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.

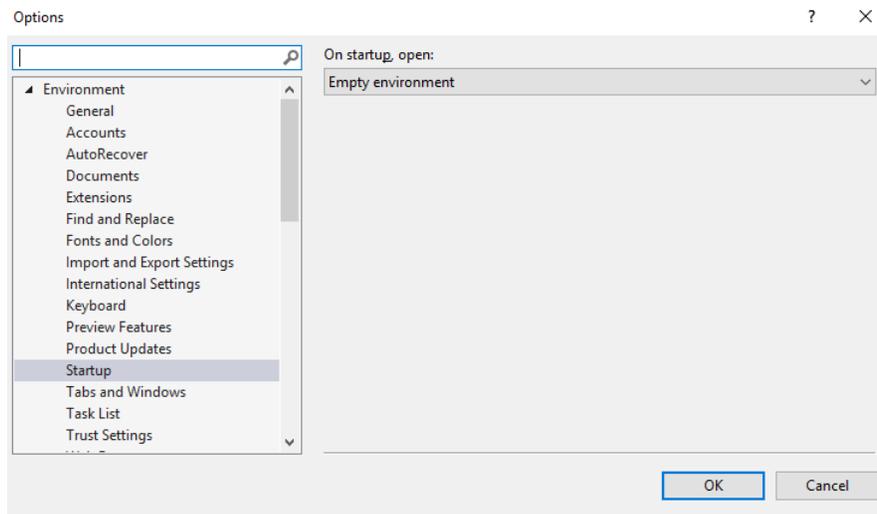Open Visual Studio. Click on *Tools → Options → Startup.* Select Empty Environment as shown in Figure 1.

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.
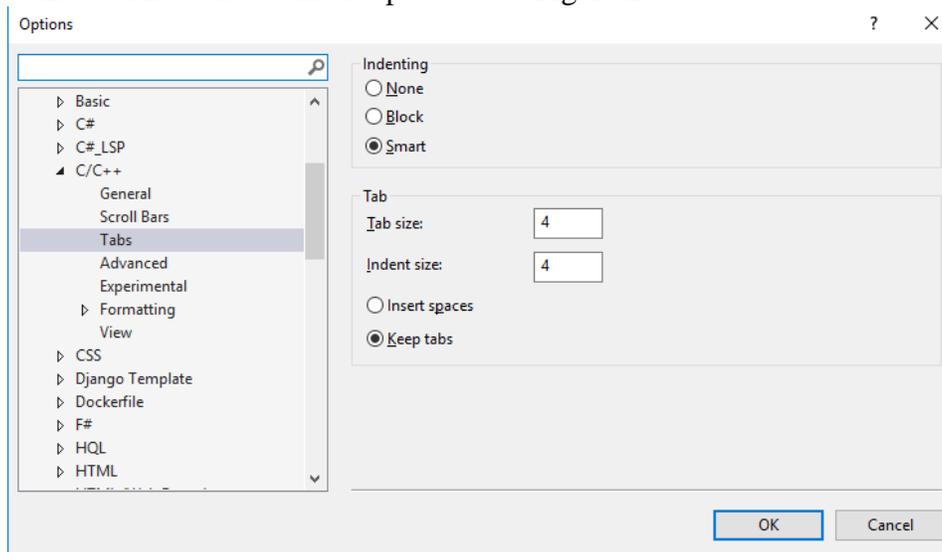
Figure 2 Setting up tables.

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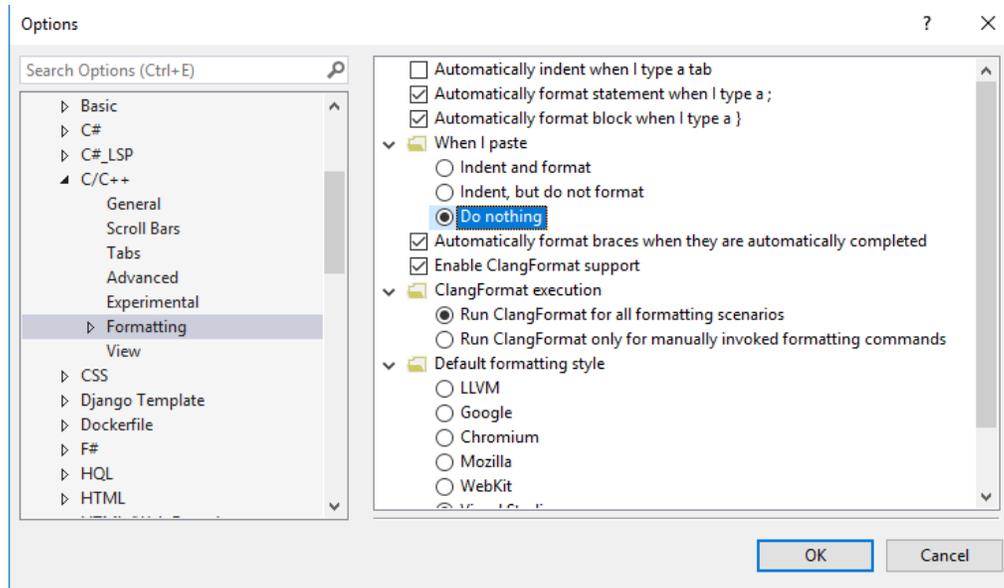

Figure 3 Setting paste option.

Writing C in Visual Studio

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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*

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.

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.
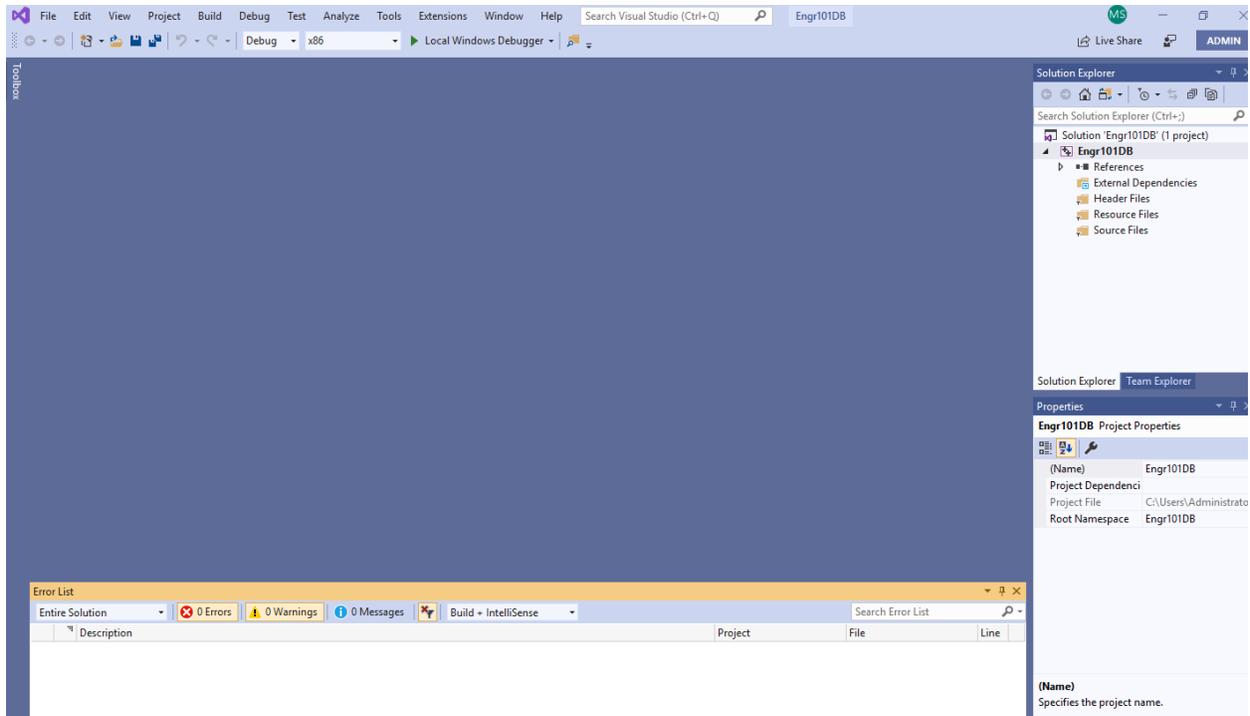

Figure 6 The opening screen after a project has been created.

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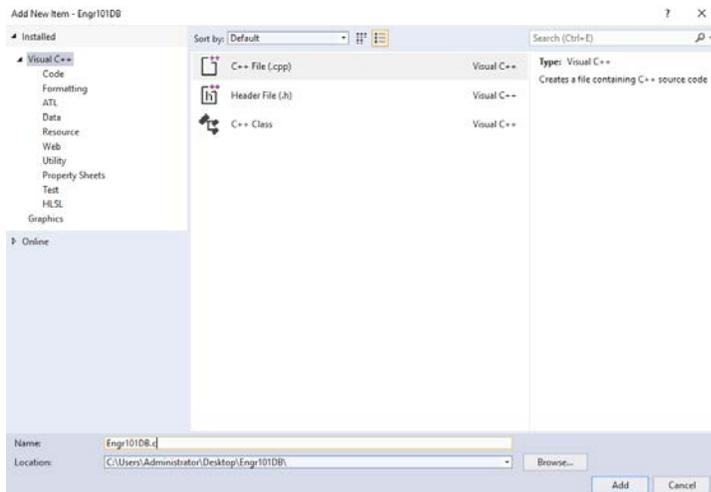
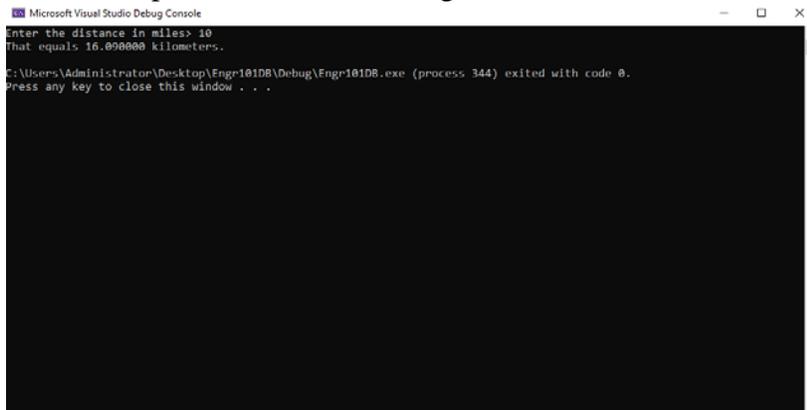**Figure 7** The add new item screen. Change the file extension from cpp to c.

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.

```c
#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 1f
    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

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.