the program has finished execution and is waiting for a key press to close the window.

Press Enter and the output window will close and you'll be back in the IDE. You've coded your first C++ program!

Use this quick start guide as you become familiar with Visual Studio Express to build your homework and in class activity programs. Also, refer to the "Common Beginner Mistakes with C++" document on the class website under the Other Stuff – COP1000 link. This document shows you some common errors that beginning C++ programmers make and how they will be shown as errors in the Visual Studio Express output window.