Tutorial

How to configure your laptop before starting programming in C

This tutorial is done for helping you in setting up a basic environment to develop your skills in C programming. In this course we will be using **Visual Studio Code** (or VS Code for short). VS Code is an open source text editor capable to customize and integrate various programming languages for developing programs. One of its attractive points is that it's capable of editing all type of code and testing it in the same window if it's set up correctly. It also has a great open source add-in development market and thanks to that it makes your coding experience better. The images presented in this tutorial are taken from a linux installation, but VS Code can be installed and used on any operating system, and it has full integrations with their respective shells and terminals.

Let's start the tutorial with some basic steps.

Installation

For Linux:

"sudo apt-get install code -y"

For Windows or Mac download the application from this web:

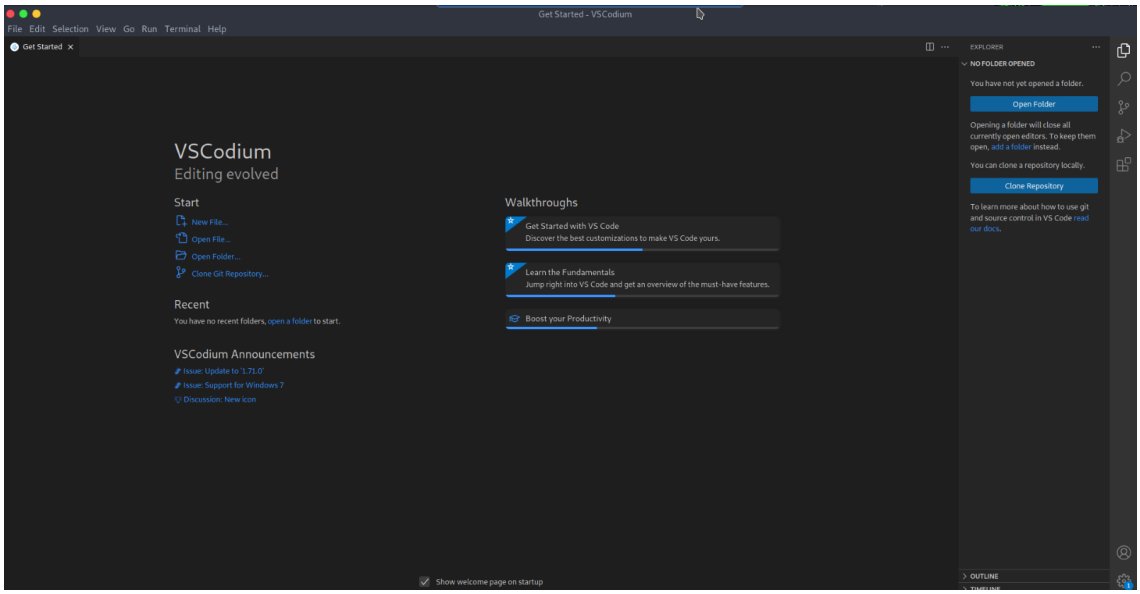
https://code.visualstudio.com/download

Creating a directory for your code

Once installed on your computer, you can start creating directories for you code. There are various ways to do it. You can do it via bash terminal or directly from VS Code.

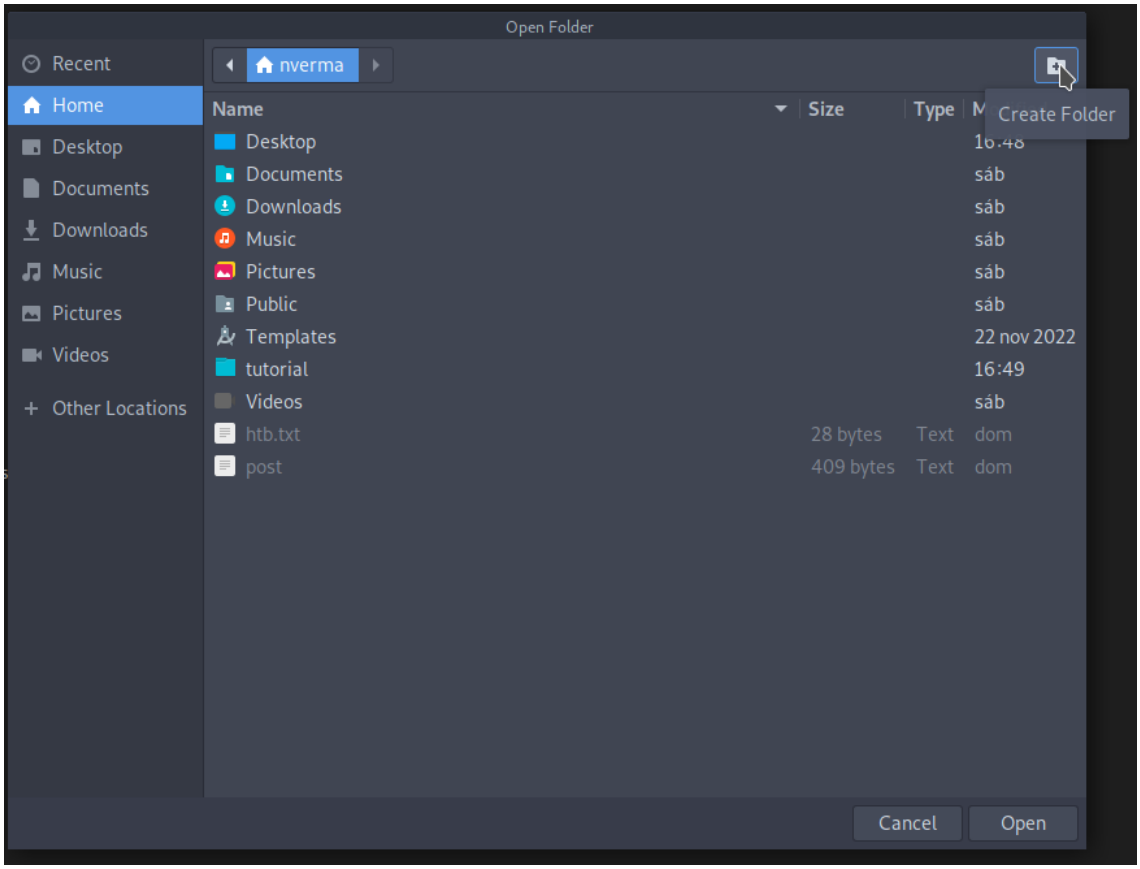
1. If you work on Windows, you can just click on Open Folder option from the main window. You can also click on Explorer (on the left of the window) and the Open Folder option.

2. If you work on Linux, you can also open a terminal (Ctrl+Alt+T) and type code and press enter. You will see this window:



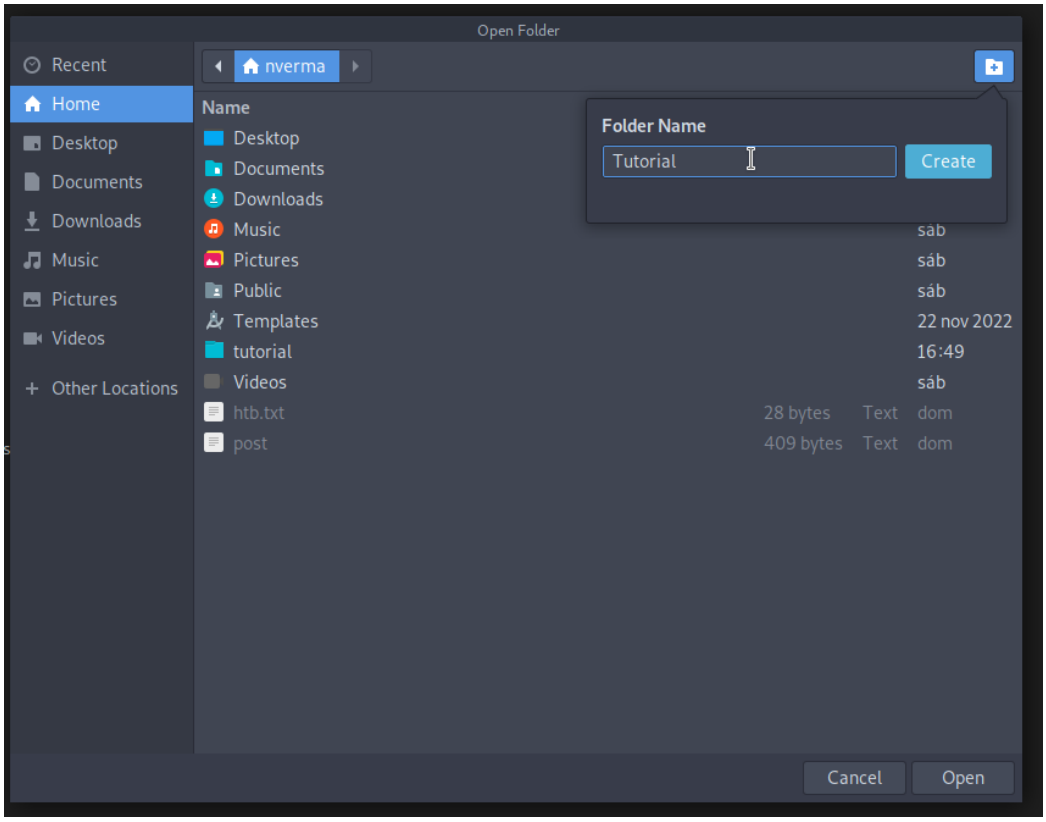
3. Select the option of open folder on the navigation Panel (you might find your Panel on the left).

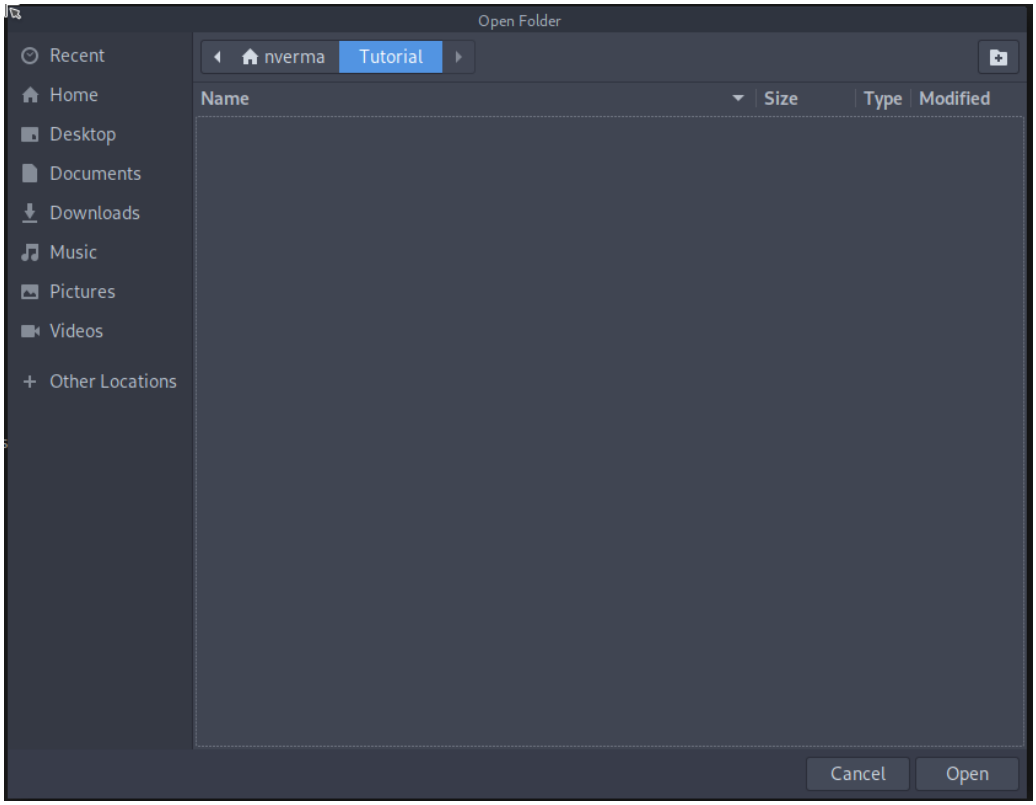
   You will see a similar window:



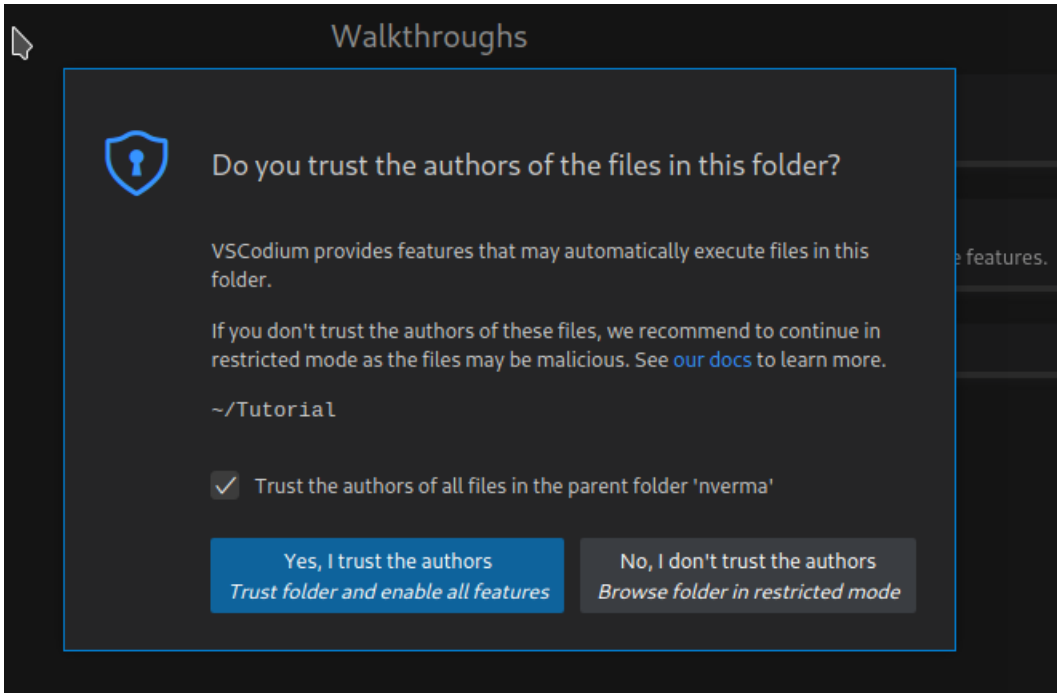
4. Click on the Icon to create a folder and follow the steps to create folder for your code. You can name it whatever you like, it's just for you and have a better organisation of your code.

Create it and then select the option Open.





You might see this warning:



just accept it and your folder is created and open in VS Code.

Create a File

In this part we are going to create a file in our folder, we will use the graphic interface for doing it. It's pretty simple.

Click on to create a file and name it test.c

Running your Code or File

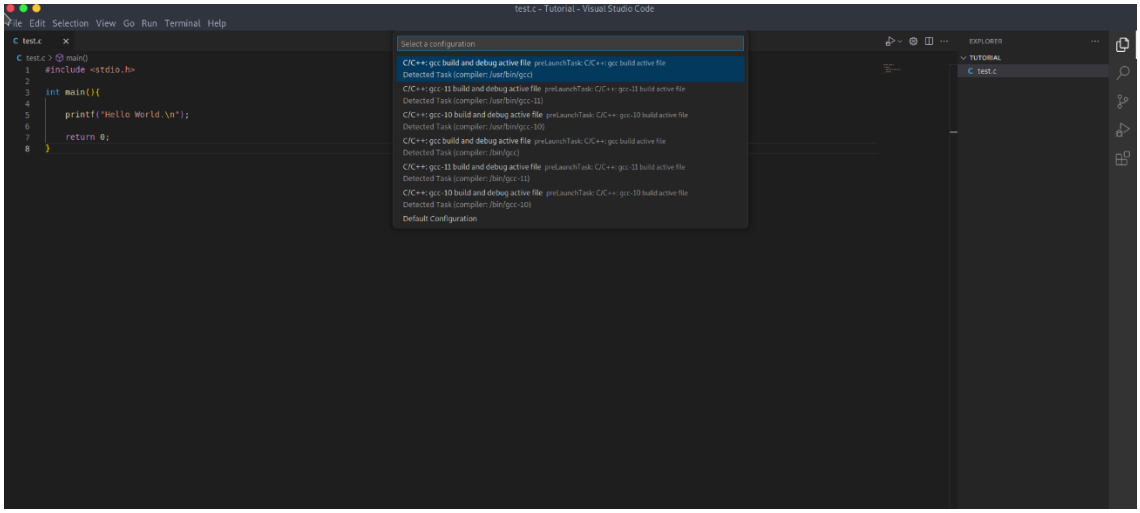
For this part we recommend you to use some of the add ins that you can directly install from the add in market of VS Code (Extensions): Code Runner.

To have more facilities when developing, we recommend you to install the following extensions: Code Runner, C/C++ IntelliSense and Better Comments.

Now let's start coding on the last file we created (test.c). Open the file by navigating from the side panel and double clicking on it and put this code in it:

```
#include  <stdio.h>

int main()

{

        printf(“Hello World!\n”);

        return 0;

}
```

And now press Ctrl+F5 to run the code and first time you do it you will be asked to select some options:



Choose the first option with compiler /usr/bin/gcc. This will launch a script to run the code and show it in terminal like this:

This option will also compile your code and create an executable file of the same name that can also be executed again in the terminal.

You can also click the right mouse button on your open source file, and you will see Run Code option.

On the bottom part of the window, you will see PROBLEMS/OUTPUT/DEBUG CONSOLE/TERMINAL. Please, analyze the results you can obtain on each of these tabs.

NOTE:

If you have any problem with running the compilation (an error that gcc is not recognized), you will have to install gcc compiler. You can download gcc (MinGW-w64 compiler) from the following web page:

https://sourceforge.net/projects/mingw-w64/

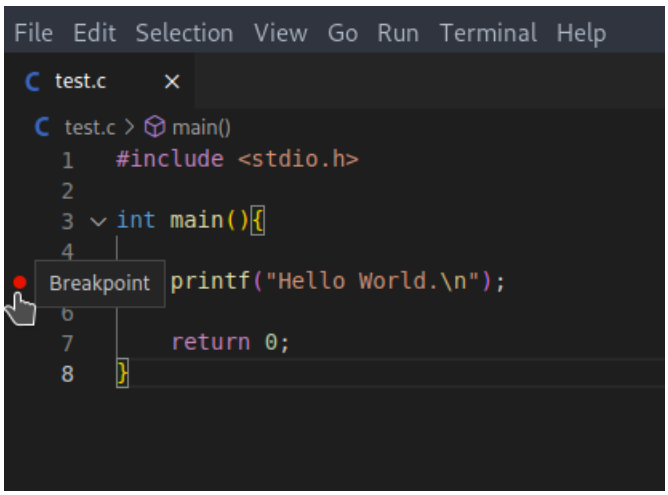
To install gcc compiler, you can follow the tutorial: it explains very well step by step how to install gcc compiler and configure your VSC environment to compile the source code implemented in C:

https://www.javatpoint.com/how-to-run-a-c-program-in-visual-studio-code

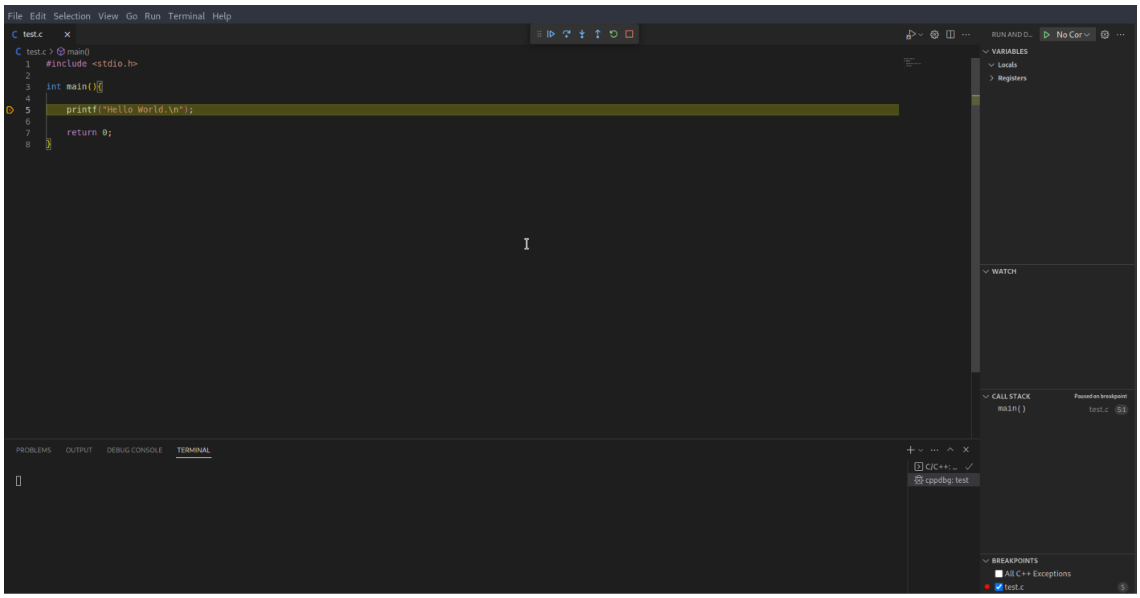
At the end of the process, just reset your computer.

How To debug

This is also important part of coding, just to check how your code is working and troubleshooting when something isn't working correctly. VS Code makes it easy by putting breakpoints on the code, you can do it by just clicking on left side of the number appearing on the code line. It should look like this:



After that with pressing F5 we can get into debugging of the code. You will see an interface similar to this one:



The code interpreter stops on the first breakpoint and wait for your to debug the code. Now you have different option that you can choose from the debug interface.

 This option is to Resume till next breakpoint

 This option is step over the instruction, mostly used when you don't want to check the values of variables taking place in that function/instruction.

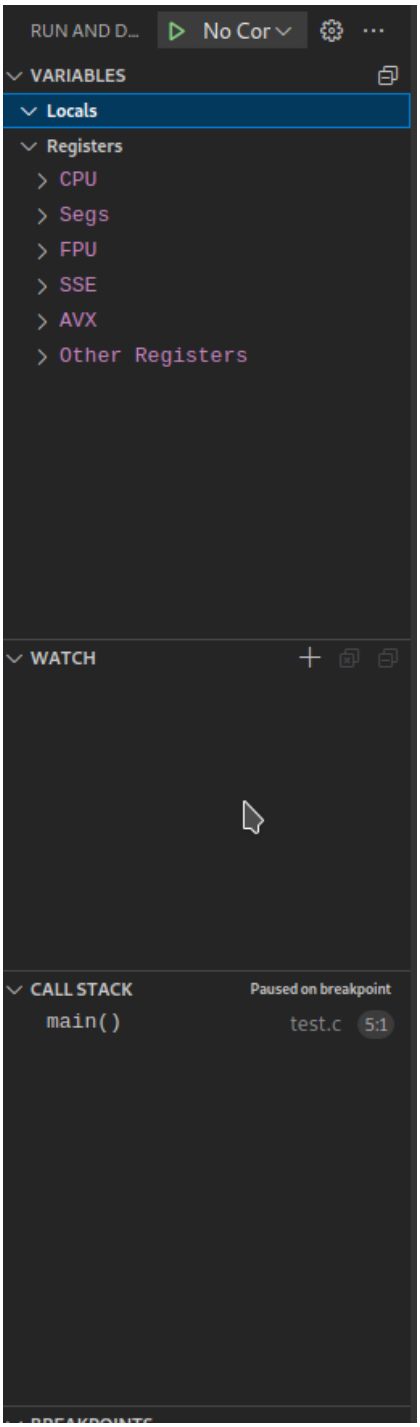
 This option is to step in the instruction, used to check every step that instruction/function takes.

 This option is to step out of the function you are debugging at the moment.

 This option is to restart the debugging process from the beginning.

 This option is to quit debugging.

This other interface is where we will be checking all the value of variables local in the code.



If you need more information about debugging in Visual Studio Code, please go to the following web page:

https://code.visualstudio.com/docs/editor/debugging