

Code::Blocks

A number of programming modules in Computer Science (COS1511/XOS1511, and COS1512/XOS1512 and COS2611) use the same prescribed software; in particular, an Integrated Development Environment (IDE) that includes a C++ compiler. The IDE and the compiler are actually two separate pieces of software, but are installed together to make things simpler. Both are open-source software and are distributed under the Gnu Public License (<http://www.gnu.org/licenses/>), which means you are free to use, copy or modify them. You are not required to register or pay for any of this software.

The IDE is called Code::Blocks (version 16.01). (See <http://www.codeblocks.org/> if you want more information.)

The compiler is the MinGW port of the Gnu Compiler Collection (version 4.9.2). (See <http://www.mingw.org/> if you want more information.)

The prescribed software is designed to work on Windows platforms (e.g. Windows XP, 7, 8 or 10), but there are versions available for other operating systems, like Linux. Although you are welcome to use other versions of the software, we will not be able to give you any support if you don't use the prescribed software. Also, you must make sure that the programs you submit for your assignments work on the prescribed software.

Installing the software

The MinGW C++ compiler is bundled with Code::Blocks, and they are installed together.

- Double-click on the "My Computer" icon on your desktop.
- Right-click on your DVD icon, and select "Explore".
- Navigate to the `\install\codeblocks` folder.
- Double-click on the file `codeblocks-16.01mingw_setup.exe`
- During installation, you will be asked to choose the Destination Directory where Code::Blocks must be installed. We recommend that you accept the default destination directory, namely `c:\Program Files`.

Using the software

Code::Blocks provides a friendly user interface to the MinGW C++ compiler. In fact, it will not be necessary for you to work directly with the compiler. You can always do so by means of Code::Blocks.

In COS1511, the programs you write will be somewhat simpler than for COS1512. In particular, all the programs will consist of a single file, so you can get by without a project.

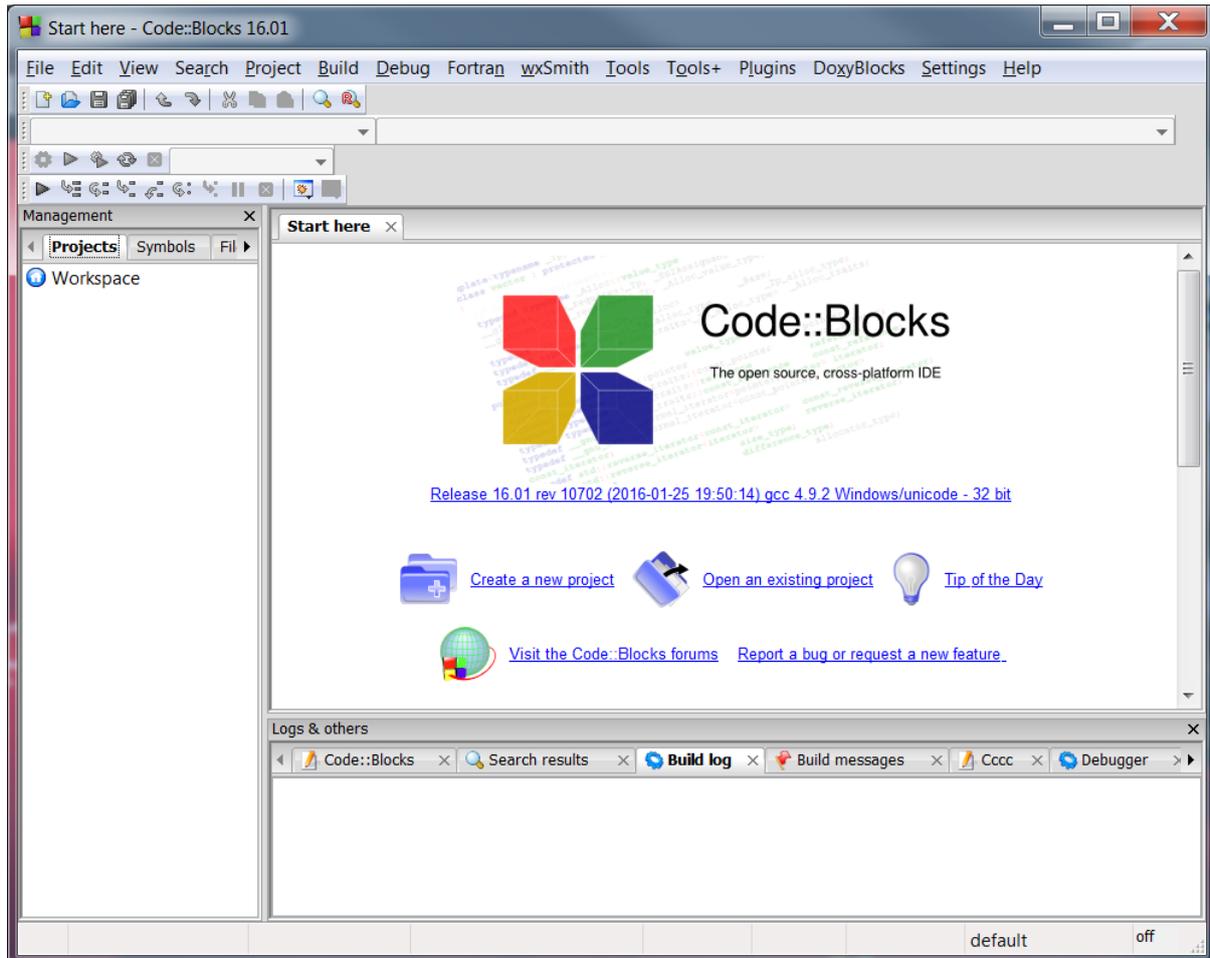
To help you get started we present a short guide to your first "Hello World" program.

Step 1. Start Code::Blocks

During installation, a shortcut to Code::Blocks should have been placed on the desktop. Double-click it to start Code::Blocks.

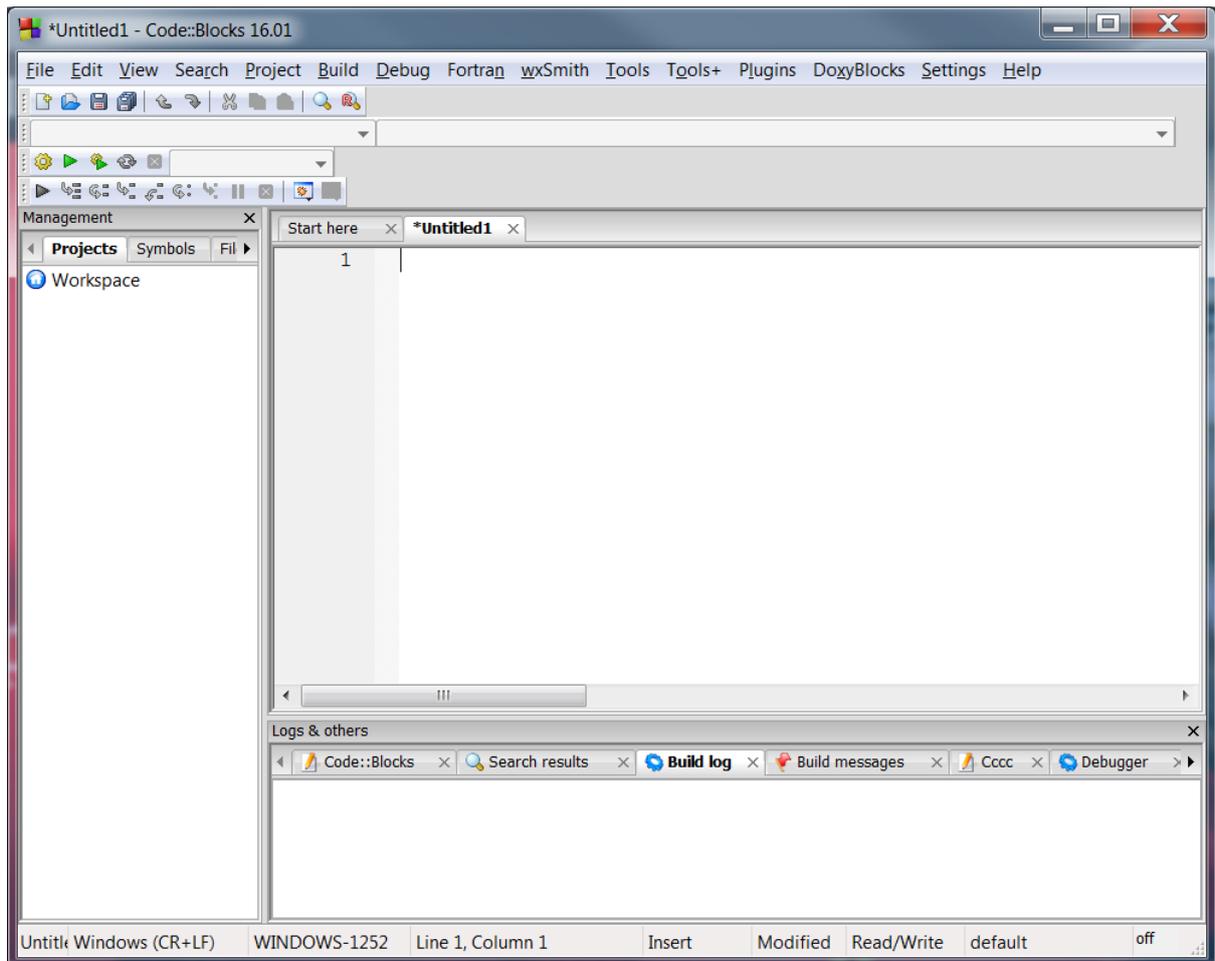
Otherwise, you can click on the Windows "Start" button and choose "CodeBlocks" on the "Programs" submenu.

A window like the following will be displayed:



Step 2. Create a new C++ source file

To create a source file, choose "New | Empty file" on the "File" menu, or click on the "New file" toolbar button and choose "Empty file" on the pop-up menu. An empty source file will be displayed in the edit panel:



By the way, you can hide the Project manager (the panel on the left) by deselecting "Manager" on the "View" menu, or by clicking on the close button (little cross) on the "Management" panel. You won't be needing this for COS1511.

Step 3. Save the source file

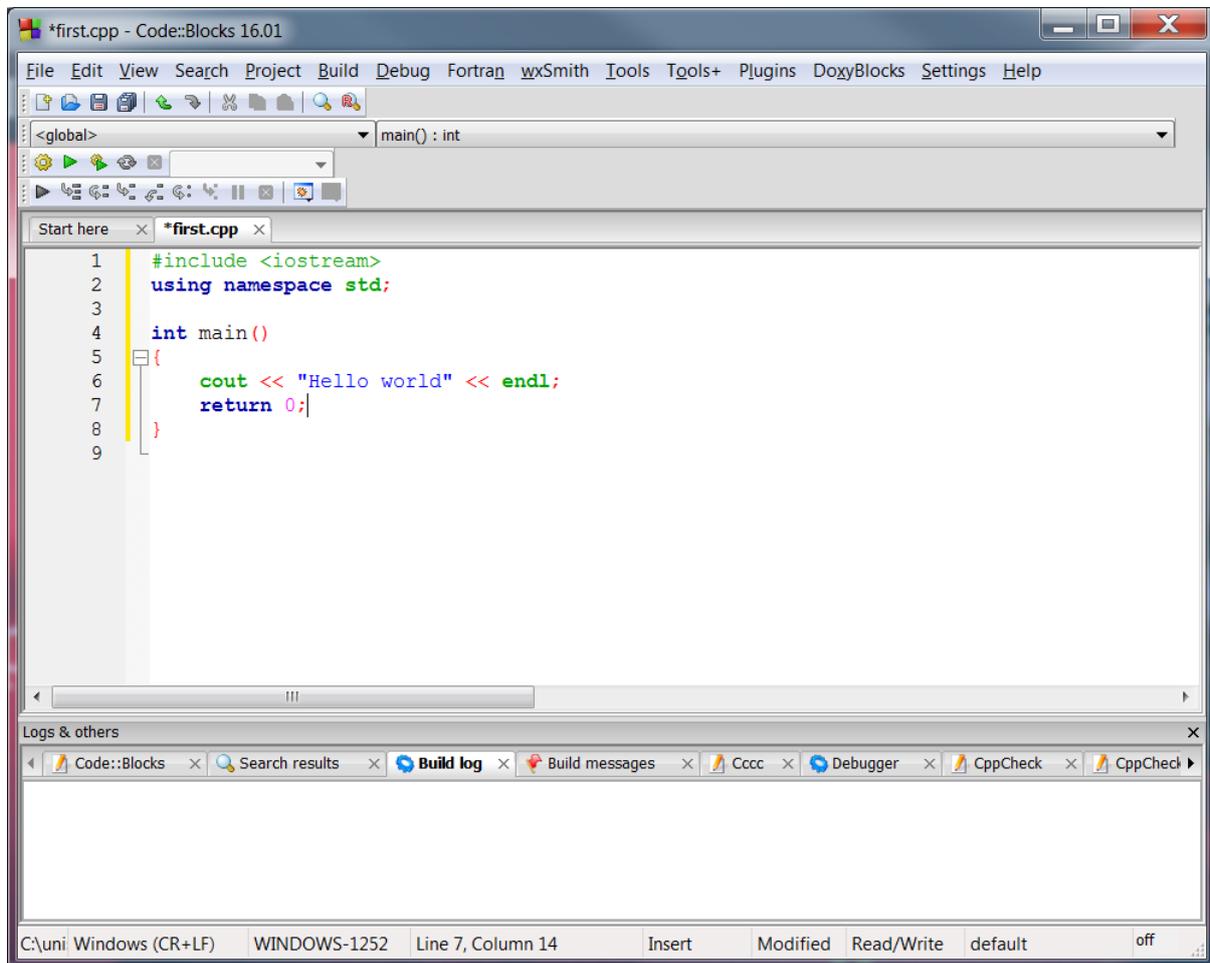
Choose "Save file" or "Save file as ..." on the "File" menu, or click on the "Save" toolbar button. We suggest that you create a separate directory (such as **C:\unisa\COS1511**) in which you save all your work for a particular module. *Beware*: Do **NOT** save it in a directory (or a path) with a space in it (such as **C:\My Documents\COS1511**). Navigate to the directory you've created (if necessary) before typing the name of the source code file, e.g. **first.cpp**, and click on the "Save" button. *Beware*: Code::Blocks uses the extension **.c** for the filename by default. You must change this to **.cpp** because your source file is in the C++ programming language, not C.

The only difference you should notice is that the filename ***Untitled1** has now been replaced by your filename, e.g. **first.cpp**.

It may seem strange to save a file before you have typed a program, but it is a good habit to get into from the start.

Step 4. Edit the source file

Type in the following program in the edit panel:



```
1  #include <iostream>
2  using namespace std;
3
4  int main()
5  {
6      cout << "Hello world" << endl;
7      return 0;
8  }
9
```

Step 5. Compile the program

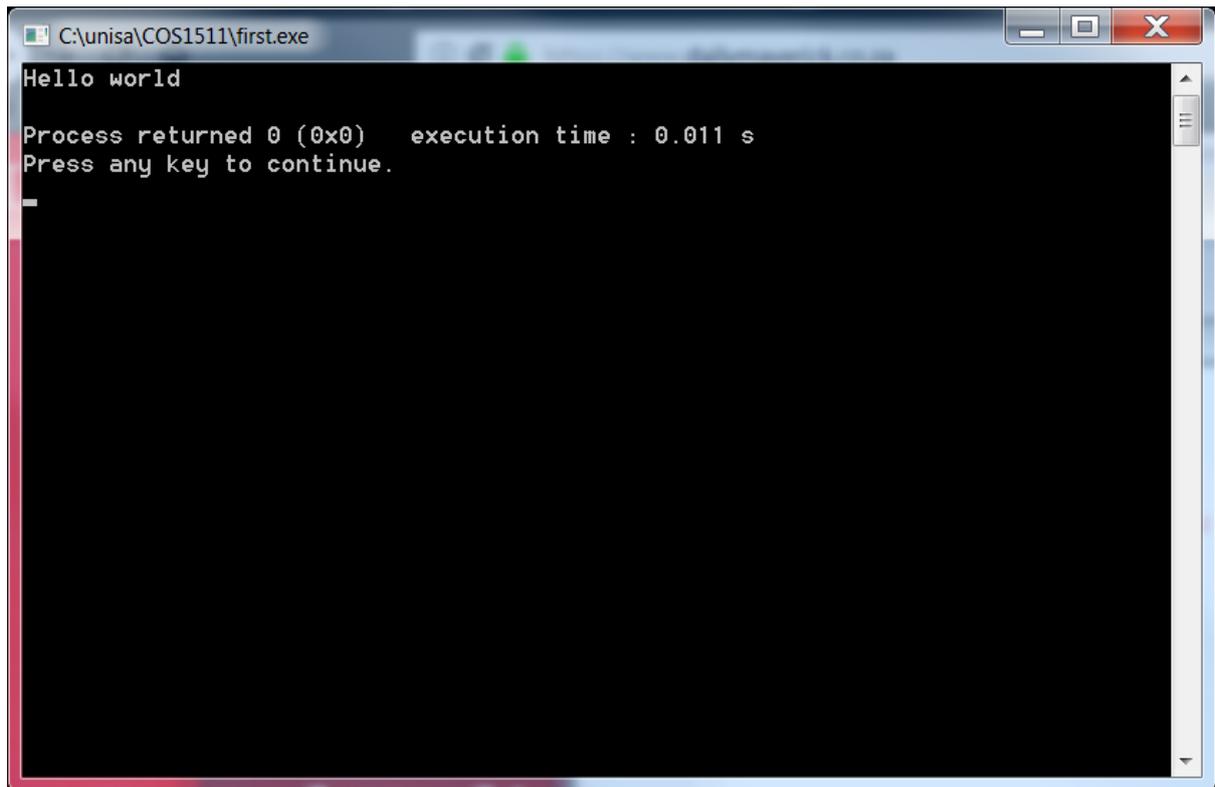
This is the easy part. Choose "Build" on the "Build" menu, or click on the "Build" toolbar button. Watch the messages displayed in the "Build log" below the edit panel.

Assuming you haven't made any typing mistakes, your program should compile without any errors. (If there are errors, they will be displayed in the "Build log".)

If you are SURE that you have typed in the program precisely correctly, but an error message is displayed every time you compile the program, see [Troubleshooting](#) below.

Step 6. Run the program

This is the fun part. To see the fruits of your labour, either choose "Run" from the "Build" menu or simply click on the "Run" toolbar button. If all goes well you should see a window like this:



```
C:\unisa\COS1511\first.exe
Hello world
Process returned 0 (0x0) execution time : 0.011 s
Press any key to continue.
_
```

Press any key to close the console window.

Congratulations! You have just compiled and run a C++ program using Code::Blocks. Easy, wasn't it?

To create a new program, close your existing program, and open a new one. To edit an existing program (one that you worked on previously), choose "Open" on the "File" menu or click on the "Open" toolbar button.

Troubleshooting

Make sure that your source file is saved with a **.cpp** extension, e.g. **first.cpp** and not **first.c**

Make sure that your source code file is not saved in a directory (or a path) with a space in it. We recommend that you create a directory called **C:\unisa\COS1511** and save all your source code files there.