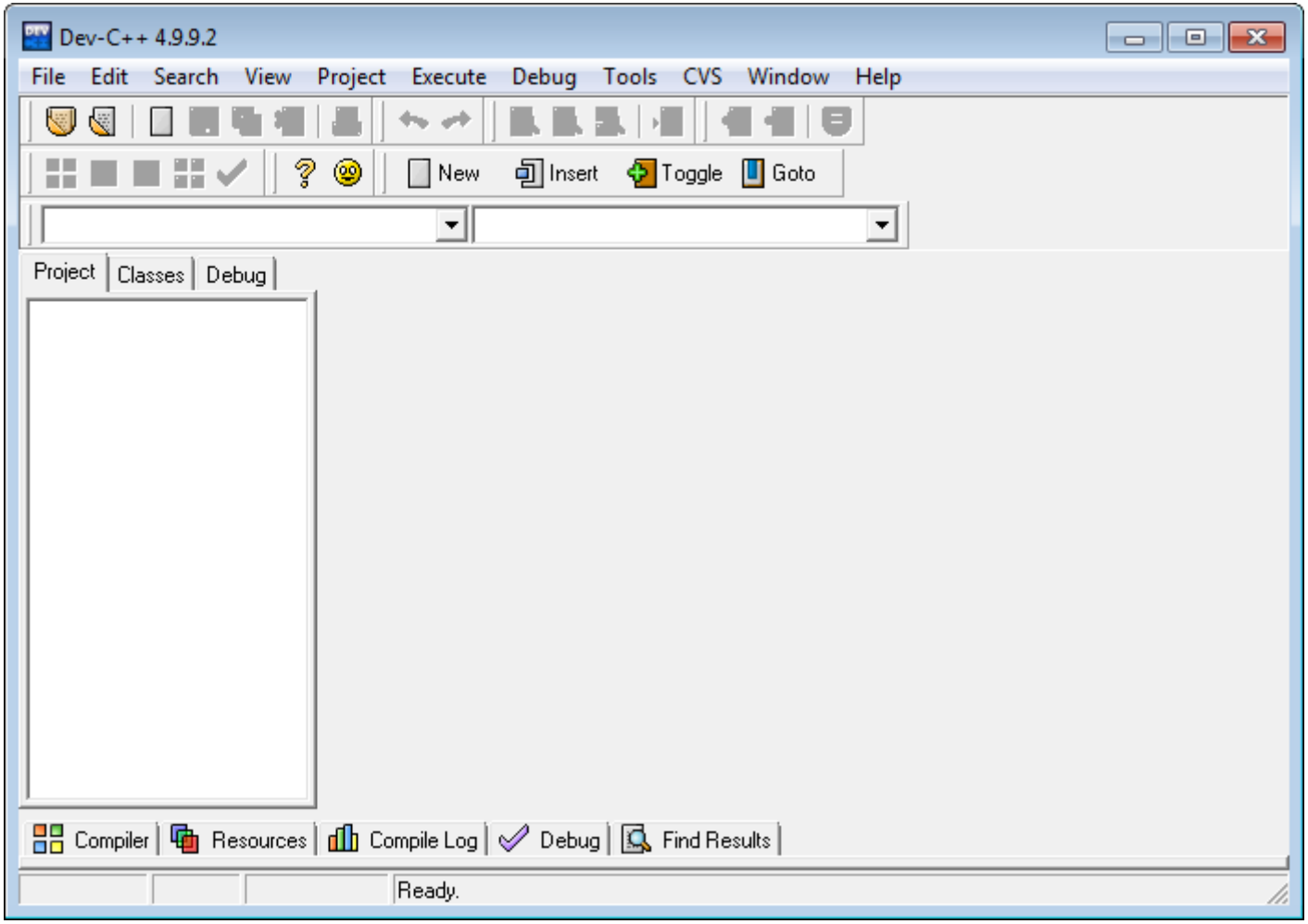
Using the Dev C++ Compiler to Create a Program

This document assumes that you have already installed the Dev-C++ Compiler on your computer and run it for the first time to setup the initial configuration. If you have not, then follow the steps on the page at: [http://www.gibsonr.com/cop2000/devcpp/install.pdf]

USING DEV-C++ TO WRITE THE POPULAR "HELLO WORLD!" PROGRAM

1. Launch the compiler using the Windows Start menu choices: Start, All Programs, Bloodshed Dev-C++, Dev-C++
   The Dev-C++ Compiler will launch a new program window (as shown below) and immediately display a Tip of the day dialog box on top of it. That box displays useful facts about the software each time the program opens or whenever you select Tip of the day from the Help menu, but for now Close it.



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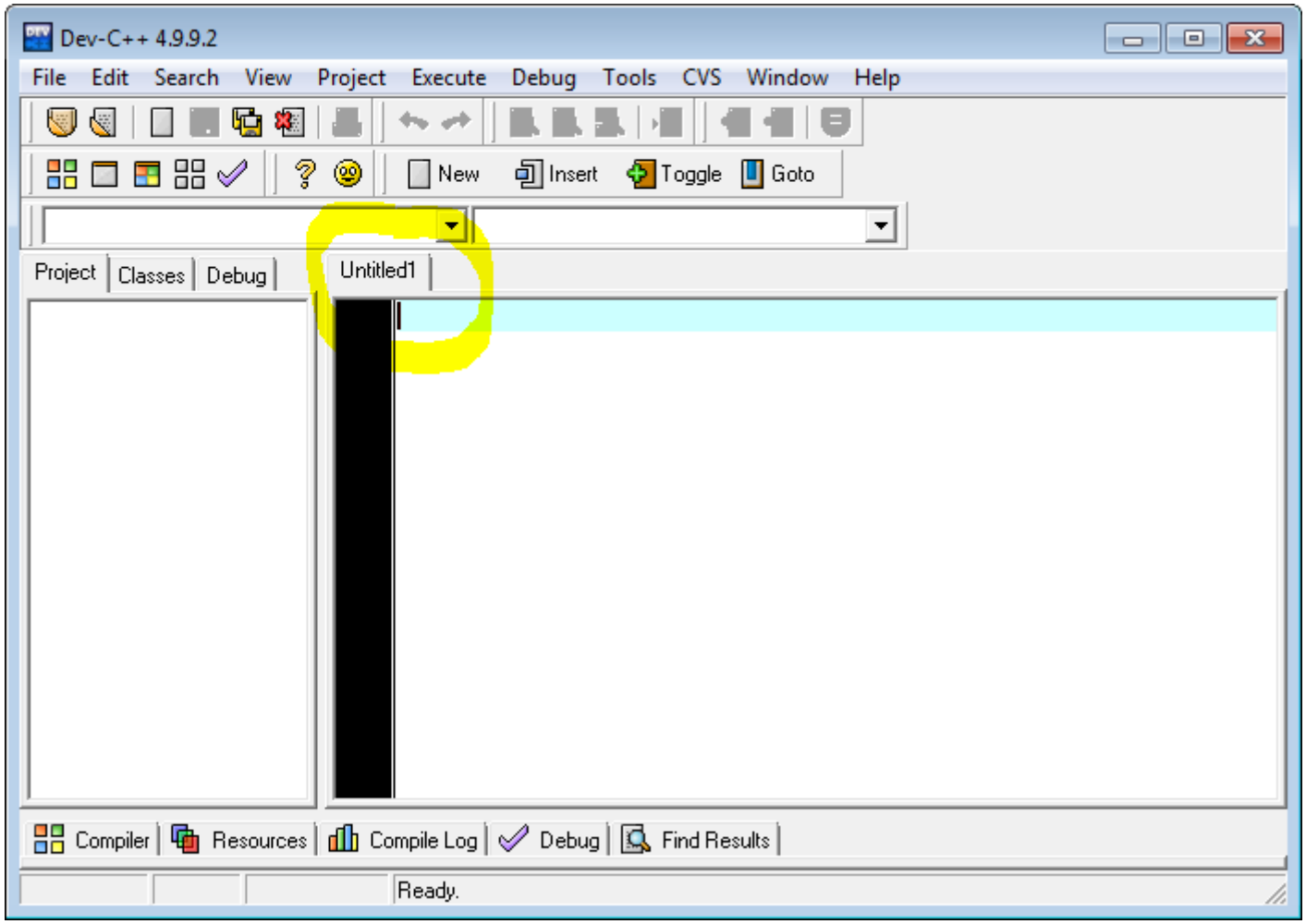
2. The first step in creating the C++ program is to create a source code file. Click on the menu choices: File, New, Source File (Ctrl+N)
   You should notice a flashing vertical bar (cursor) appear in a new panel on the right side of the program window, labeled Untitled1 on its tab. This is where you will type and edit your source code.



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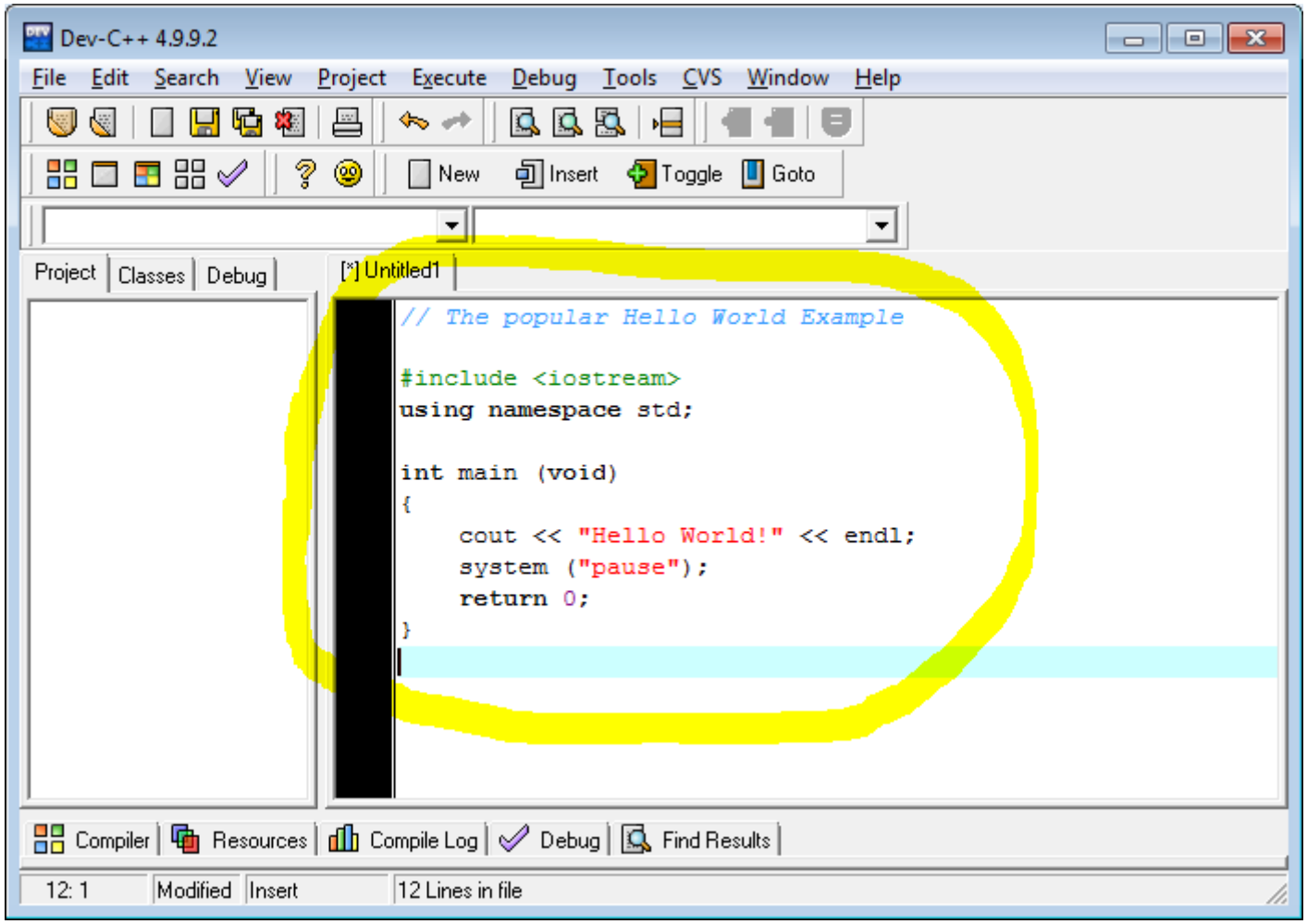
3. Carefully enter the source code for your program exactly as it appears below. Pay careful attention to upper and lower case.



Note that the word "`endl`" in the source code above ends with the *letter* '`l`' rather than the *numeral* '`1`'.
As you enter these lines, you should notice that some of the text in the panel is formatted by the compiler's editor to indicate comments (in blue), reserved words (in black **boldface**), standard identifiers (in green), and string literals (in red). This formatting is performed by the editor while displaying your source code, but will not be stored on the disk, as the text language has no ability to represent formatting data.

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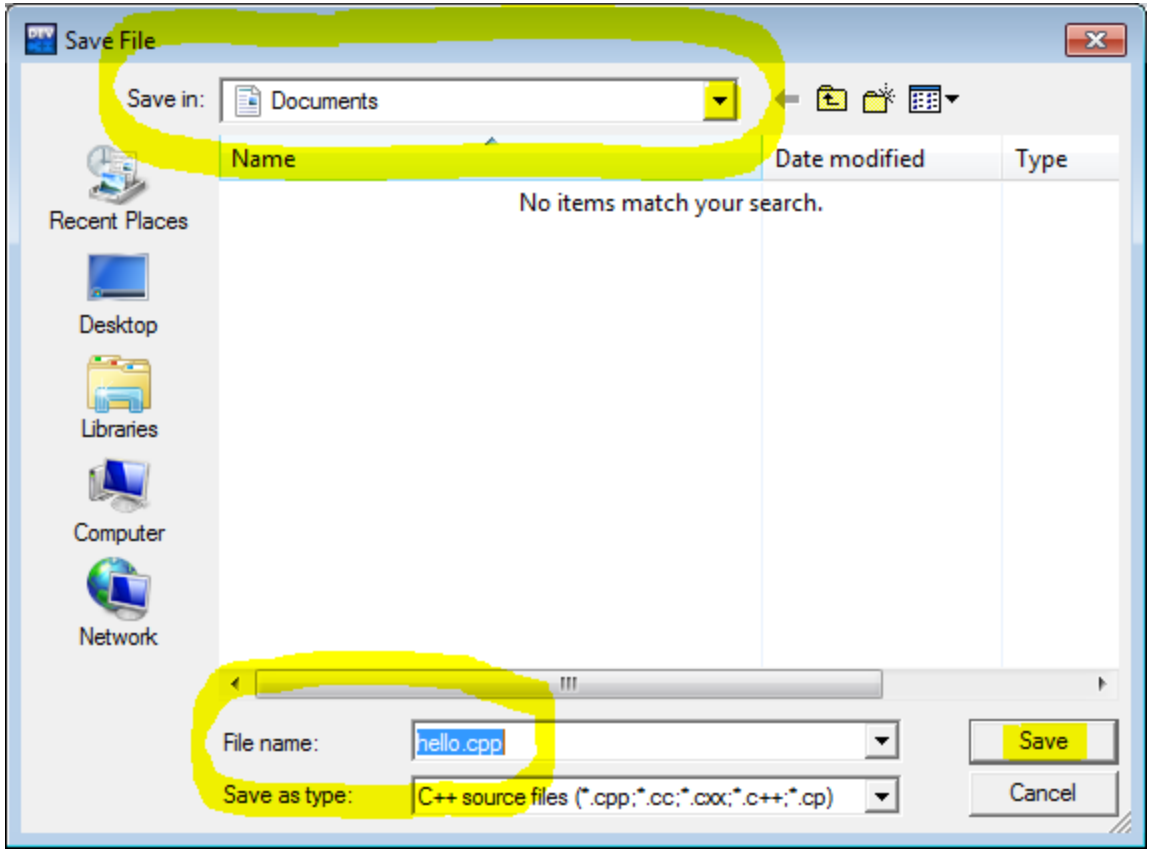
4. Then save your source code. This means to copy what you have just produced in the main memory to a disk file. This is done by selecting menu choices: File, Save As..., which will open a Save File dialog box similar to the one below.



Use its Save in: drop-box to navigate to the folder where you want your source code file saved (in this example, the user's Documents folder. In the File name: combo-box at the bottom of the dialog box, replace the name Untitled1.cpp with "hello.cpp" (without the quote marks). *It is essential that you include the extension of ".cpp" after the filename "hello". If this is omitted, you will not be able to compile (translate) your file.* Then click on the Save button.

Understand that the compiler will *not* translate what is on your *screen* (the contents of main memory), but rather will translate the contents of the file saved *on your disk!*

Note: Note: It is actually best to avoid using special folders under Windows such as "(My) Documents" or the "Desktop". These folders are not located where they appear to be in the folder hierarchy. The path to these folders can be quite long and contain blank spaces, which is not advisable when using Dev C++ or other compilers. Instead, you should create a working folder (perhaps named "COP2000" without any blank spaces) in the root folder of the fixed disk (labeled "Local Disk (C:)") and then create a separate sub-folder to contain the files for each assignment.

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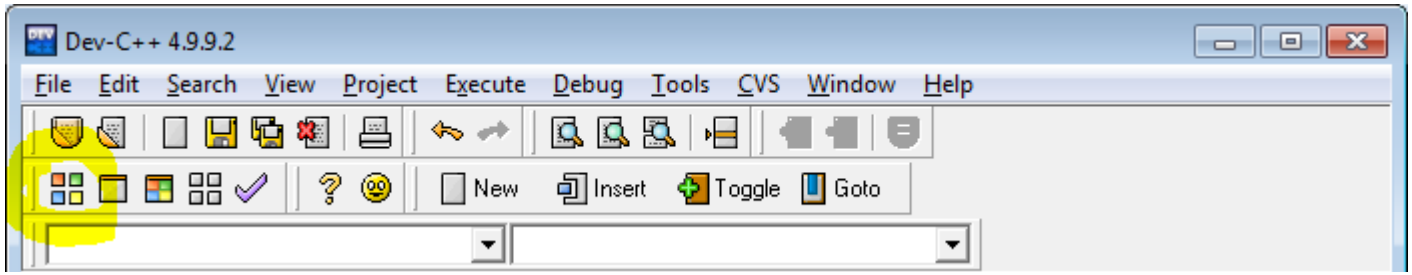
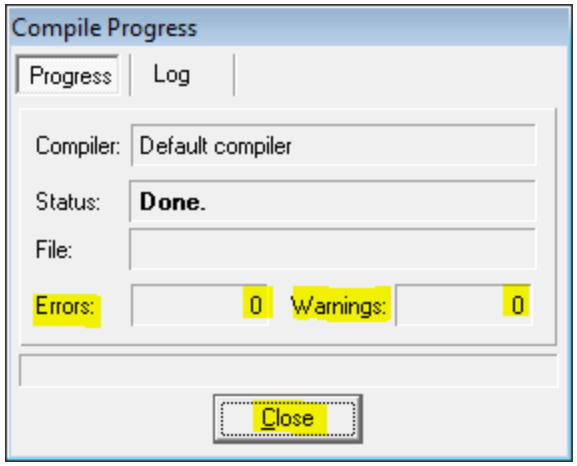
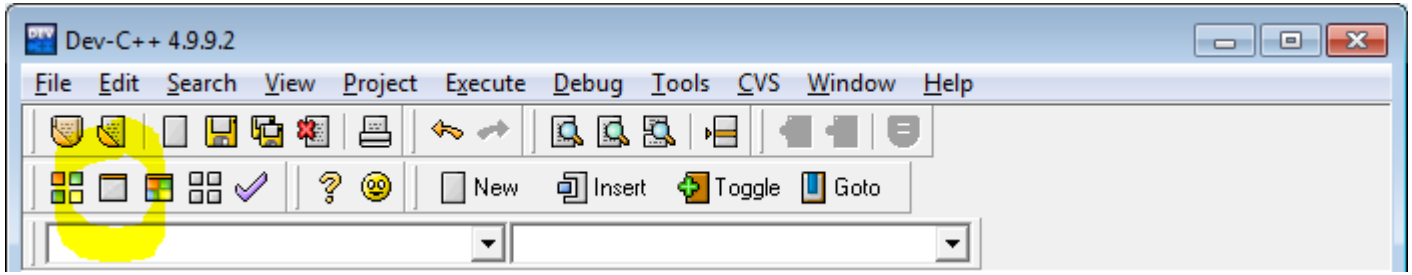
5. Now, compile (translate) the source code file using the menu choices: Execute, Compile (Ctrl+F9). *Notice the optional keystroke shortcut of Ctrl+F9 for the Compile command.* You could also use the button shown circled by the yellow highlighting in the image below.



You should see a dialog box similar to the one on the right showing the progress (or problems) encountered during the compilation attempt. Assuming that there were no syntax errors in the source code that you typed in the window, the results should appear as highlighted in yellow. If not, return to step 1, checking you code carefully.
Otherwise, at this point, a new file will be created on your disk in the same folder as your source code file. It will have the same file name but with an extension of .exe. This file will contain your program in machine language. The Dev C++ compiler simplifies the procedures required of a programmer into this one step. *Most other compilers require users to create additional "project" files and perform more steps, assuming that the program being created is comprised of many separate modules that must be "loaded" and "linked" to assemble the overal project. Dev C++ is capable of doing that too, but does not require these extra steps for a simple single-module program.*

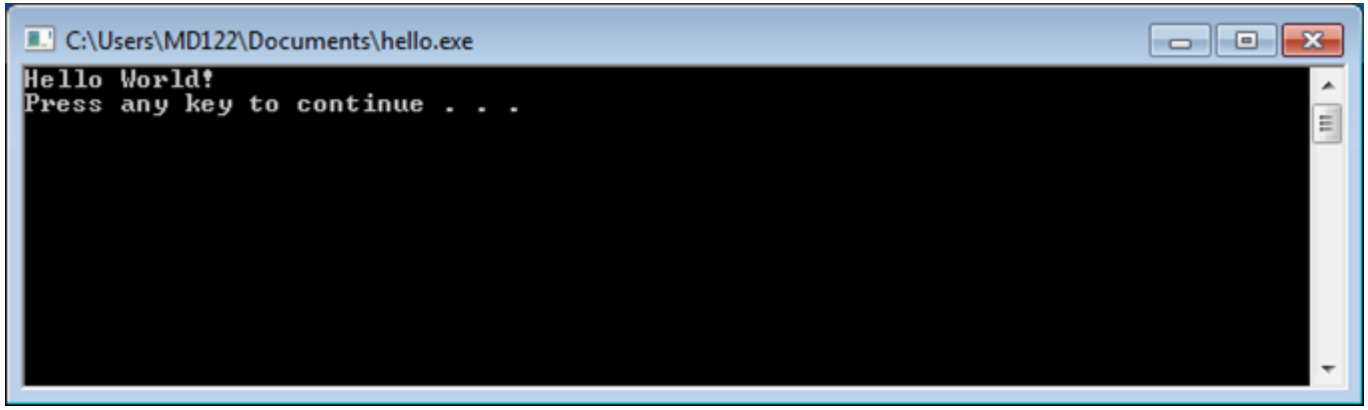


6. Click on the Close button to collapse the Compile Progress dialog box.
7. Now test your program (while still inside the compiler), using the menu choices: Execute, Run (Ctrl+F10). *Notice the optional keystroke shortcut of* Ctrl+F10 *for the* Run *command.* You could also use the button shown circled by the yellow highlighting in the image below



The compiler will open a console window (similar to the image below) and execute your program within it.
In programs that require data entry, you would enter any test data necessary and check the results for accuracy.

8. When a program contains statements that send output to a console window, there must be a console window open in which to display that output. When we test a program inside the compiler, its IDE opens a console window like the one below for this purpose.



However, the compiler will also collapse that window after executing the last statement, which would male it impossible to see the output. To prevent this situation, we included a statement near the end of the source code using the system function that passed a pause command to Windows to allow us time to read the program's output. The `pause` command displays the words "Press any key to continue . . ." and waits for the user to do so before returning control to our program (which then terminates). So after reading our program's output, press the Enter key to allow the program to complete and collapse the console window, revealing the Dev C++ IDE.
If this program had been intended to run in an existing character-based environment (such as Windows Command Prompt window or a Linux shell) rather than in a graphic environment (such as the Windows desktop), we would remove the `system ("pause");` *statement before the final compilation of our program.*

9. Unless you see a need to return to step 1 to make corrections or changes to the source code, terminate your programming session using menu choices: File, Close. Then close the program using menu choices: File, Exit.
10. At this point, you should have a valid source code file "hello.**cpp**" and an executable version of that source code in "hello.**exe**".

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RUNNING YOUR PROGRAM

You could now test your program outside of the compiler in its intended command-line environment using a Windows Command Prompt window. To open a Command Prompt window, use the Start button and choose: All Programs, Accessories, Command Prompt. A black and white console window similar to the one in step 8 above will appear. The Windows Command Prompt window provides a character-based (as opposed to "point & click") working environment, in which all control is accomplished by typing command lines built from a list of keywords. If you are unfamiliar with the syntax of the Windows command line, read the web page Windows Command Prompt Commands.

You will find it much easier to work with the command-line environment if you keep your files in folders that are near the "root" folder of your storage device. For example, on your hard drive (C:) you could make a data folder named "COP2000" (without blank spaces) as a child of the root folder with the command: `md C:\COP2000`

You can then create a sub-folder to hold the files involved in each assignment beneath that one with commands such as: `md C:\COP2000\A1`

If you chose to work on a removable memory stick, remember that the drive letter given to access it is selected by the computer in which it is inserted, so it might be different from one computer to the next.

Unlike many other compilers, Dev-C++ conveniently saves its compiled `exe` files in the same folder as the source code file. So they are easy to find and keep together. Remember that each `exe` file is created to run on a specific style of processor. So you might not be able to test your program on a computer other than the one for which it was developed.

The following example is based on the assumption that your `hello.ccp` source code file is located in folder path of `C:\COP2000\A1`.

1. Open a Command Prompt window, use the Start button and choose: All Programs, Accessories, Command Prompt. A black and white console window similar to the one in step 8 above will appear.
2. If you are working on a memory stick, type its drive letter *with the trailing colon* to establish it as the working storage device.
3. Change to the folder where your `exe` file is stored with a command such as: `cd \COP2000\A1`
4. Verify that it is there with the directory (folder) listing command: `dir`
5. Test it by typing its filename (with or without the `exe` extension), as in: `hello`
6. You should see your program's output. If your program required user input, you would be see the prompts for it and enter it.
7. Assuming that your source code still contained the statement `system ("pause");` Windows will pause and prompt you to "Press any key to continue . . .". Do so to complete the test run of your program.
8. Finally, close your Command Prompt window by entering the command: `exit`