Mr. Bellavia

LESSON 05 - SETTING UP YOUR ENVIRONMENT (VISUAL STUDIO CODE WITH C#)

In this lesson you will setup your **desktop/laptop computer** so that you are ready to start coding! You must use a **desktop** or **laptop** running **Windows**, **Mac, Chrome OS, or Linux**. This is required to install and run the appropriate software for this course. You **cannot** use a phone or tablet. Phones/tables are not capable of running the software needed for this course. Phones and tables are great testing tools, but when you are programming you need the power of a computer!

Sections:

I. IDE (INTEGRATED DEVELOPMENT ENVIRONMENT):

What is an IDE?

An **IDE** is a program that is used by developers (programmers) to write code and create their own programs. This type of software falls into the category of 'Programming Software' which was discussed in the previous lesson.

In this lesson, we are going to download and install an IDE by **Microsoft** named **Visual Studio Code**. It is free to use and is **cross-platform** which means that it can be installed on most Operating System platforms (i.e., Windows, MAC, Chromebook, Linux, etc.).

II. DOWNLOADING AND INSTALLING VISUAL STUDIO CODE:

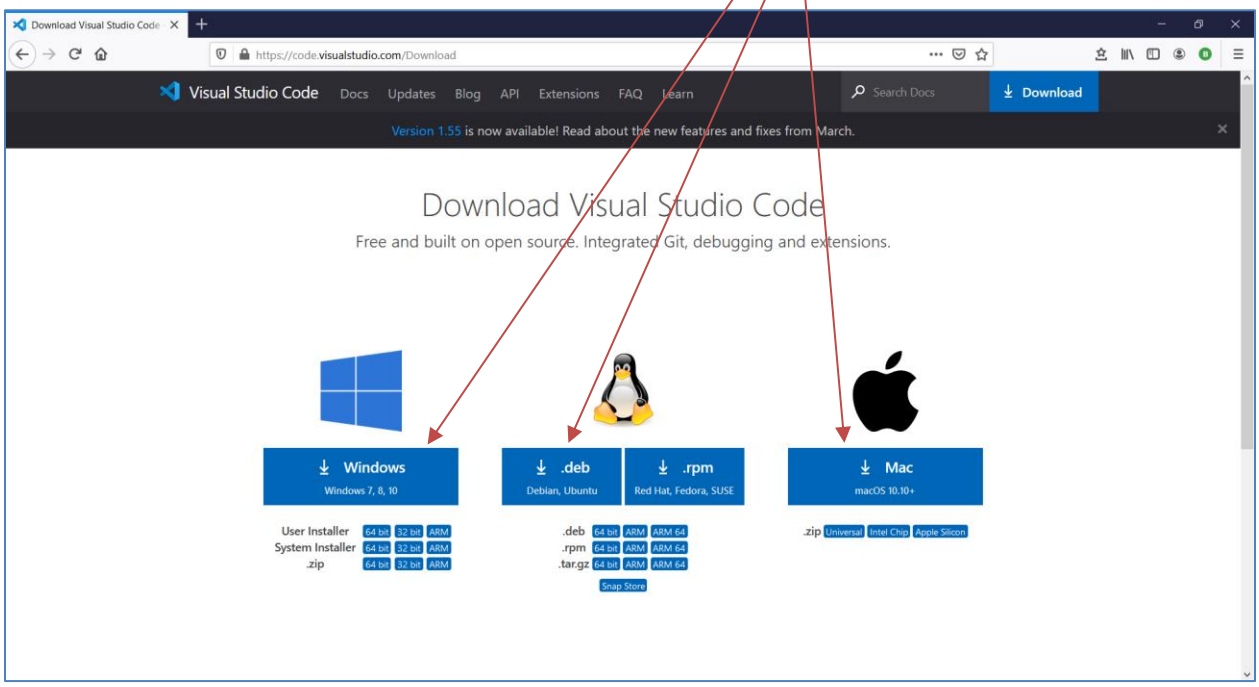
CHROMEBOOK USERS:

- If you are using a **Chromebook,** then you will need to install the **Linux** version of Visual Studio Code. This will require you to **enable Linux on your Chromebook first.** To enable Linux and install **Visual Studio Code** on your **Chromebook** please go through the following tutorial: https://code.visualstudio.com/blogs/2020/12/03/chromebook-get-started
- Once you have enabled Linux on your Chromebook you can continue below.

WINDOWS/MAC/LINUX USERS:

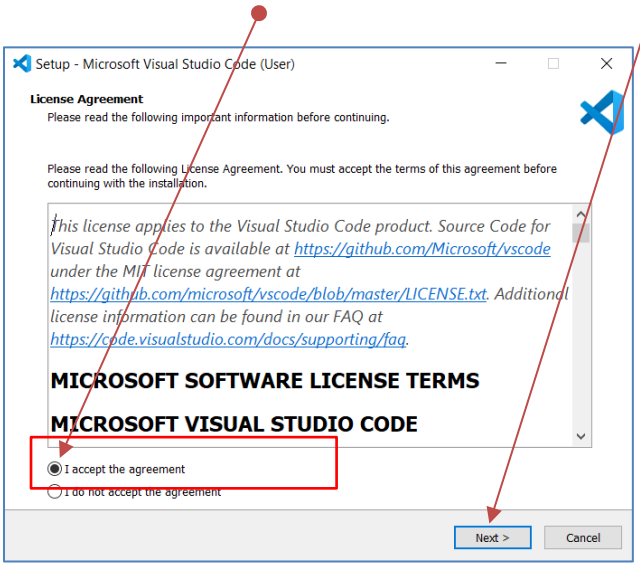
Steps:

1. Go to: https://code.visualstudio.com/Download
2. Now click the **download** button **for your platform**:

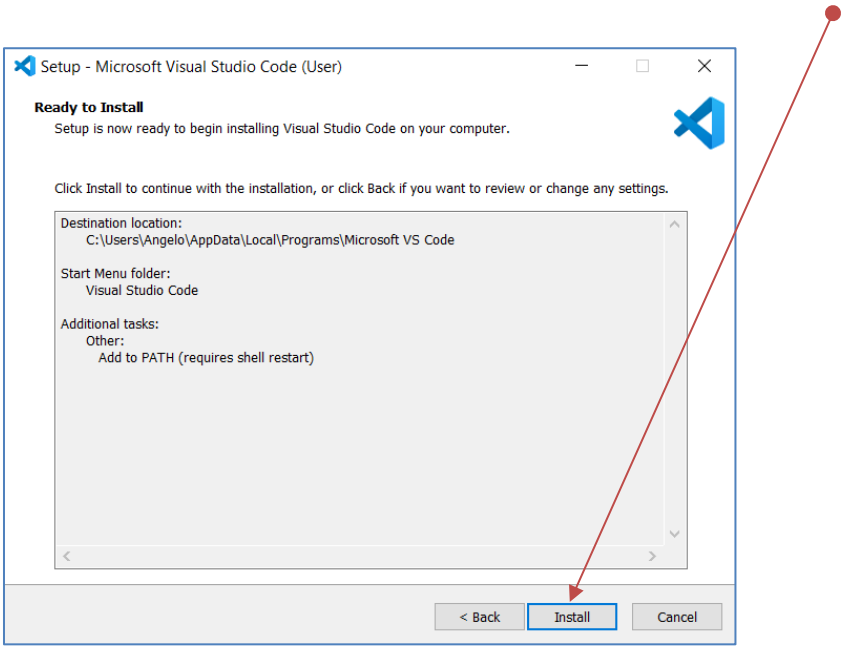


3. Once downloaded, **run the installer** (check your downloads folder if you do not know where the installation file has downloaded).

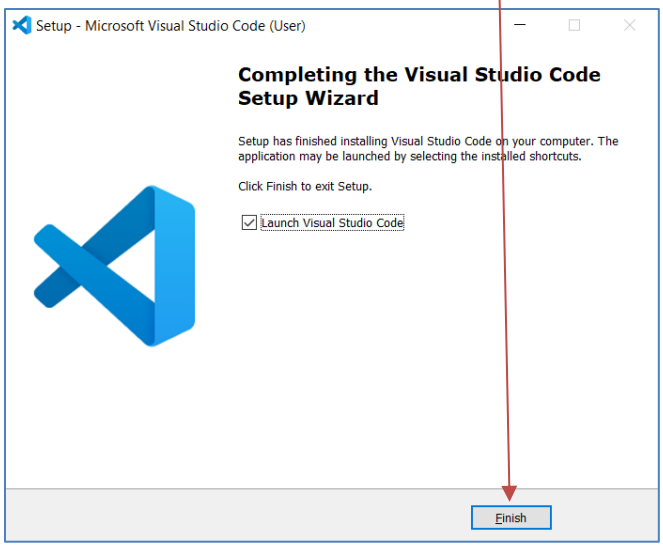
4. On the first screen check **'I accept the agreement'** and then click **'Next':**



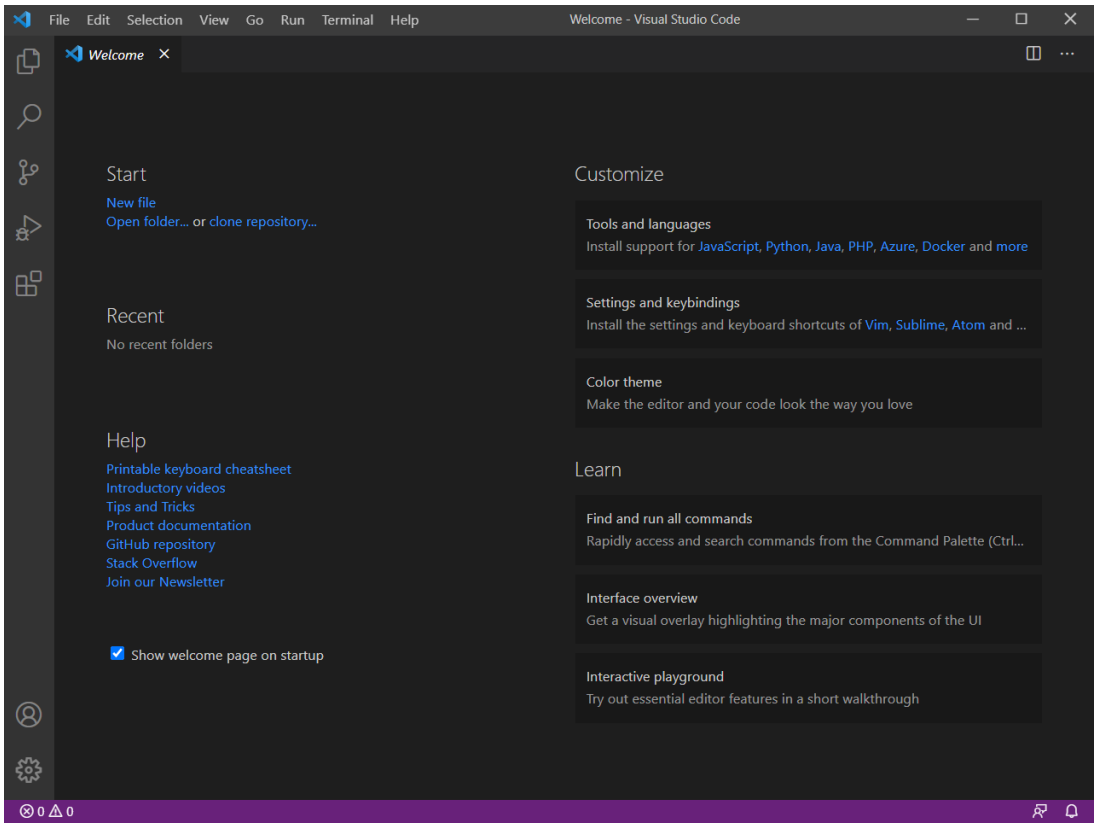
5. Click **'Next'** on the following screens that appear and on the last screen click **'Install':**



6. Once the installation is complete you can click the **'Finish'** button and Visual Studio Code should start up:



7. You should now see **Visual Studio Code** started up:



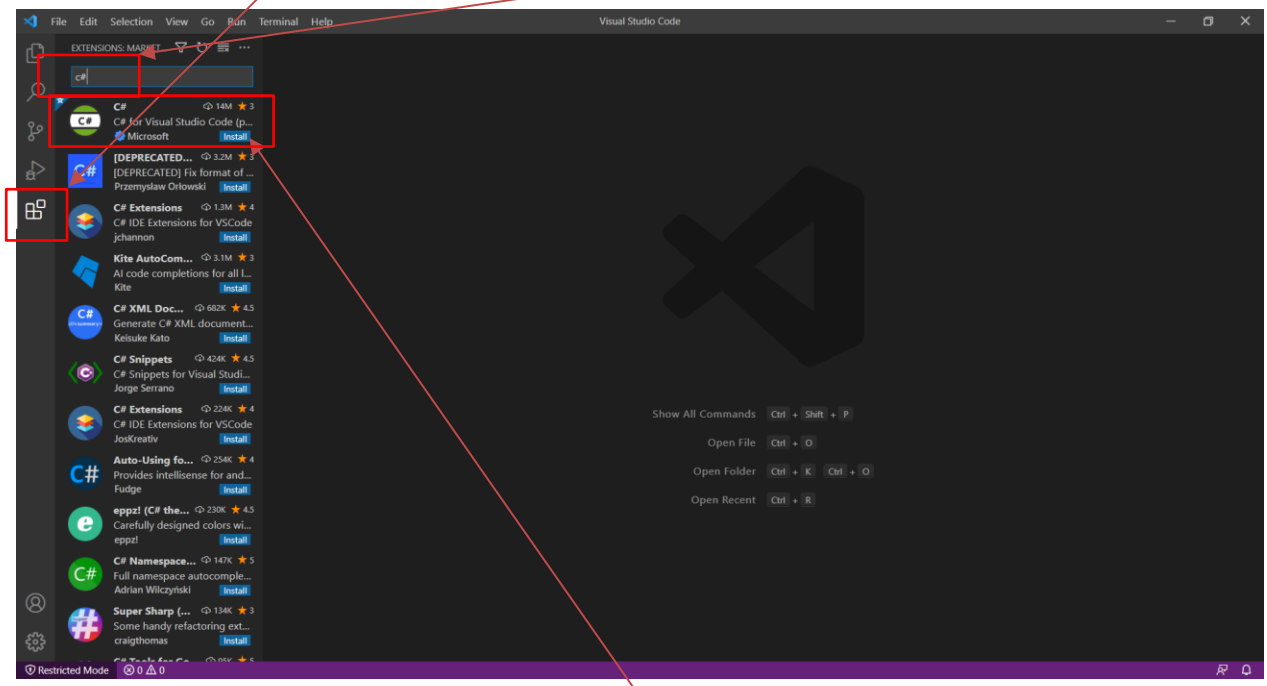
Note: If Visual Studio Code did not start up automatically then you can start it manually by **searching** for **'Visual Studio Code'** on your **Operating System's taskbar.**

III. SETTING UP C# IN VISUAL STUDIO CODE:

Now that Visual Studio Code has been installed, we need to set it up for the C# programming language.

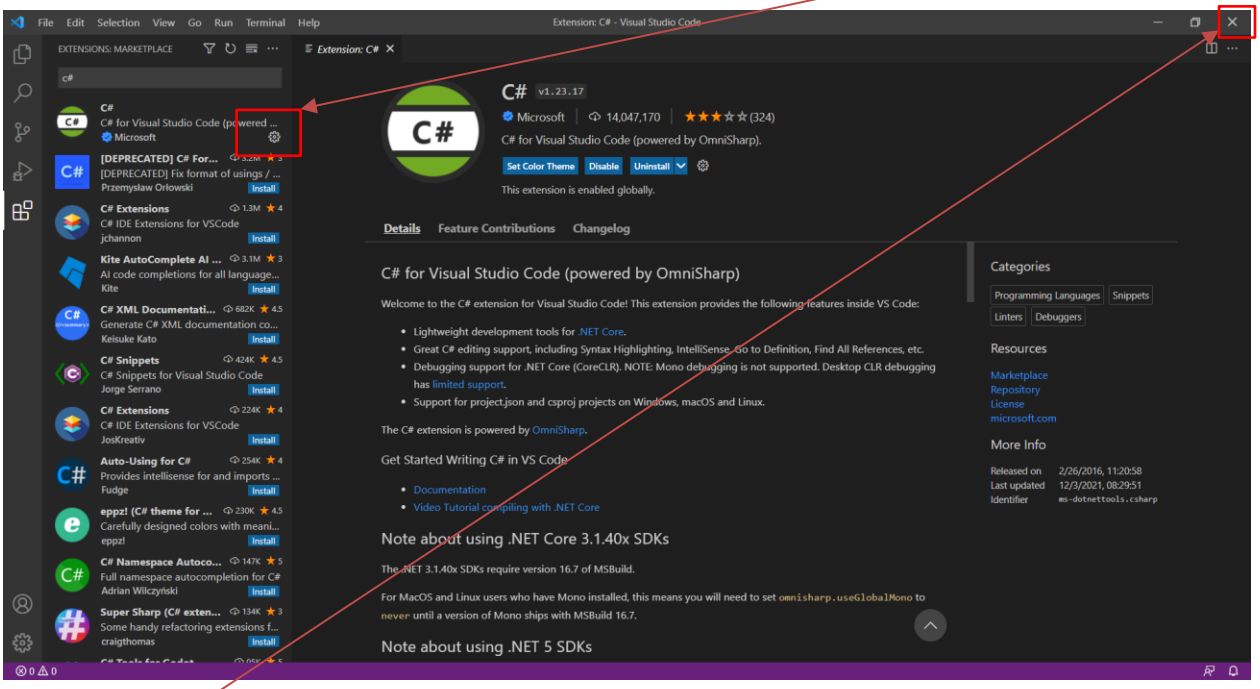
Steps:

1. Click the **'Extensions'** button on the left of Visual Studio Code and type **'c#'** in the search bar:



2. Now click the **'Install'** button beside **'C# - C# for Visual Studio Code (powered by OmniSharp)'.**

3. You will know the installation has completed because the **'install' button will no longer be available** for the extension.



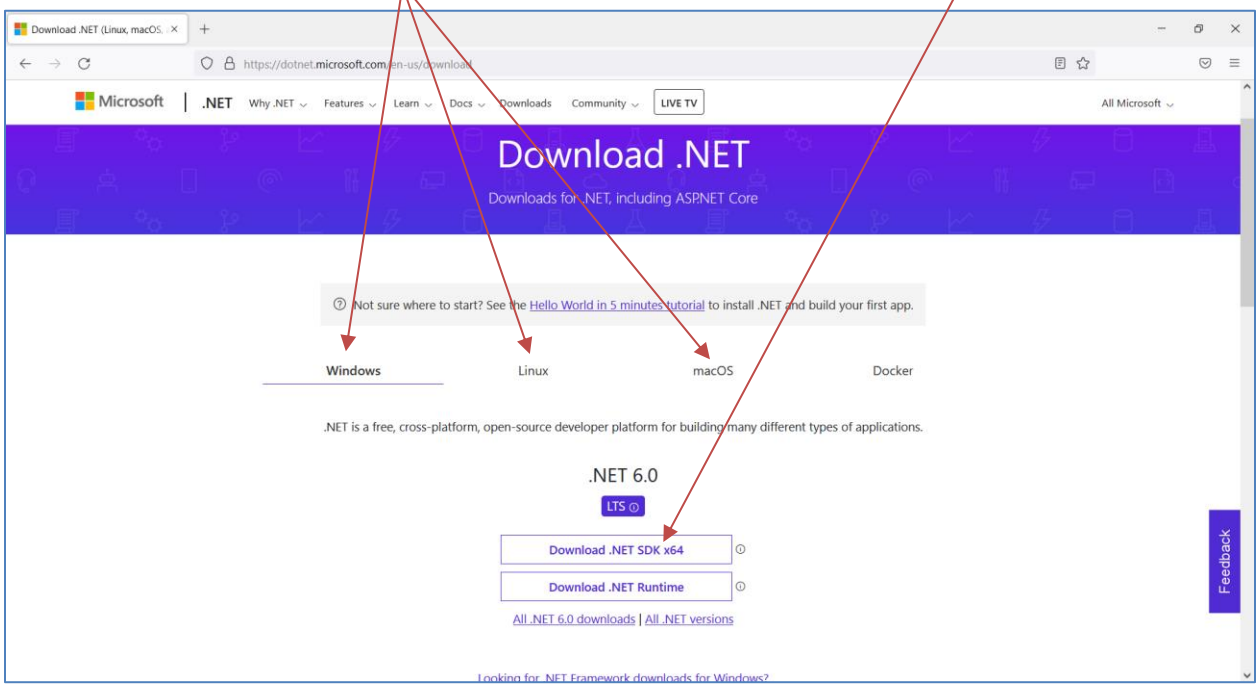
4. **Close** Visual Studio Code for now and move to the next section.

IV. INSTALLING THE .NET 6 SDK:

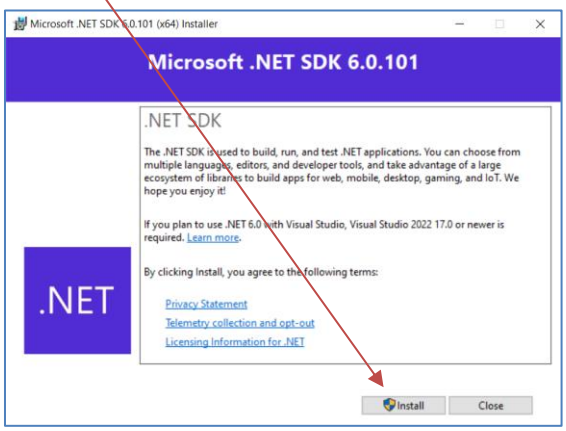
Like many programming languages, C# relies on a set of libraries that need to be installed. The **.Net 6 SDK (Software Development Kit)** contains the libraries needed to create a C# application.

Steps:

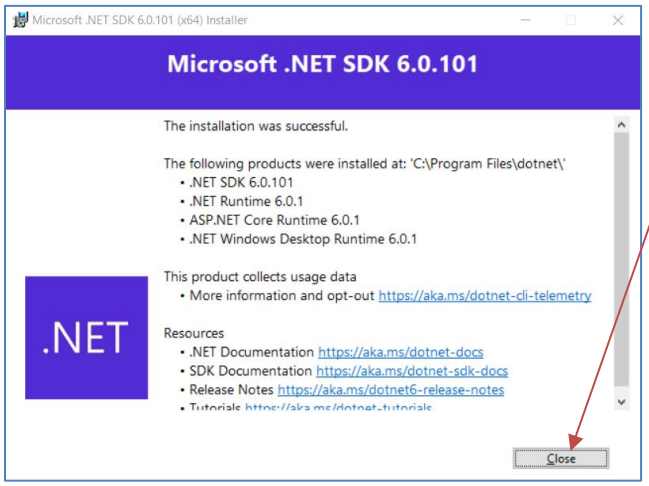
1. Go to: https://dotnet.microsoft.com/en-us/download
2. Now select your **operating system** and download the **.NET SDK installer:**



3. Once downloaded, **run the installer** (check your downloads folder if you do not know where the installation file has downloaded).
4. On the first screen click the **'Install'** button:



5. If the install was successful, you will see the following screen which you can **close:**



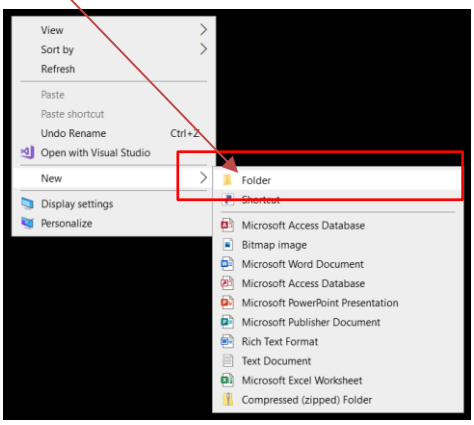
V. CREATING YOUR FIRST C# CONSOLE PROGRAM:

Visual Studio Code is now ready to create your first C# program. **Open** Visual Studio Code and continue with the following steps.

Steps:

1. **Create and open a new C# folder:**

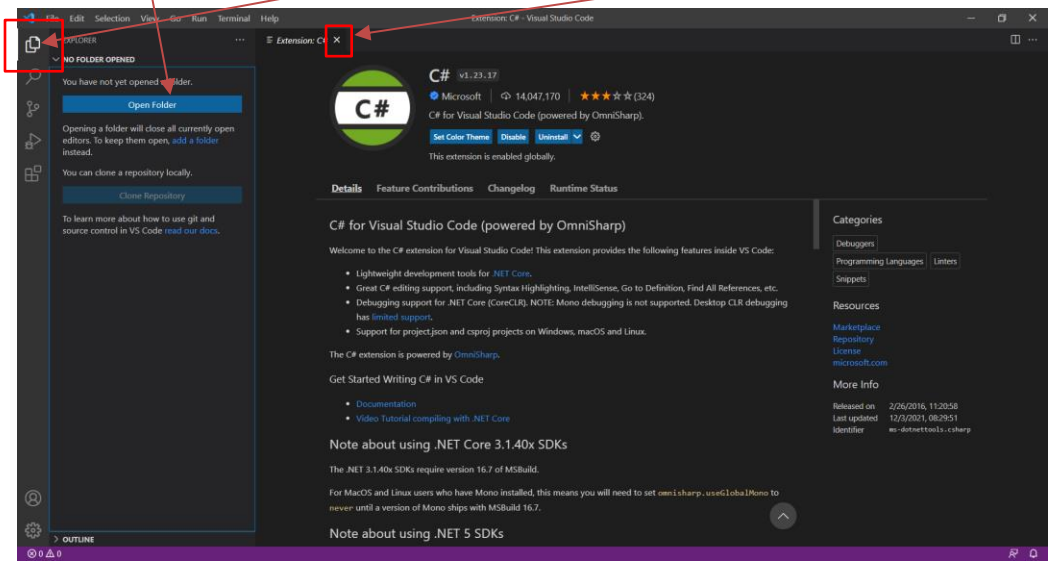
   To create a new C# program, you are going to need to first create a folder. To keep things simple, create a new folder called **'C#'** on your desktop. Usually, you can **right click on your desktop**, click **'New'** then **'Folder'.** If you are using **Windows** this may look like the following:



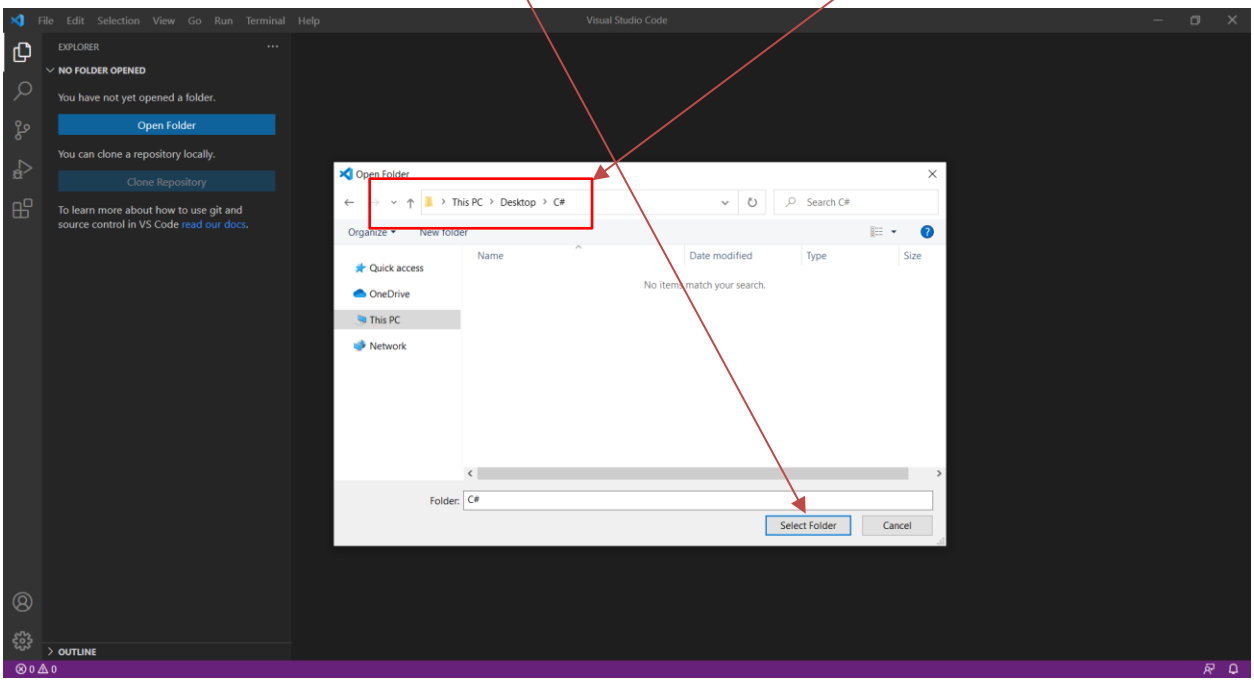
   The result of your newly create folder should look like this:

2. **Open the newly created folder in Visual Studio Code:**

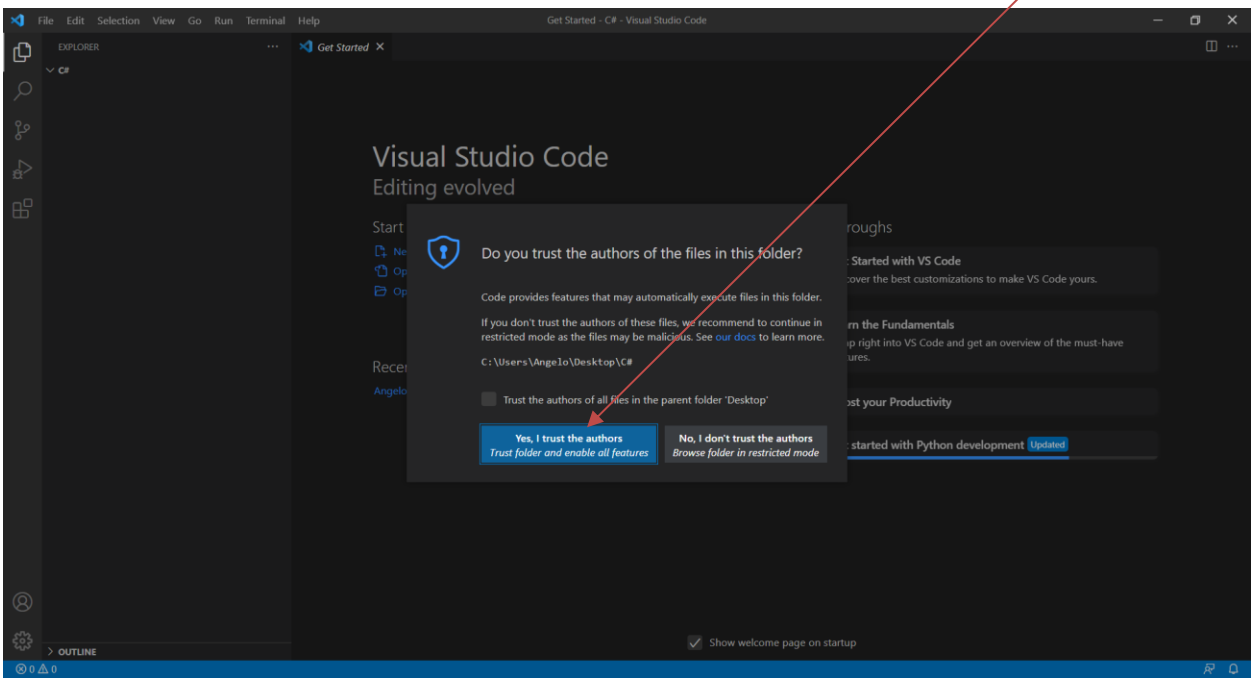
   Now open Visual Studio Code, click the **'Explorer'** icon on the left, **close any open tabs.** Then click **'Open Folder':**



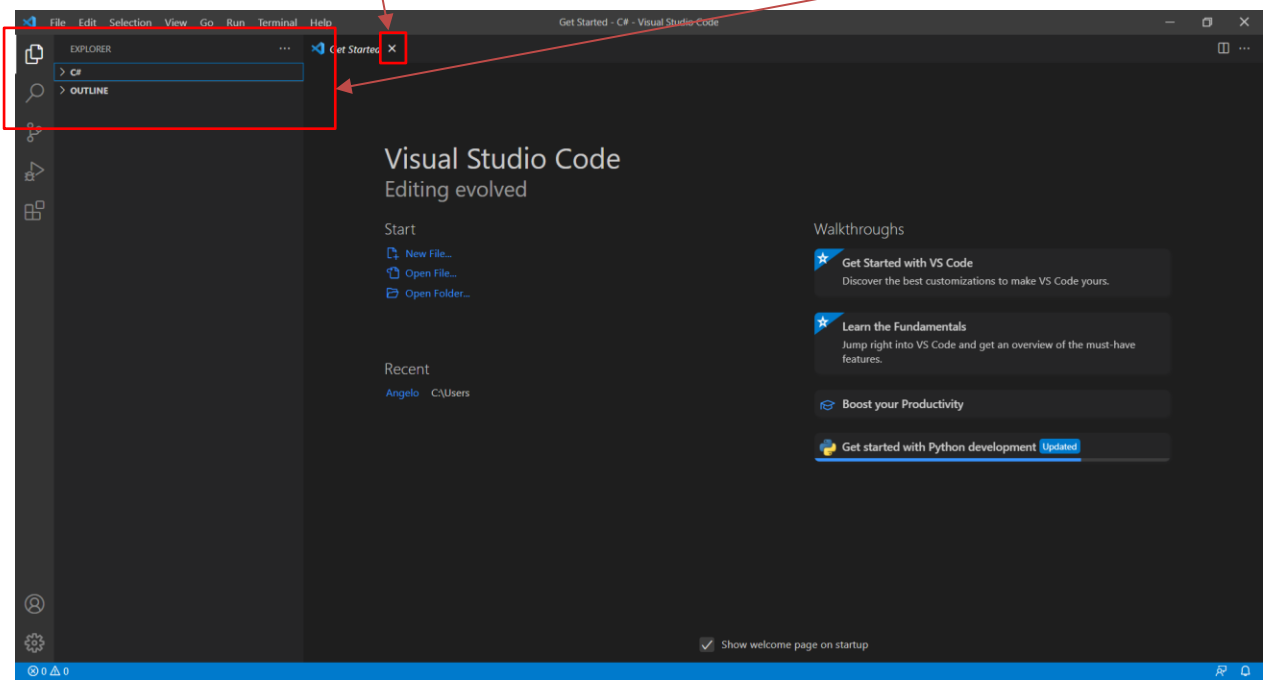
A popup window should appear where you can **navigate to your newly created C# folder.** Once you found your folder click **'Select Folder'**, which in Windows will look like the following:



You may see the following screen where you can click **'Yes, I trust the authors':**

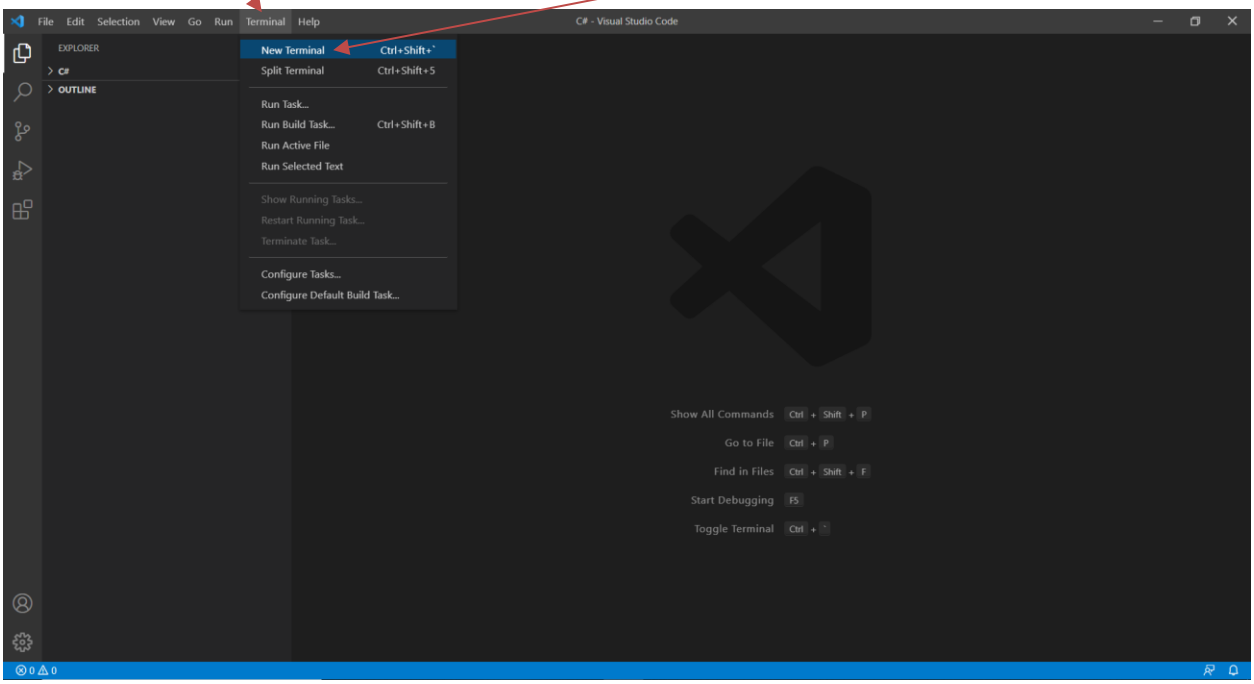


Your screen should now look like the following with your **C# folder** showing in the **'Explorer'.** You can once again **close** any open tabs.



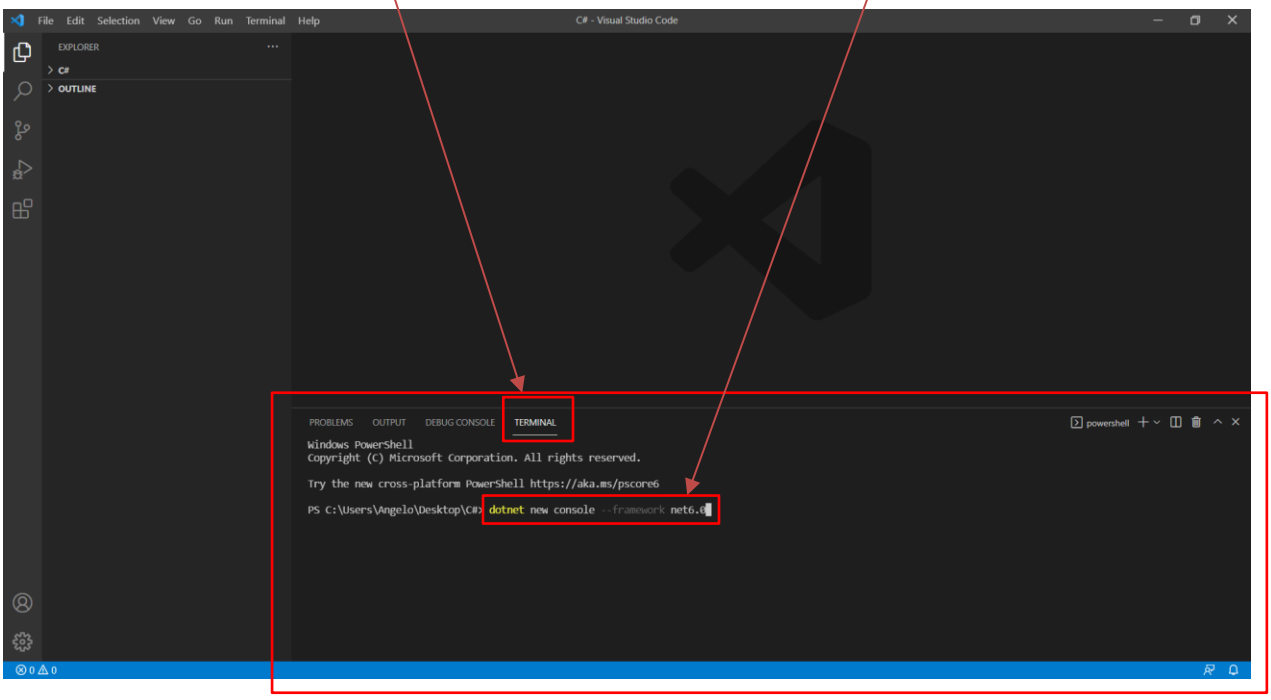
3. **Create a new C# project inside the 'C#' folder:**

   Click **'Terminal'** from the menu bar and then click **'New Terminal'**:

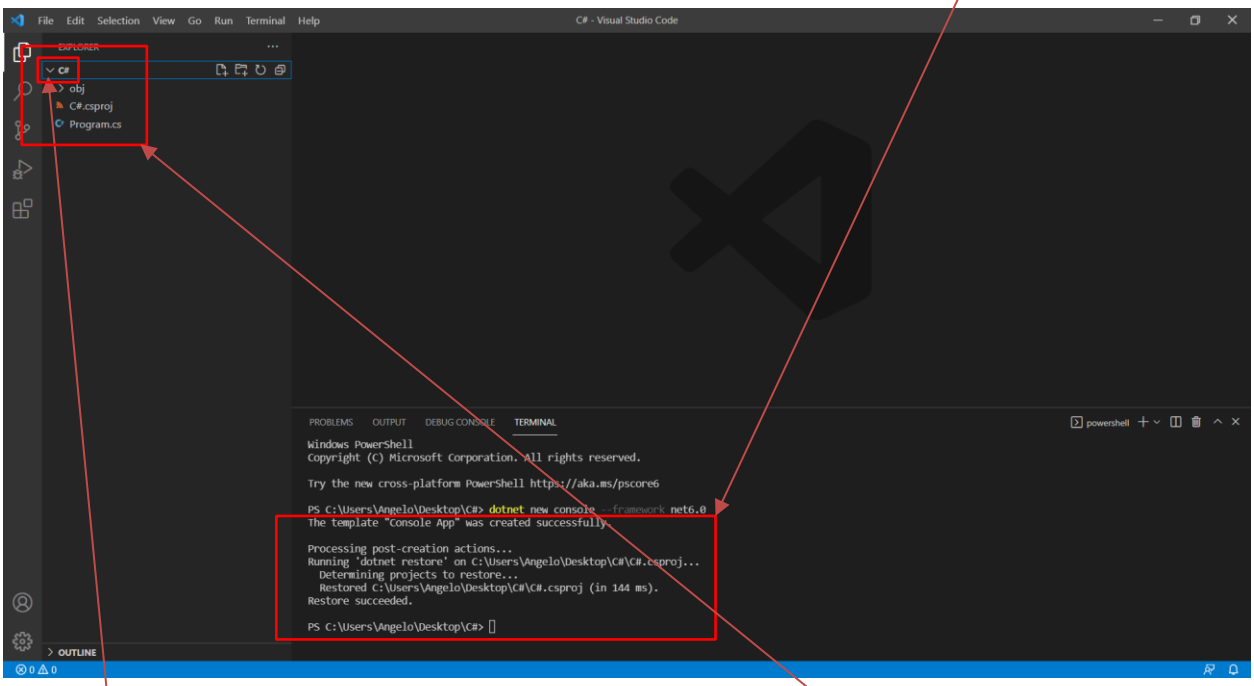


You should now see a **terminal window** open. Type the following command in the terminal and **hit enter**:

```
dotnet new console --framework net6.0
```



If the creation was successful, you will see the following **message** in the **terminal**:



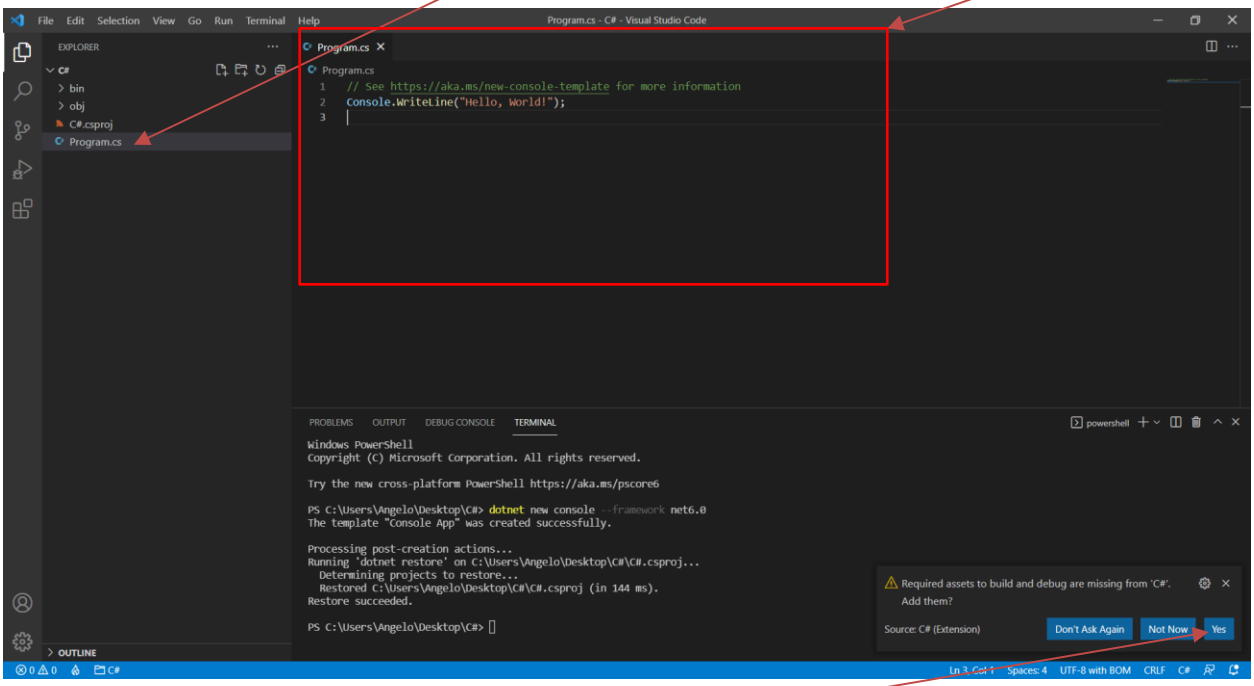
If you **expand** the **'C#'** folder you should now see some **new files** added.

VI. RUNNING YOUR FIRST C# CONSOLE PROGRAM:

Now that you have successfully created a C# program, it is time to run it!

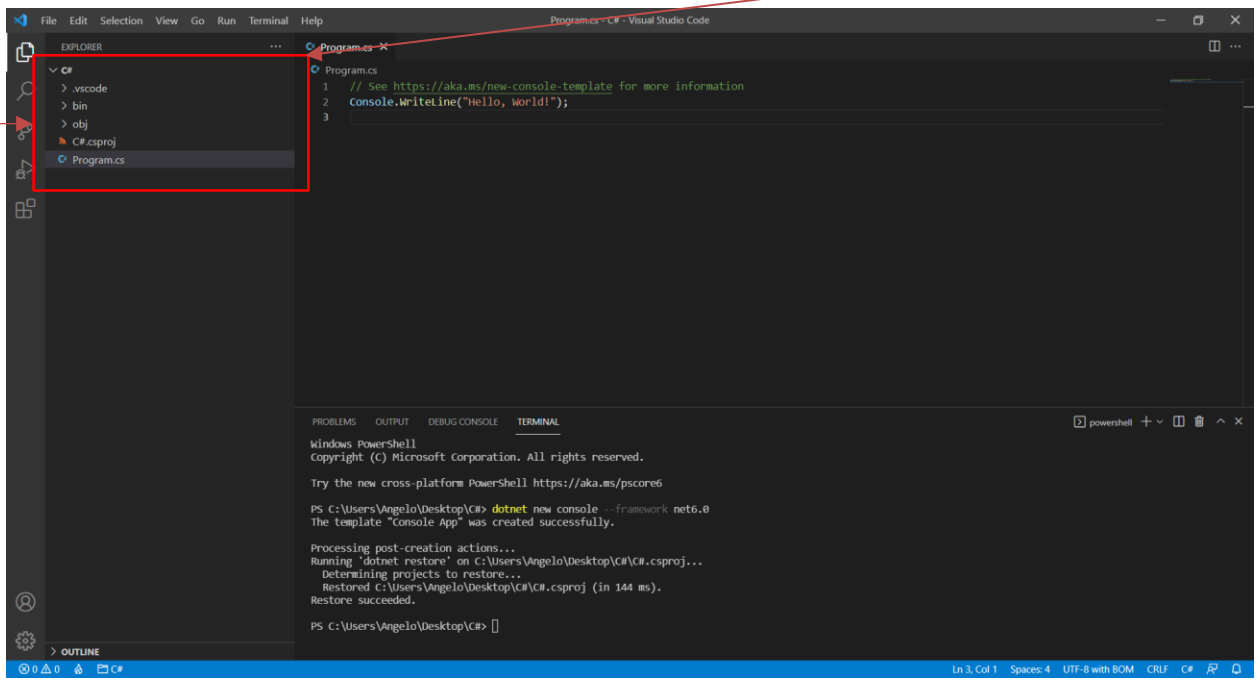
Steps:

1. Double click the file named **'Program.cs'**. You should see the file open as a new tab:

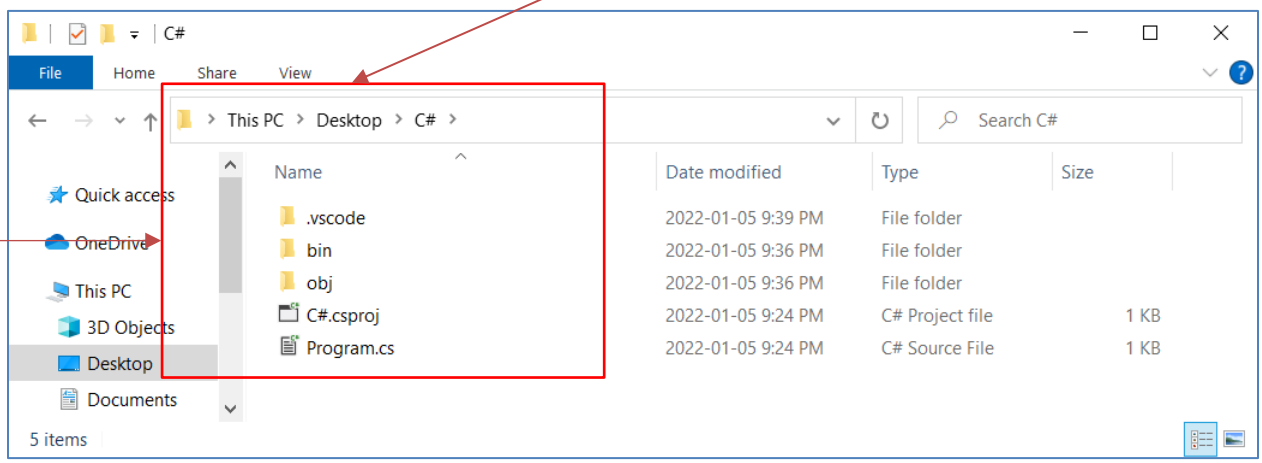


You should also see a message saying: **'Required assets to build and debug are missing from 'C#'. Add them?'** Click **'Yes'** on this message.

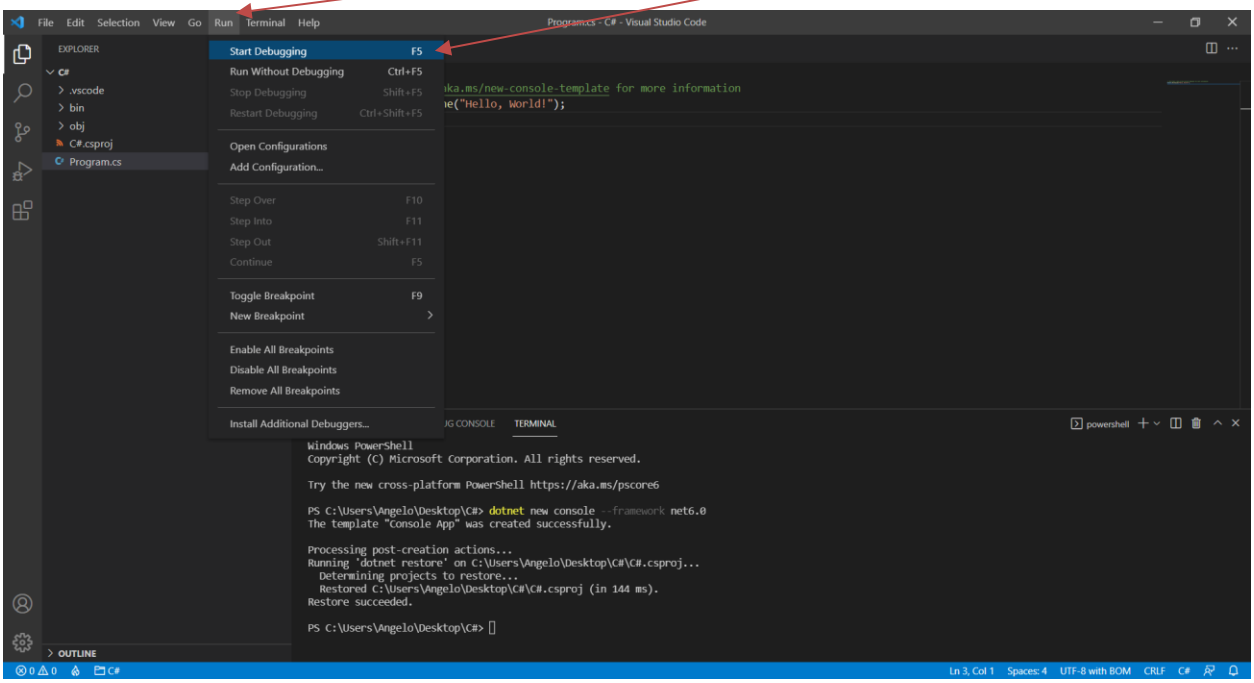
A couple more files will be added, and your **'C#'** folder should now look like the following:



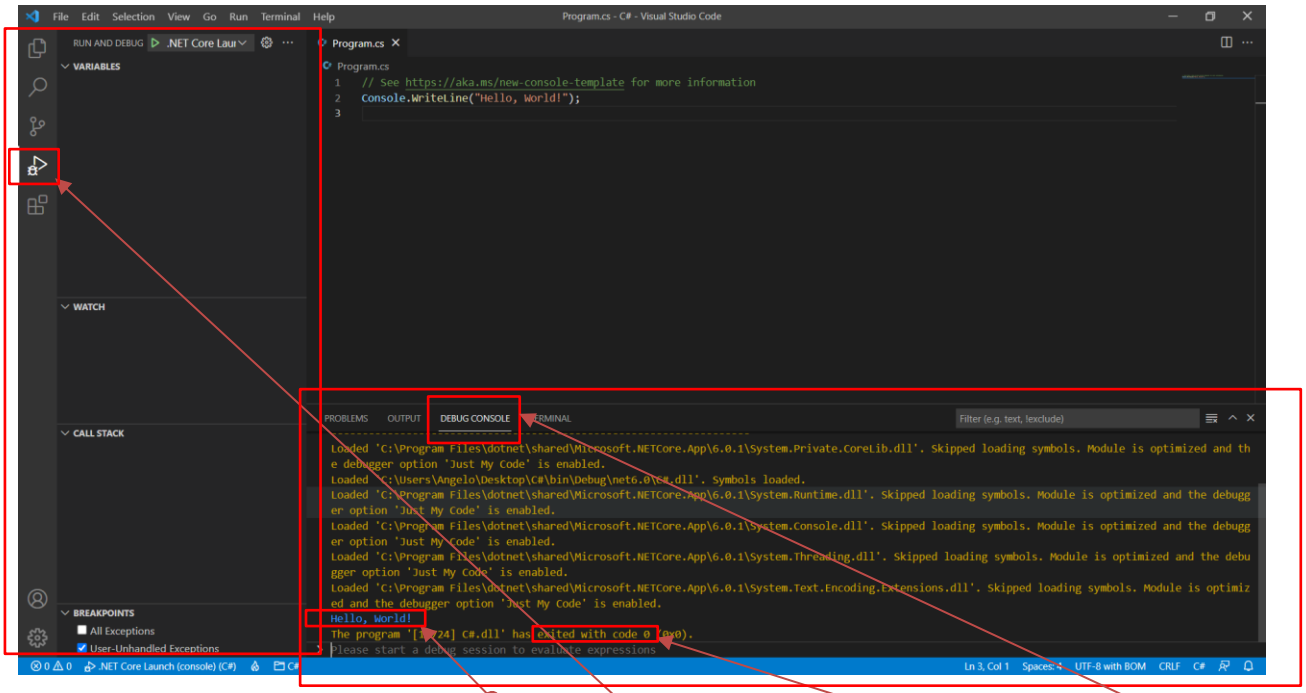
Also notice that if you open your **'C#'** folder on your desktop, the same folder/file structure should appear as it does in Visual Studio Code:



2. Let's now run our program. From the top menu bar click **'Run'** then **'Start Debugging'**, or hit **'F5'** on your keyboard:



Your program will first **'build'** which means the **compiler/interpreter** is converting your C# code into machine language. If all is successful, you should see the following result:

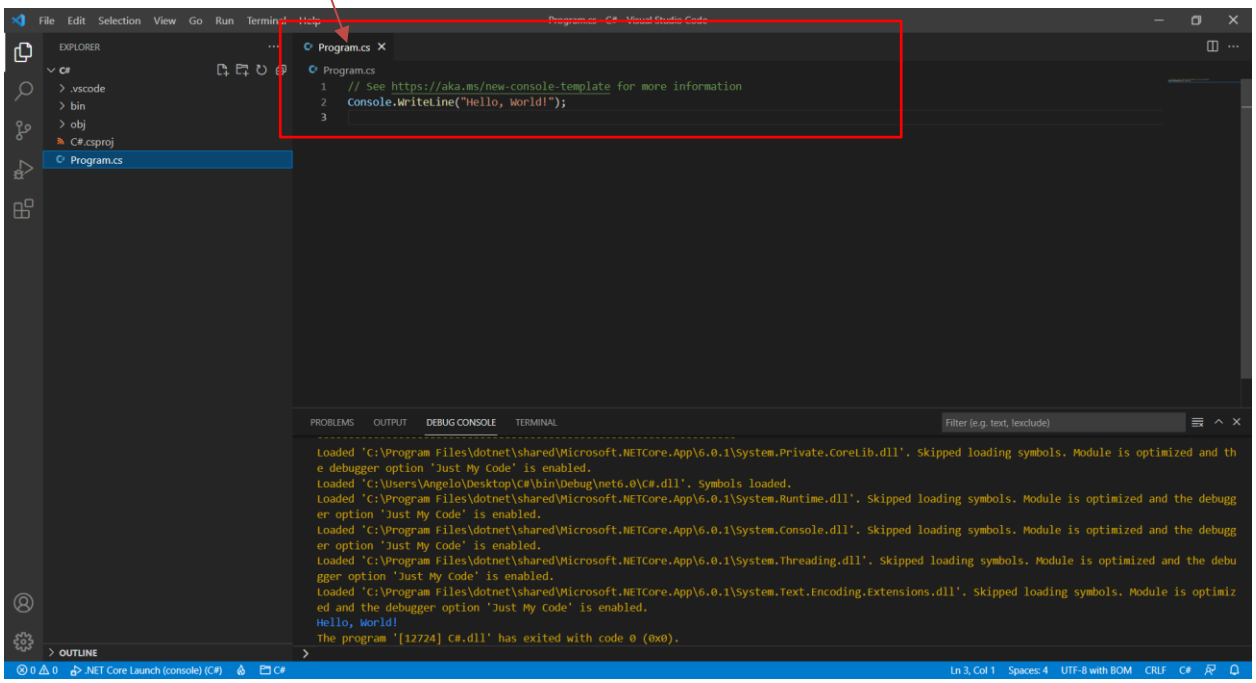


You should see the message **'Hello, World!'** followed by **'exited with code 0'** in the **'Debug Console'**. You will also notice that you are now in the **'Run & Debug'** menu.

VII. YOUR FIRST LINE OF C# CODE:

CONGRATULATIONS!!! If you have made it this far you have successfully built and ran your first C# program. Although all your program does is say **'Hello World'** and exits right away, writing such a program is the first step when learning a new programming language!

If you have noticed, the **code** that we ran in the last section resides in the **'Program.cs'** file:



All **C# files** have the file extension **'.cs'** (short for c-sharp). All your code will go inside your '.cs' files. Let's look at the code in detail in our **'Program.cs'** file:

```
1. // See https://aka.ms/new-console-template for more information
2. Console.WriteLine("Hello, World!");
3.
```

Line 1 starts with two **forward slashes '//'** and is highlighted in green. Lines that start with two forward slashes '//' are called **'comments'** and they are completely ignored when you run your program and are only meant to leave notes for the programmer.

Line 2 is our first line of code! It uses the **'Console.Writeline( )'** command (really called a 'function') to send messages (text) to the **'Debug Console'**. In this case, we are sending the text **'Hello World'.** Notice that all the text is surrounded by **double quotes " "**. Your text must always appear inside double quotes! Lastly, notice the semi colon **';'** at the end of the line. All lines of C# code must end in a semicolon! This is common for many programming languages.

Line 3 is blank and is referred to as **'whitespace'.** All whitespace is ignored when running your program.