

Engr 101 Writing C in Visual Studio

Getting Started with Visual Studio

When you open Visual Studio for the first time you may need to sign in to a Microsoft account or get a license to continue. The account is free and requires only an email address and password.

Open Visual Studio. Click on *Tools* → *Options* → *Startup*. Select Empty Environment as shown in Figure 1.

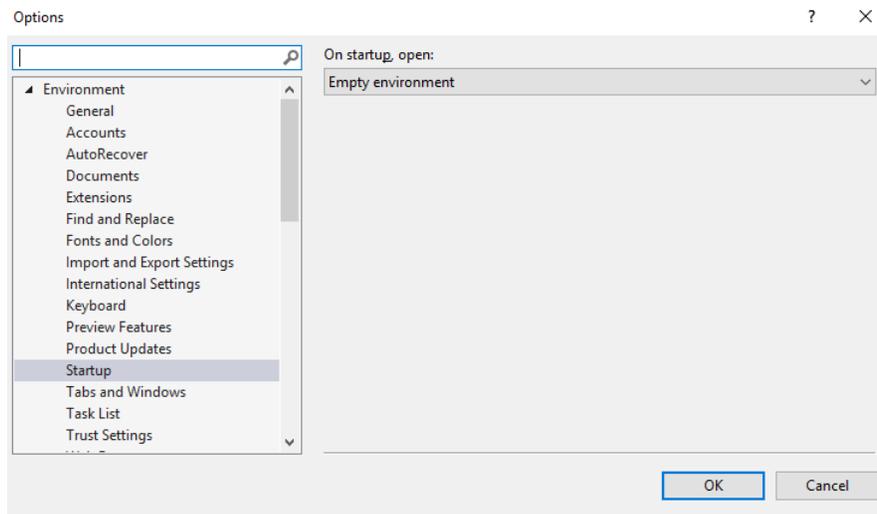


Figure 1 Click on *Tools* → *Options* → *Startup*. Select Empty Environment as shown. Click on OK.

Click on *Tools* → *Options* → *Text editor* → *C/C++* → *Tabs* and choose block indenting, tab size 4 and indent size 4. Also choose insert spaces. See Figure 2.

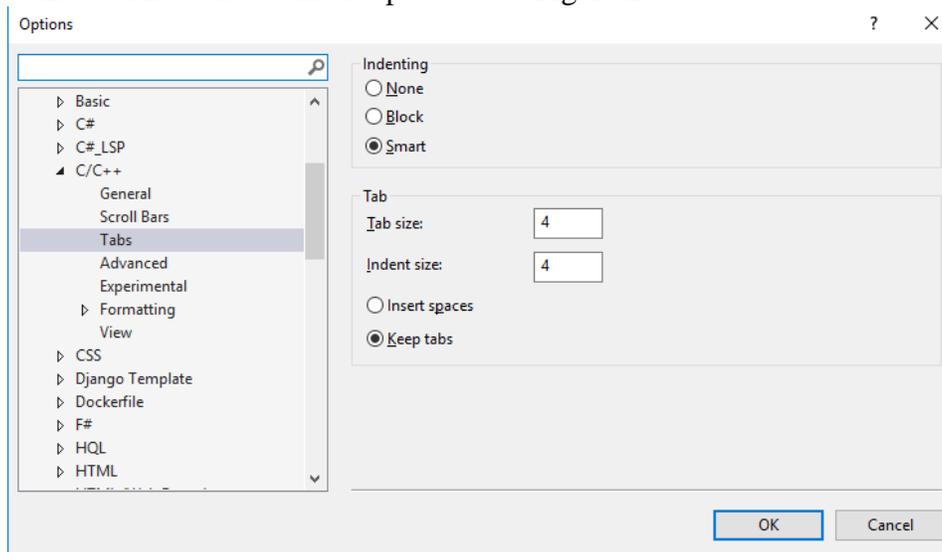


Figure 2 Setting up tables.

Click on Tools → Options → Text editor → C/C++ → Formatting and select *Do Nothing* under the Paste option. See Figure 3.

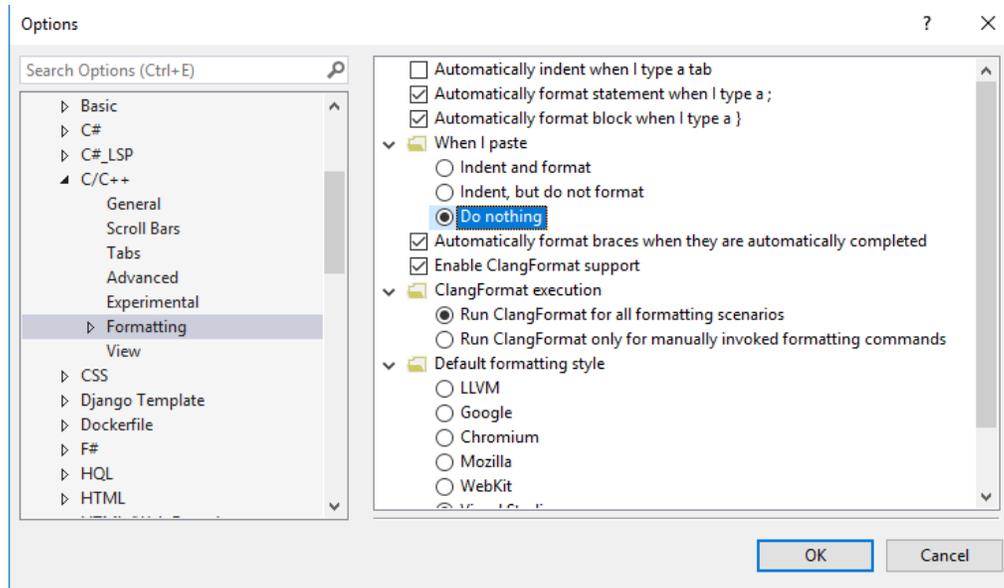


Figure 3 Setting paste option.

Writing C in Visual Studio

When you open Visual Studio for the first time you may need to sign in to a Microsoft account or get a license to continue. The account is free and requires only an email address and password.

From the start menu which comes up when Visual Studio open click on "New Project". Alternatively, you can get rid of the *Start* page by clicking on Tools → Options → Startup. In the menu that comes up select "Show empty environment" and unclick the box that downloads content every so often. You can then open a project from the empty environment by clicking on File → New project. This will get you the *New Project* window shown in Figure 4. Select *Language* from the tab at the top and choose C++. Click on Empty Project and select *Next*

Create a new project

Recent project templates

- Empty Project C++
- Console App C++
- Windows Forms App (.NET Framework) C#
- WPF App (.NET Framework) C#

Search for project templates

Language

Platform

Project type

Filtering by: C++

Clear filter

- Empty Project**
Start from scratch with C++ for Windows. Provides no starting files.
C++ Windows Console
- Console App**
Run code in a Windows terminal. Prints "Hello World" by default.
C++ Windows Console
- Windows Desktop Wizard**
Create your own Windows app using a wizard.
C++ Windows Desktop Console Library
- Windows Desktop Application**
A project for an application with a graphical user interface that runs on Windows.
C++ Windows Desktop
- Shared Items Project**
A Shared Items project is used for sharing files between multiple projects.
C++ Windows Android iOS Linux Desktop Console
Library UWP Games Mobile
- Dynamic-Link Library (DLL)**
Build a dll that can be shared between multiple running Windows apps.

Next

Figure 4 New project window.

The next screen (Figure 5) allows you to configure your project. You need to give your project a name. I used Engr101DB. You need a descriptive name here with no spaces. You also need to select a folder into which your project will be stored. You can use the Browse button to select a folder. I suggest you keep all of the projects for this class in one folder which may be on a USB Thumb drive if you are using a lab computer. For now use the browse button to place your project on the desktop. Click on Create.

Configure your new project

Empty Project C++ Windows Console

Project name

Engr101DB

Location

C:\Users\Administrator\Desktop\

Solution name

Engr101DB

Place solution and project in the same directory

Back

Create

Figure 5 Configure your project.

After you configure your project and click on *Create* you get a screen that looks like that in Figure 6.

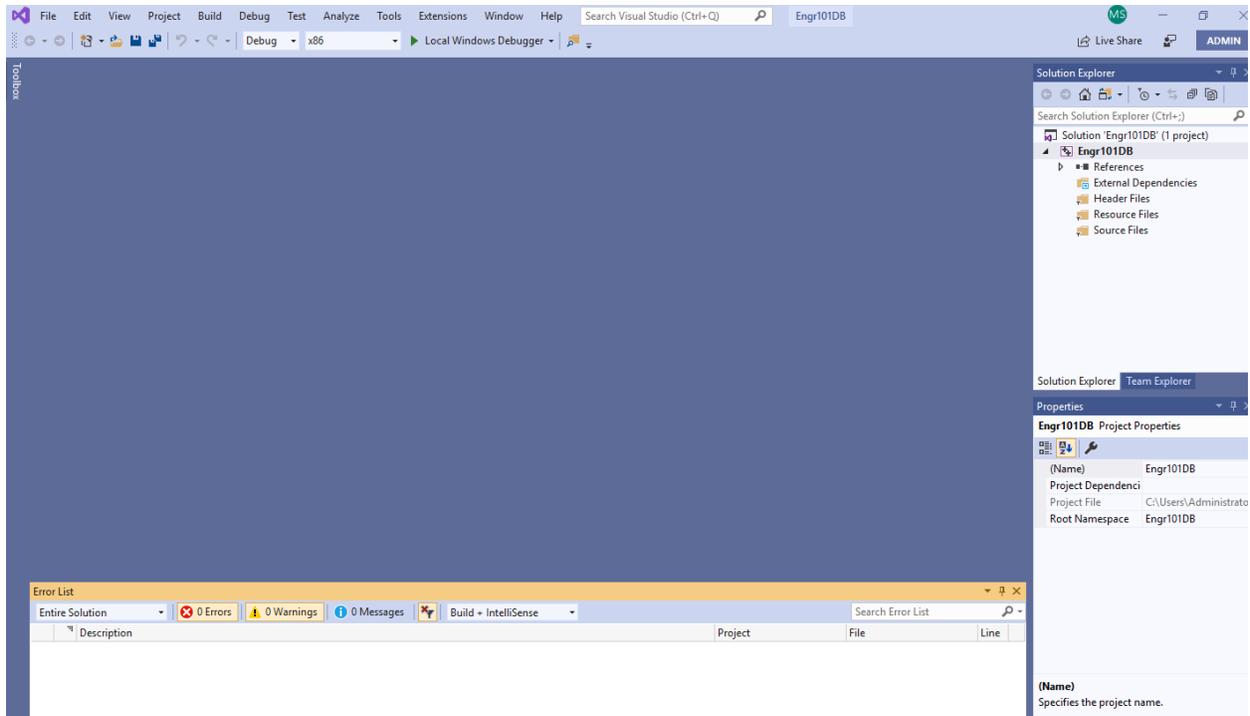


Figure 6 The opening screen after a project has been created.

If your screen does not have the *Solution Explorer* and the *Properties* windows visible click on *View* and select them from the menu.

The *Solution Explorer* has a list of all of the files in your project. Since we created an empty project there are no files listed – just empty folders.

In the *Solution Explorer* right click on source file and select *Add* → *New item*. This will give you the screen shown in Figure 7. Click on *C++ File (.cpp)* and at the bottom of the screen enter the file name. This is usually the same as the project name. Change the file extension from *.cpp* to *.c*. In Figure 7 we have set this to *Engr101DB.c*. Click on *Add* to close this screen.

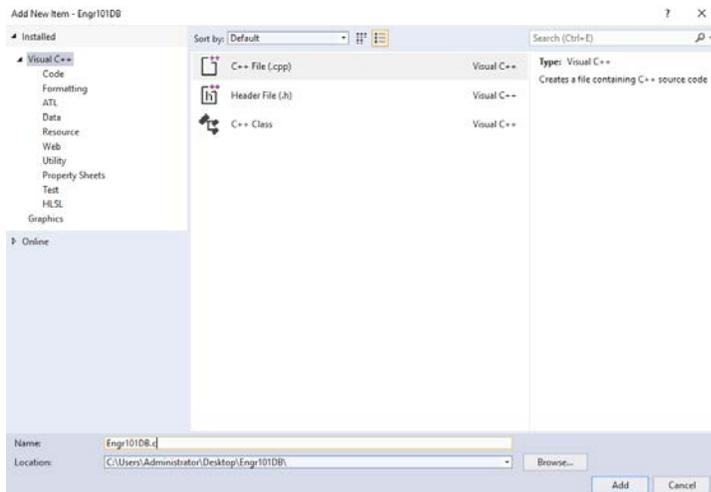


Figure 7 The add new item screen. Change the file extension from cpp to c.

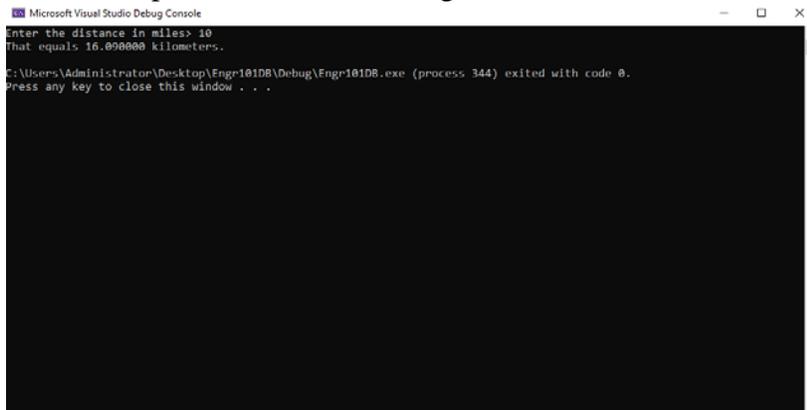
At this point the main window in the center is ready for you to enter your c-code. Here is some sample code that you can enter to see how to compile a c-program. This code asks the user to enter a number for miles and it prints the equivalent number of kilometers.

```
#include <stdio.h>
#define KMS_PER_MILE 1.609

int main(void)
{
    double miles, kms;
    printf("Enter the distance in miles> ");
    //If you use scanf here you get a compiler warning
    //scanf_s prevents buffer overflow
    scanf_s("%lf", &miles); //this is lf not lf
    kms = KMS_PER_MILE * miles;
    printf("That equals %f kilometers.\n", kms);
    return (0);
}
```

After you have the program entered, click on *Build* → *Build Solution*. If you have been living a good clean life in the very bottom left of the screen you will see a message that the Build succeeded. If this is not the case, you have most likely typed something in wrong. Try again.

If you build succeeded you can click on *Debug* → *Start without debugging*. This will pop up the console output screen shown in Figure 8



```
Microsoft Visual Studio Debug Console
Enter the distance in miles> 10
That equals 16.090000 kilometers.
c:\Users\Administrator\Desktop\Engr101DB\Debug\Engr101DB.exe (process 344) exited with code 0.
Press any key to close this window . . .
```

Figure 8 The console output screen. Enter the number 10 to see the result.

Press any key to go back to your c-code.

At this point you have successfully entered and compiled a c-program. You can close it by going to *File* → *Close Solution*. To reopen it click on *File* → *Open project/solution*. Browse back to the folder where you stored your project and find *Engr101DB.sln*. Click on this file to reopen your project. Alternatively, you can close Visual Studio and locate the folder with the solution on your computer. Double click on *Engr101DB.vcxproj*. This will open Visual Studio and your project.