**CSCI 1300 CS1: Starting Computing**
**Hoenigman/Naidu/Park/Ramesh - Fall 2023**
**Visual Studio Code - Windows**

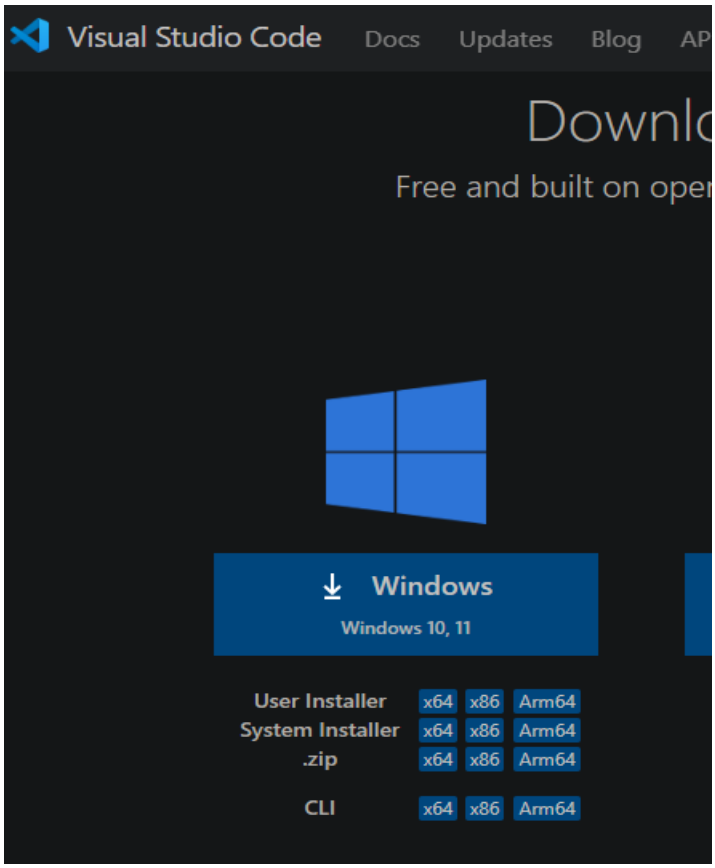
You will use Visual Studio Code (VS Code) to write and execute your programs locally.

**Important: Before proceeding with this document, make sure that you have run Windows Update within your Windows 10 or 11 environment. You must have the latest updates installed.**

# Windows Installation Guide (Part 1)

**Step 1**:

- **1.1** Go to the VS code download page, and download for Windows.



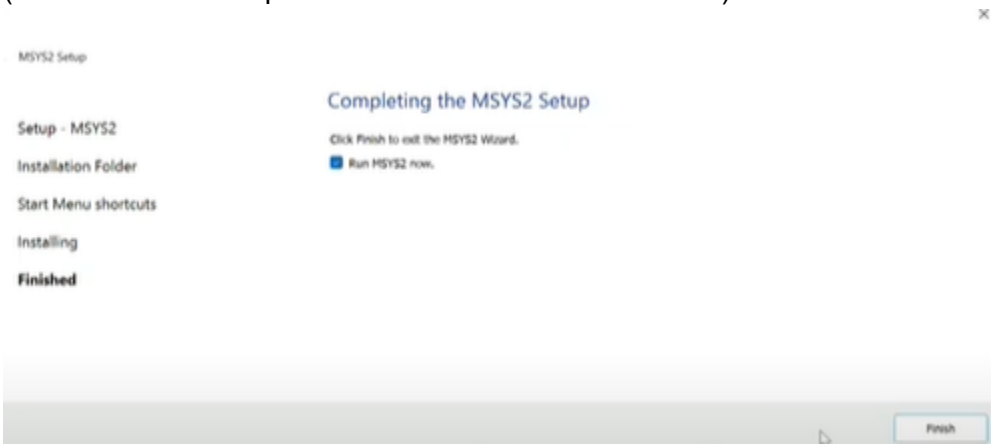

- **1.2** Run the installer and accept all of the default settings.
- **1.3** Click on Install and wait for Visual Studio Code to finish installing, then close the installer.

**Step 2:** Installing MinGW
This section is based on this guide from Microsoft:
https://code.visualstudio.com/docs/cpp/config-mingw
MinGW is a Windows C/C++ compiler tool set that will allow us to compile our C/C++ code into a .exe file.

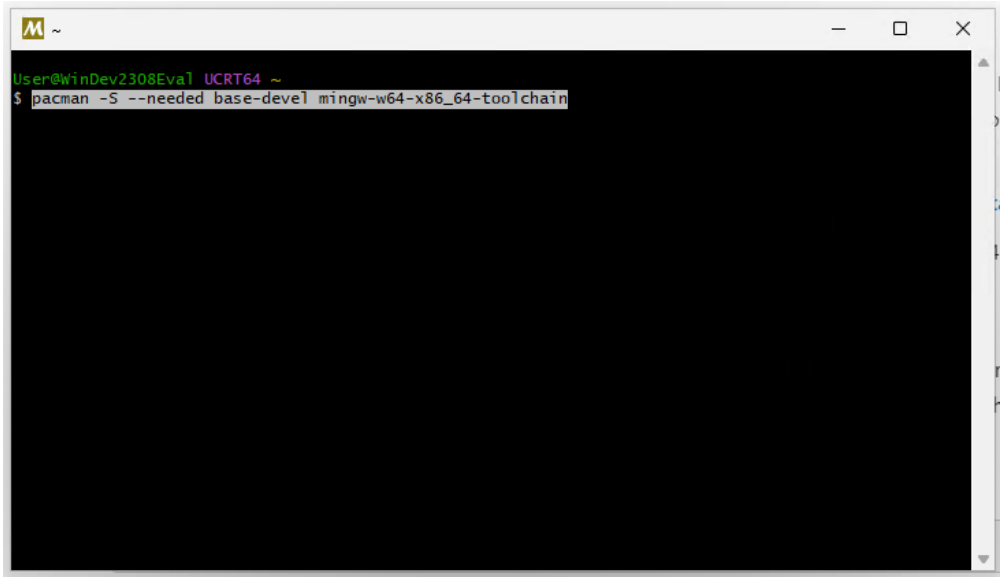
- **2.1** First Install MinGW from this link: https://github.com/msys2/msys2-installer/releases/download/2023-05-26/msys2-x86_64-20230526.exe

- **2.2** Open the installer and choose the Defaults for all settings.

- **2.3** At the end of the installation run msys2 and then run the following command (Shift + Insert is the paste shortcut in MSYS2's terminal)



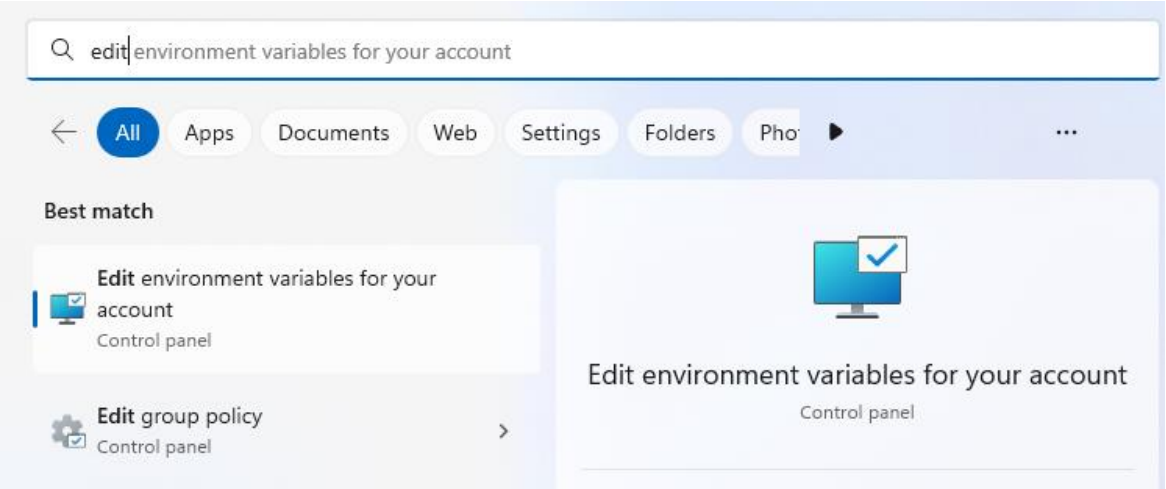

```
pacman -S --needed base-devel mingw-w64-x86_64-toolchain
```



- **2.4** Press enter when prompted to install all of the default packages, then press Y to confirm the install. This will take 1 to 5 minutes to finish.
  Once the install completes you can close msys2.

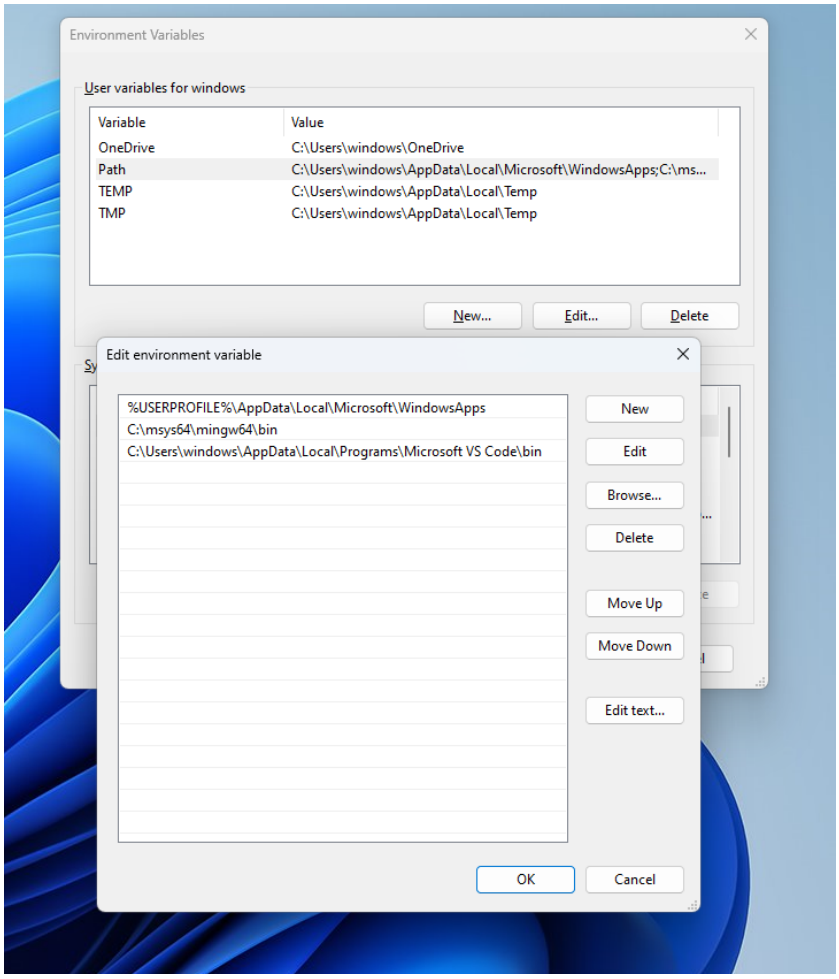
- **2.5** Now we need to add msys2 to window's PATH variable.

Press the Windows key and begin typing "Edit environment variables for your account" until you see this option.




Now Select the "PATH" variable and click edit, in the window that opens click "New" and enter the following path for the default installation location of Msys2.

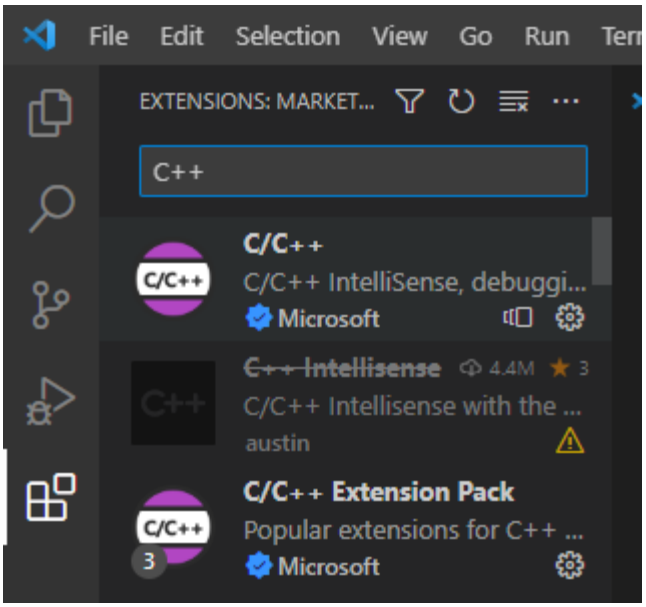
```
C:\msys64\mingw64\bin
```



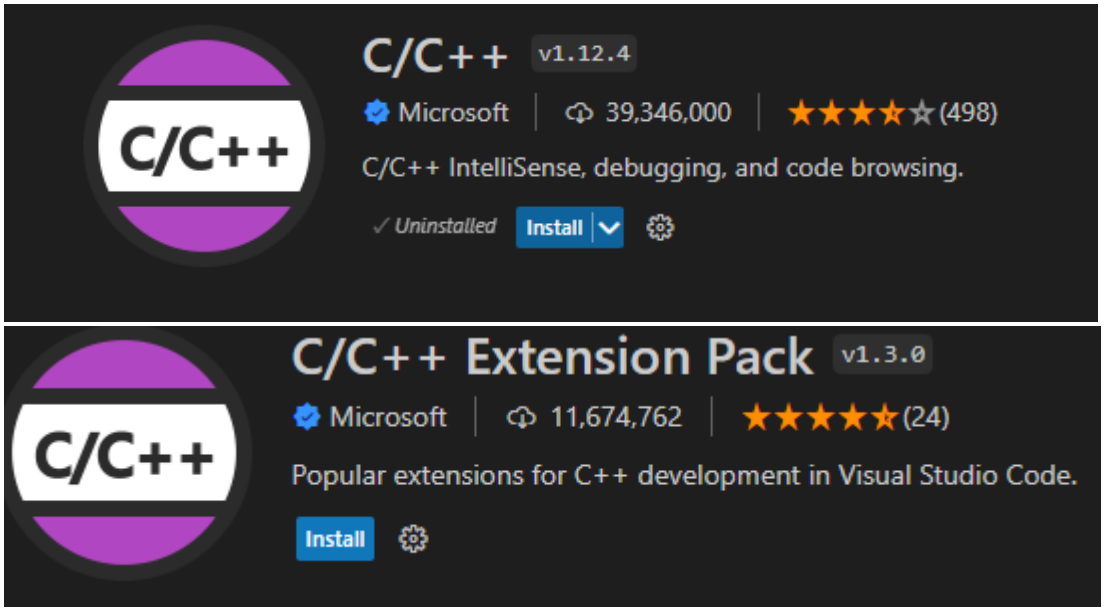

- **2.5** Press Ok to save these changes. Reboot is recommended at this point before continuing.

**Step 3:** Adding VS code extensions

- **3.1** After you Reboot open VScode and select the extensions tab. (5th from the top), and search for “**C++**”. We need to install the “**C/C++**” & “**C/C++ Extension Pack”** both from Microsoft.



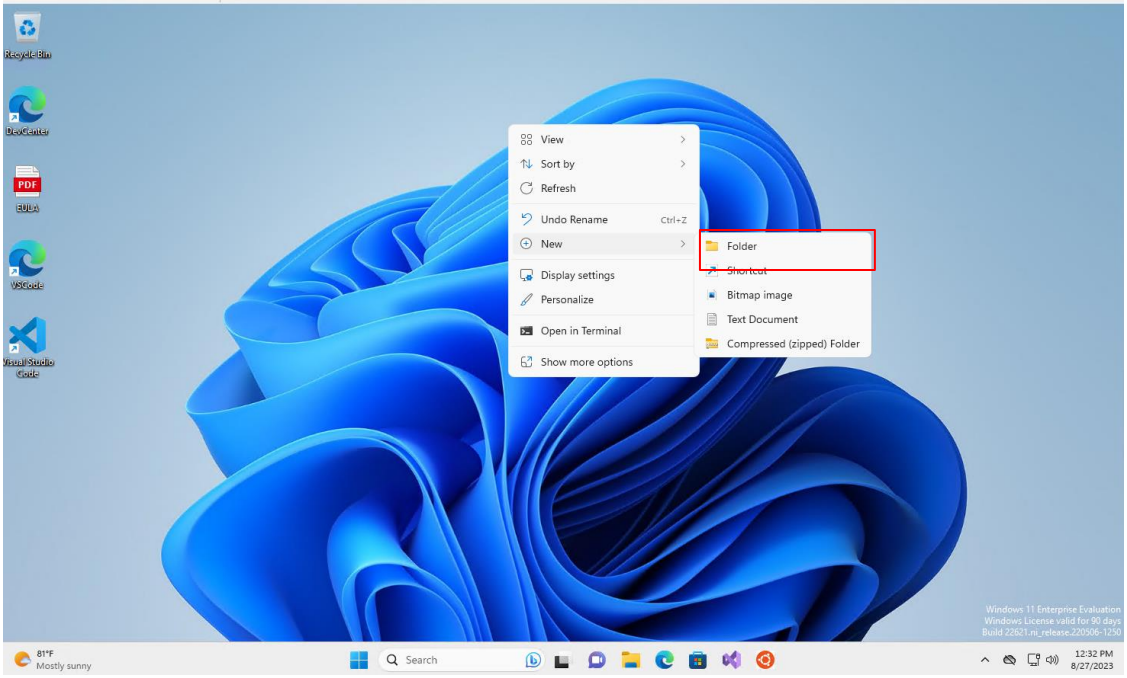

- **3.2** Select the extension then click on install, these will provide Syntax Highlighting and other useful tools when working in C++

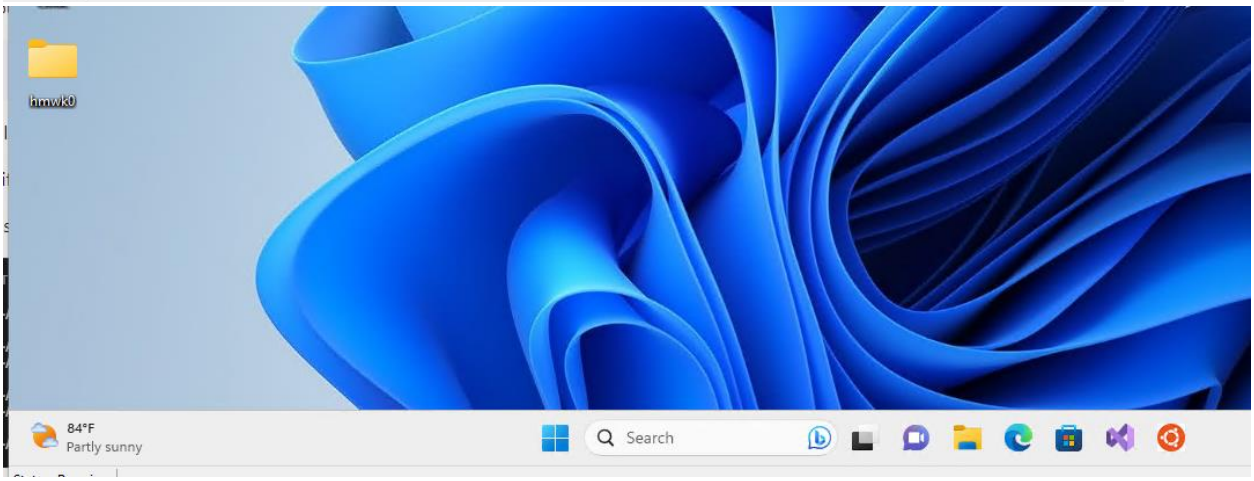



**Step 4:** Testing

Now we can test what we have installed.

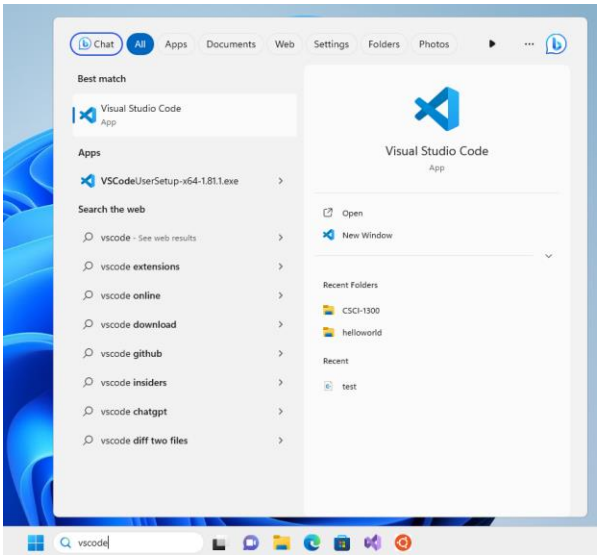
- **4.1** Make a new folder in a convenient folder like **Desktop** and call the folder **hmwk0**



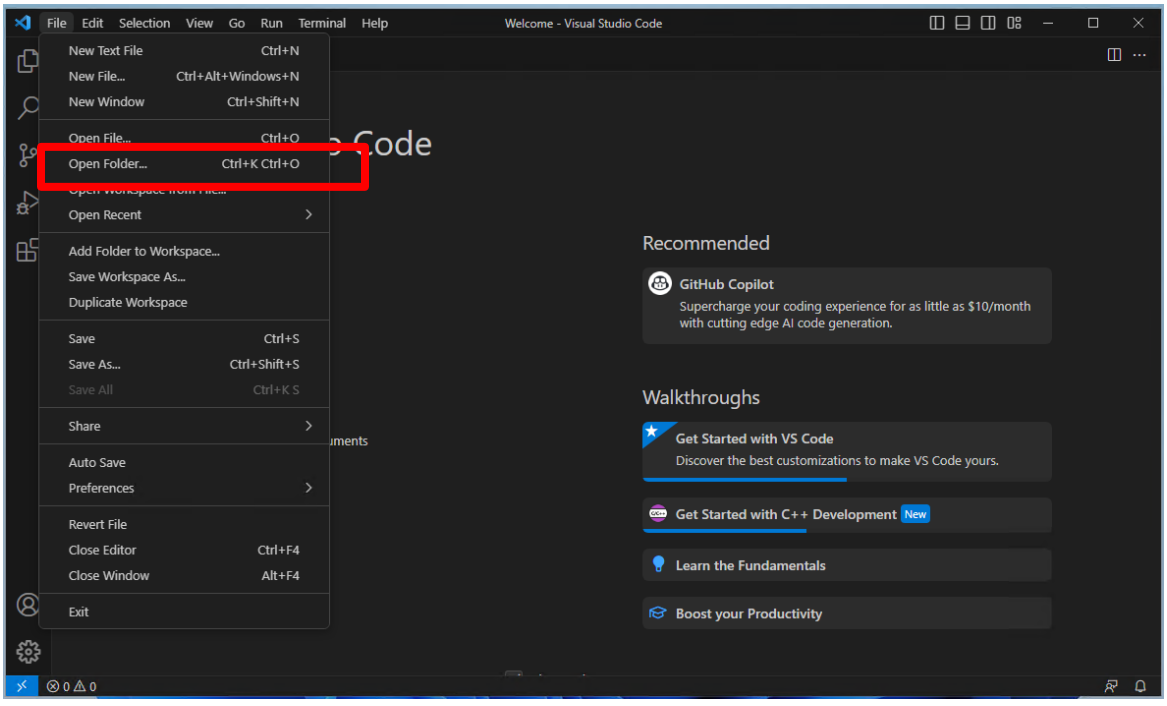



- 4.2 Open VS Code by double-clicking the shortcut 

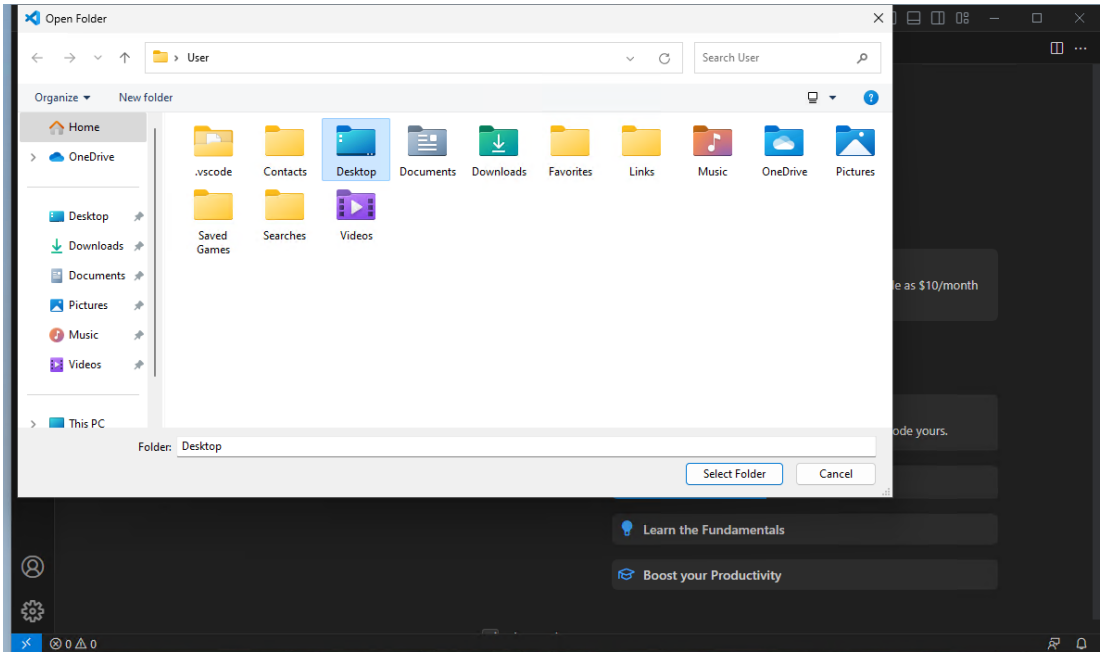
on the desktop or Search VSCode on the search bar.



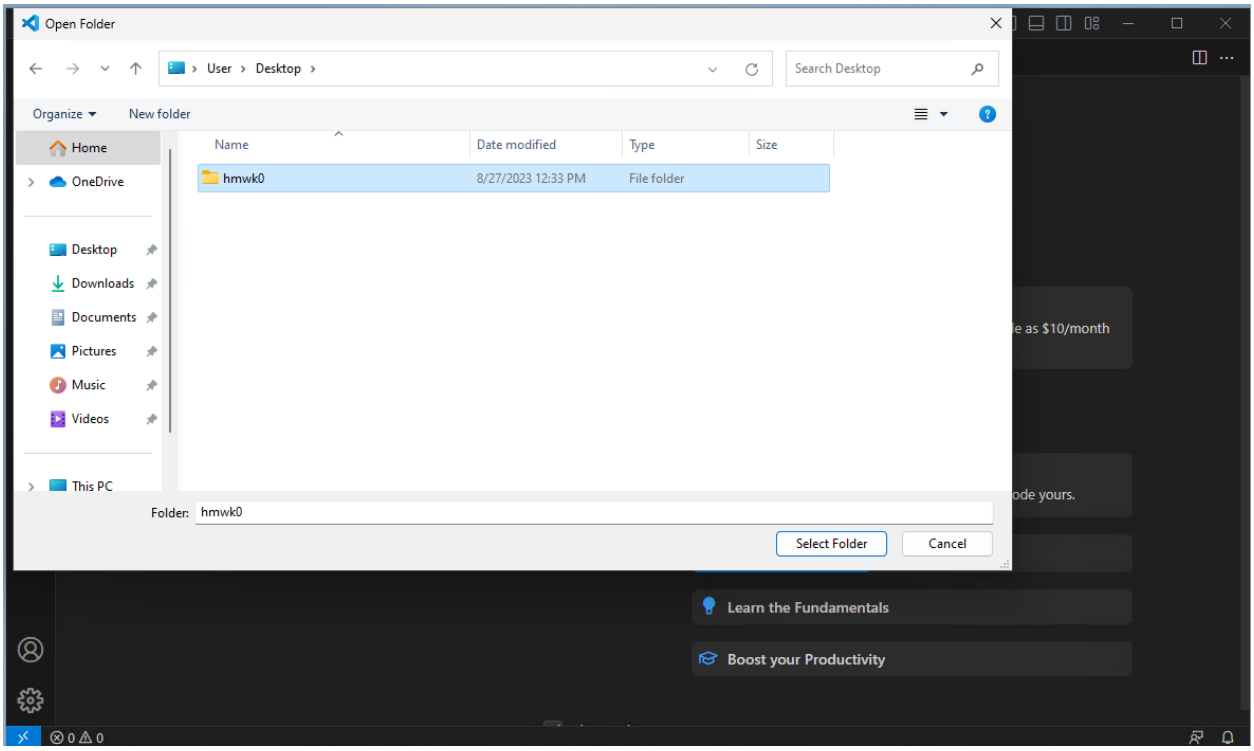

Open that folder in VS code via **File > Open Folder…**



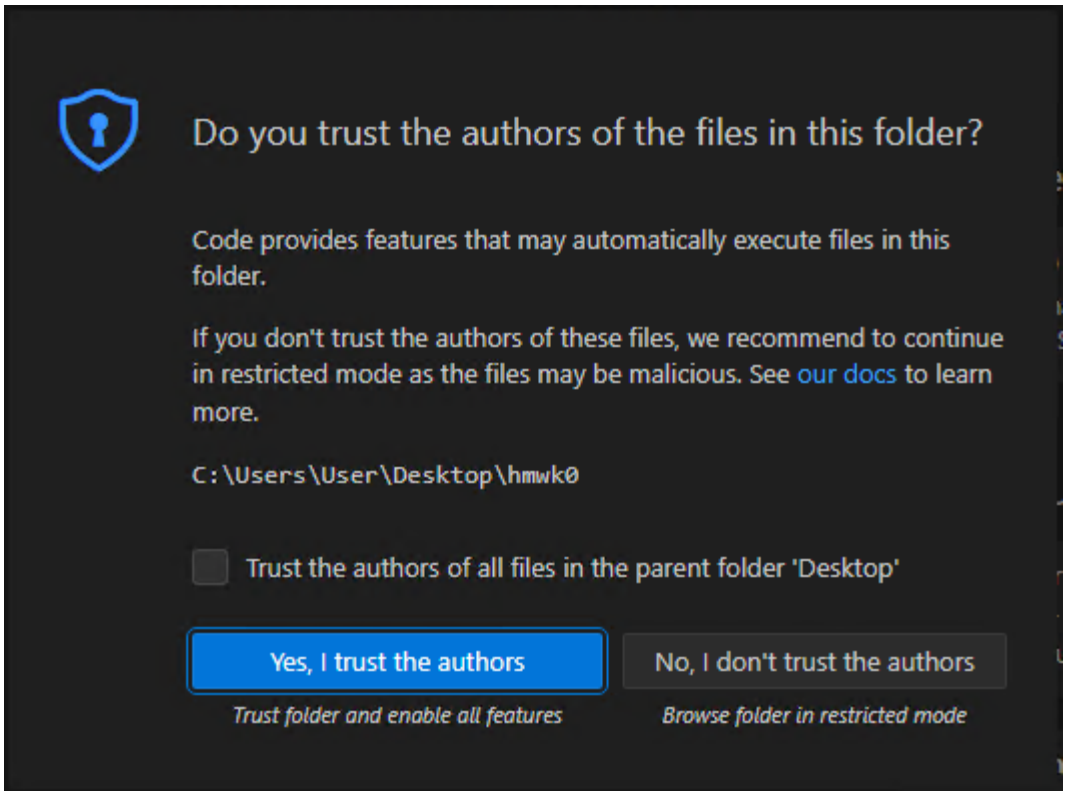

Double-click on **Desktop**



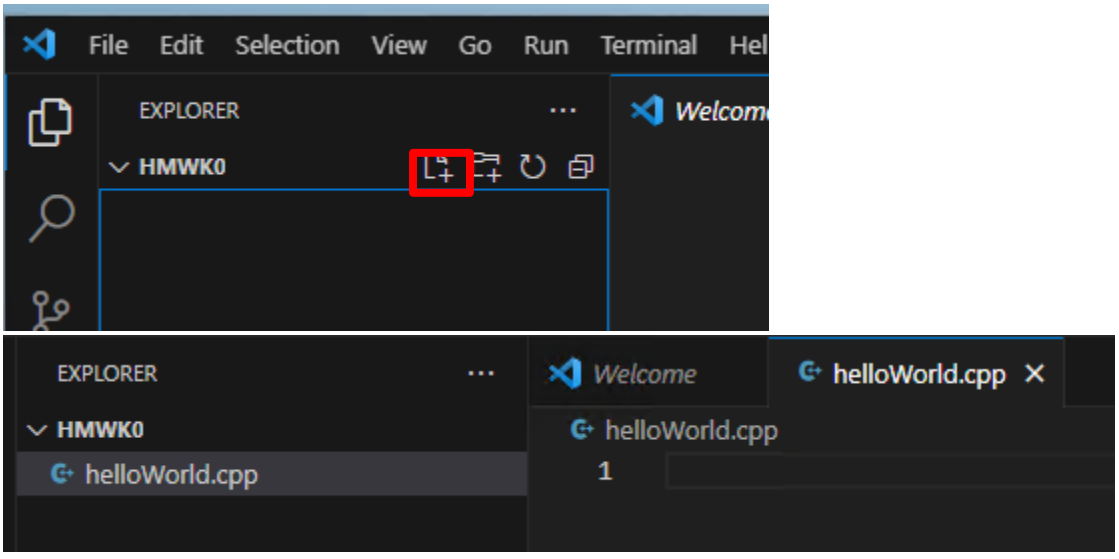

Select hmwk0 and click “**Select Folder**”




- **4.2** Trust the folder to allow feature like syntax highlight and debugging to work properly.




- **4.3** Now create a new file called **helloWorld.cpp** and paste the following code into it.



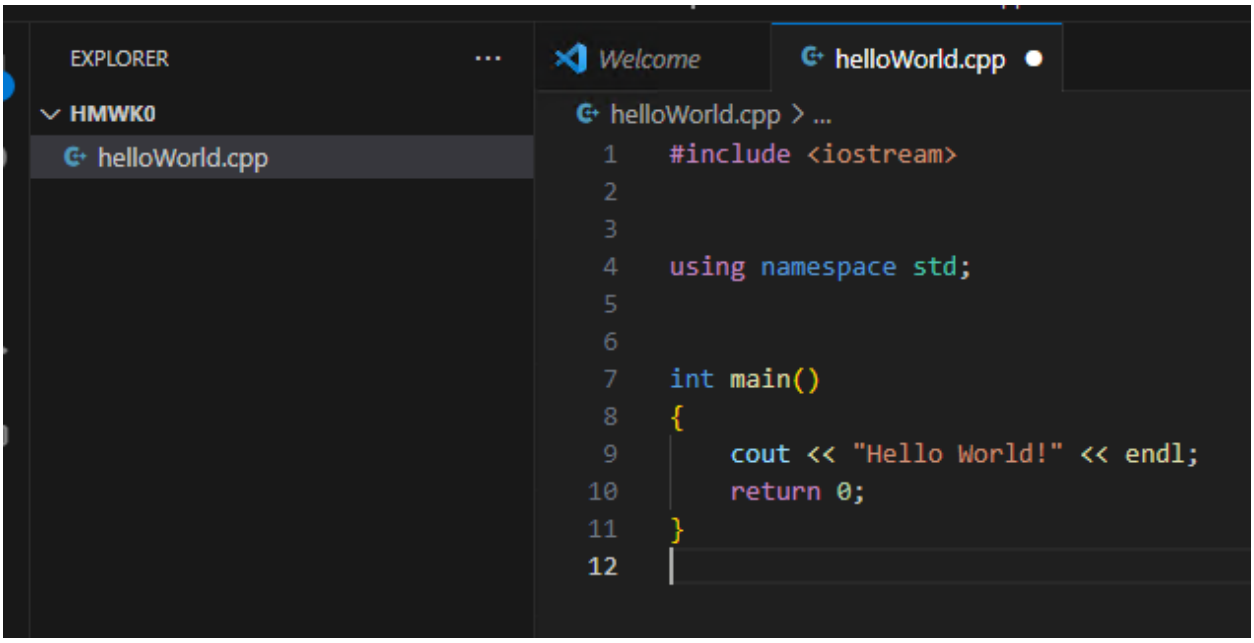

```cpp
#include <iostream>

using namespace std;

int main()
{
    cout << "Hello World!" << endl;
```

```
    return 0;
}
```

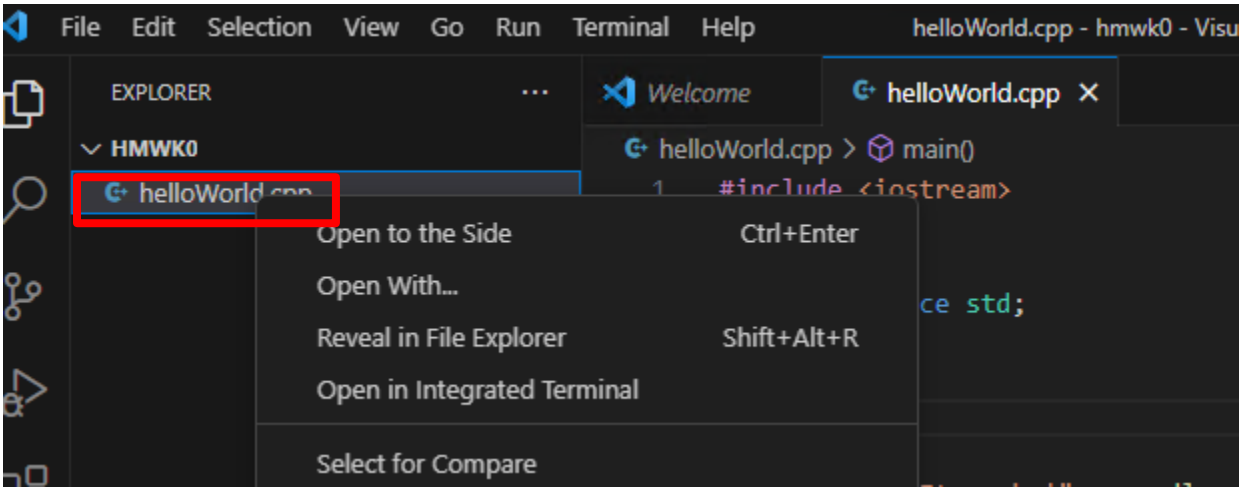
Your VS Code window should look like this.

If you have formatting issues when pasting, this same code is available from the Microsoft article here:

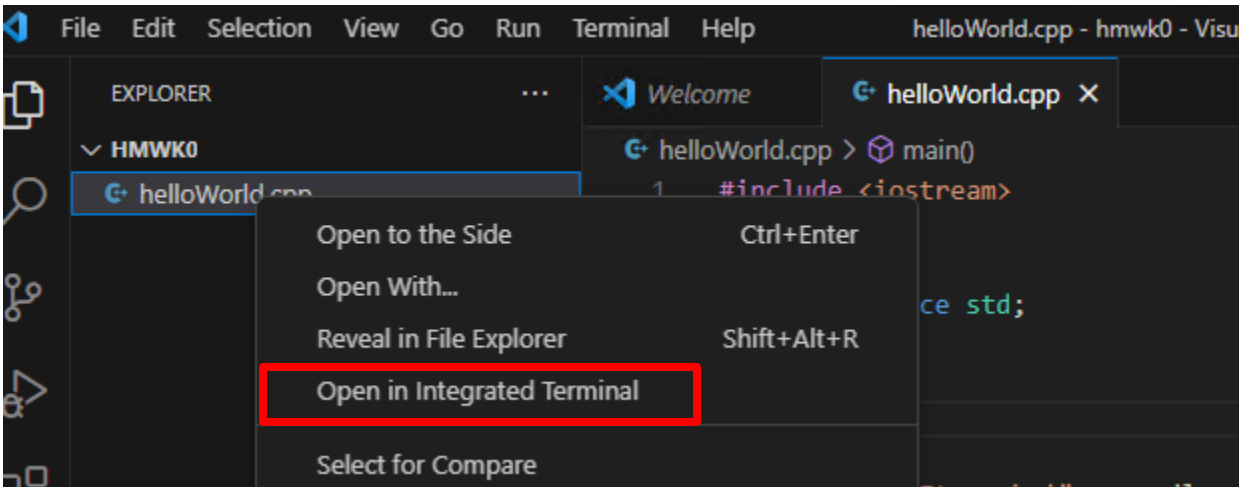
[Get Started with C++ and Mingw-w64 in Visual Studio Code]



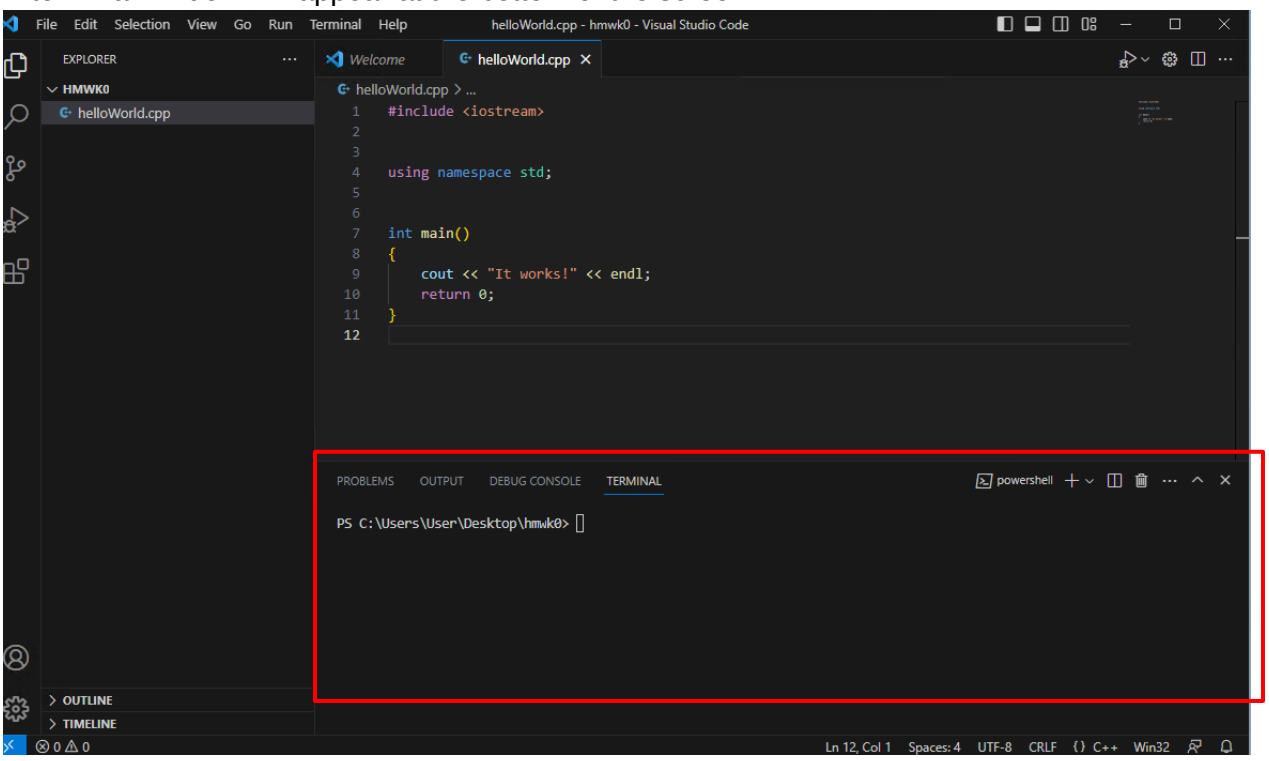

- **4.4** Save this file.
- **4.5** Open New Terminal by right-clicking on the **helloWorld.cpp** file in the left panel.




- **4.6** Select "**Open in Integrated Terminal**"

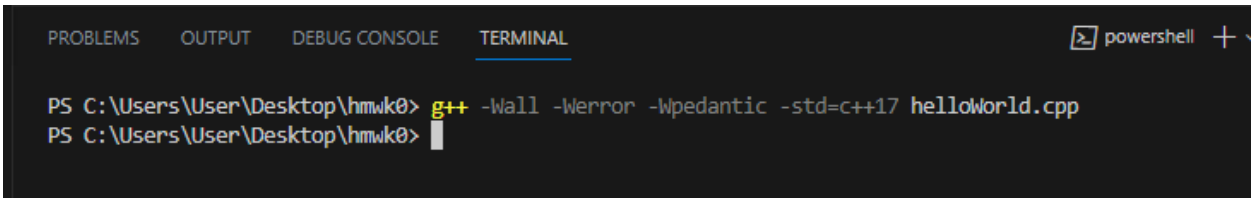



A terminal window will appear at the bottom of the screen.

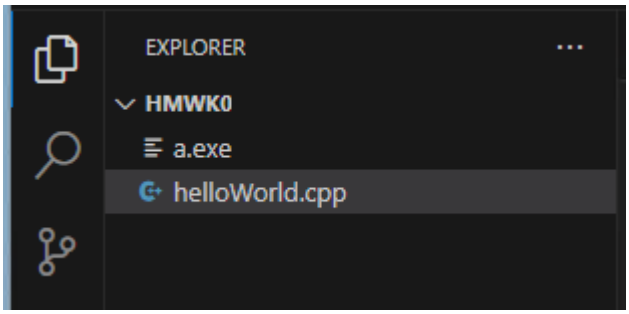



In the terminal window at the bottom of the screen, type "***g++ -Wall -Werror -Wpedantic -std=c++17 [filename]***" (Here, filename = helloworld.cpp). Look here for more customization information.

Recommended command: "***g++ -Wall -Werror -Wpedantic -std=c++17 [filename]***"
**g++** is the compiler program
**-Wall -Werror -Wpedantic** this will make sure that our code does not violate any standards
**-std=c++17** specifies the version of C++ we want to use
**helloWorld.cpp** is the file we want to compile

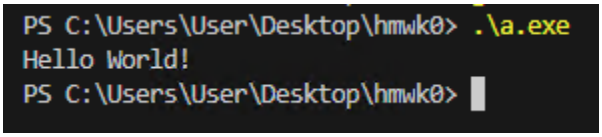



This should take less than 30 seconds but may take more depending on your hardware. When the process completes you will see the output executable (.exe) file on the left hand side where the folder is opened.




If you encounter any errors confirm that you followed all the step in this guide and that your code matches what is in the microsoft article linked here: [Get Started with C++ and Mingw-w64 in Visual Studio Code]

- **4.6** Now select the terminal tab and run the .exe file you just made.




You should see the “Hello World!” message from the code you pasted.

Now MinGW and VScode are setup for C++ development on Windows 10 or 11