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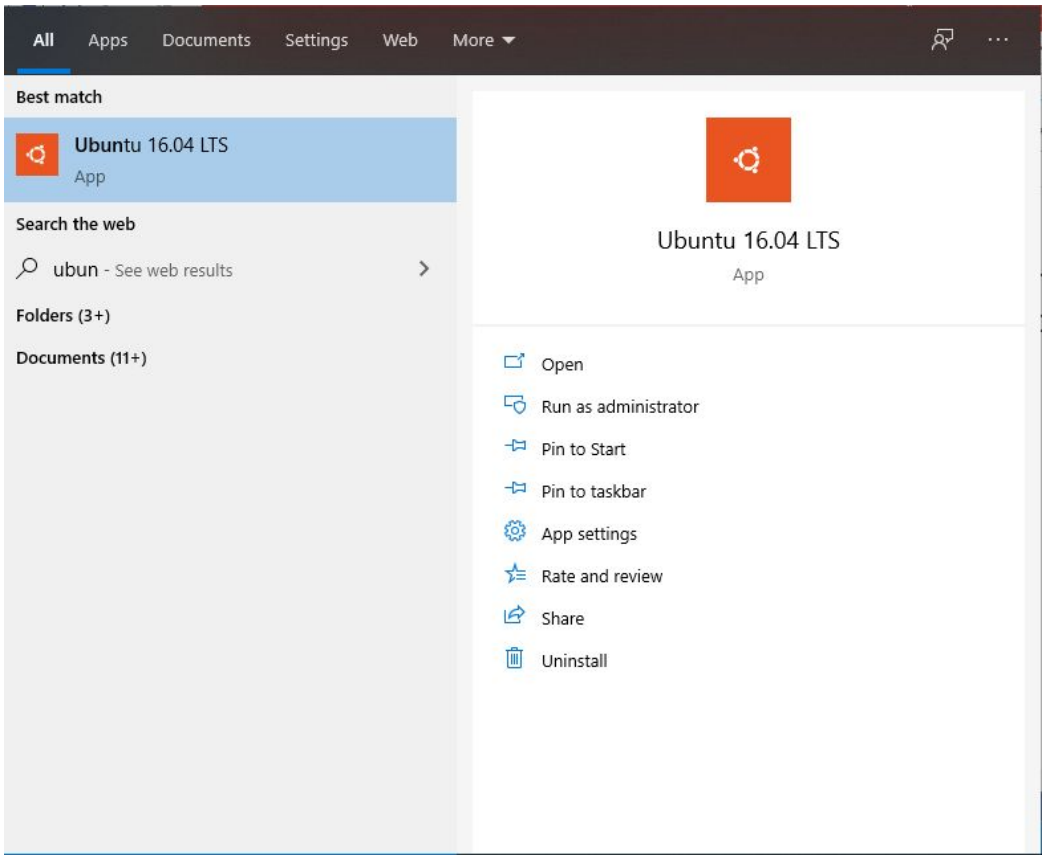
# 1 THE TOOL AND THE DIRECTORY

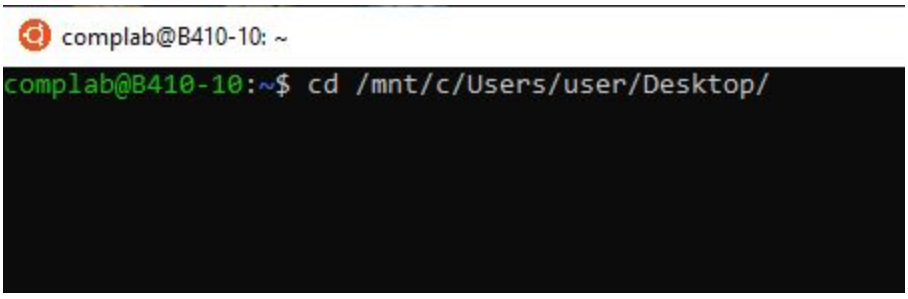
In the lab,we will use ubuntu application in windows 10 environment in the labs. You can access the application by writing ubuntu in windows search. As it is seen in the figure.




## 1.1 Working Directory

In the lab, you will write code on the desktop. Write the command below and press enter to go to Desktop. You can see as it is seen in the image below.

```
cd /mnt/c/Users/user/Desktop/
```

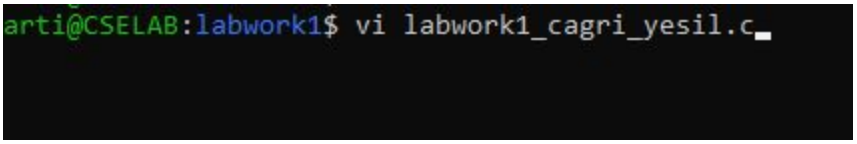


# 2 HOW TO CREATE A C FILE

In this course we will use c source file. Thus, the extension of your file should be “.c”. There are alternative ways to create a c file.

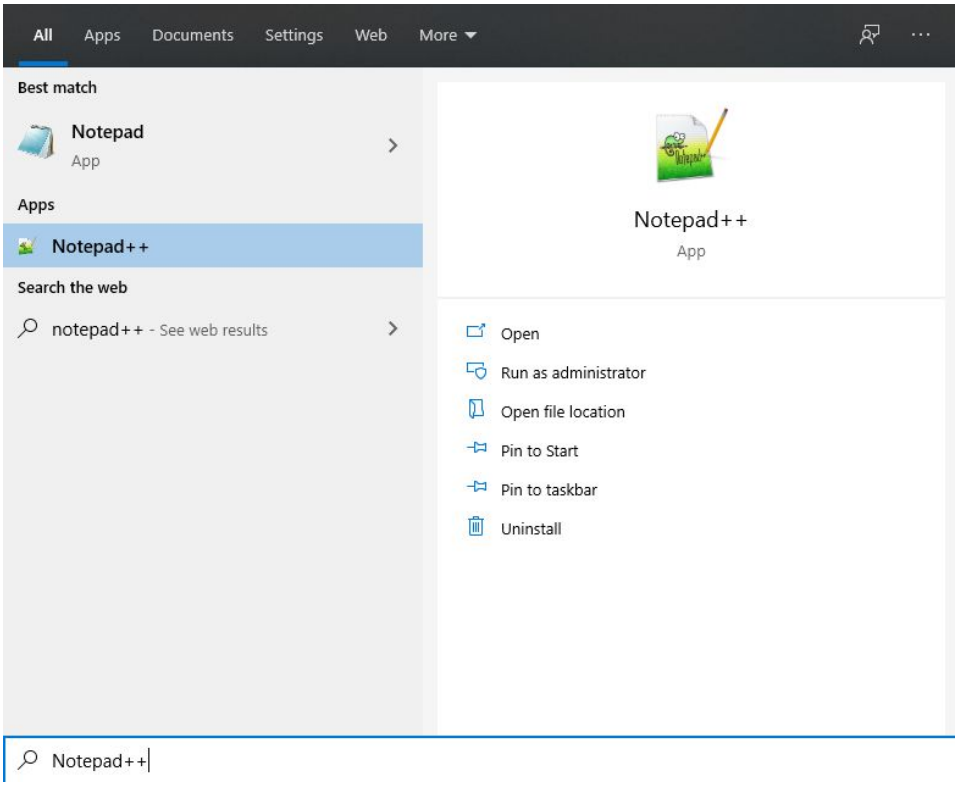
## 2.1 Use terminal

1. Write the command “vi labworkN_name_surname.c” with your own name and surname

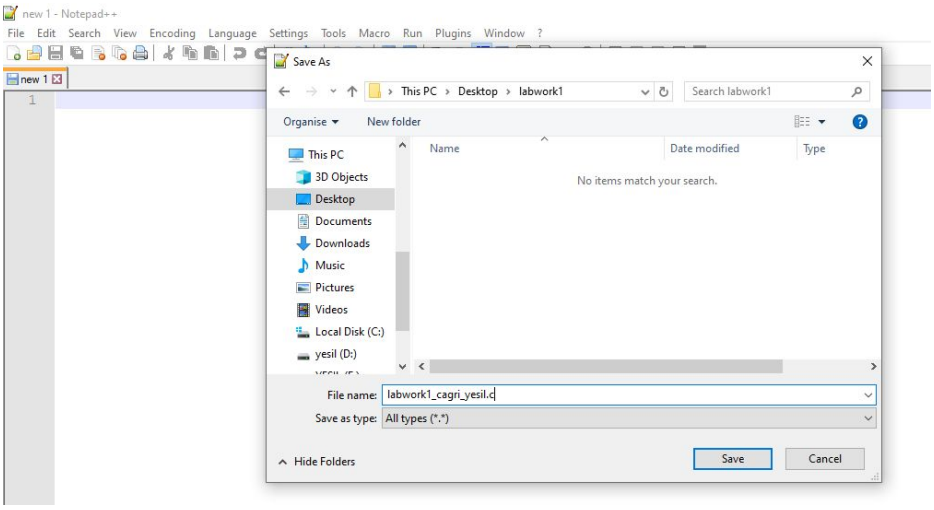



2. When you press enter, you will be inside the empty file. Write “:wq” to save and exit the file.

## 2.2 Use notepad++




You will start with an empty file. Go to file->save as. A new window will appear. In the window, select where to save your file. Then write the name of your file to “file name” box (for example “labwork1_cagri_yesil.c”).  Click the save button.



# 3 HOW TO RUN YOUR CODE

**You can compile your code by writing :**

gcc labwork1_cagri_yesil.c

**And run it by writing**

./a.out

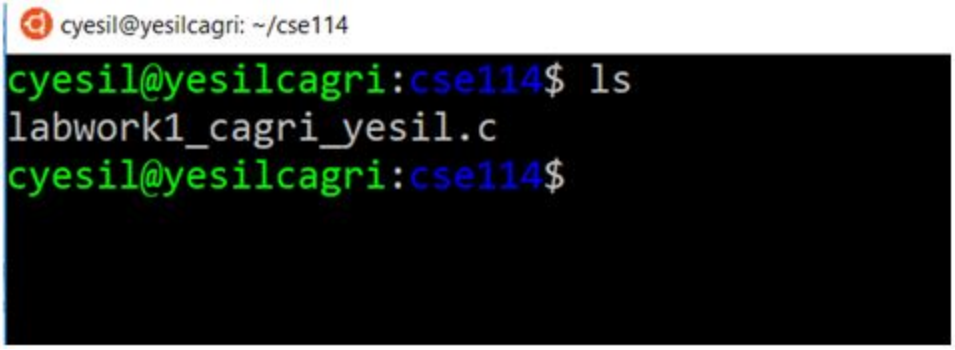
**Warning1:** The name of my file is labwork1_cagri_yesil.c. Your file will have a format like below. Do not use turkish letters like ı,ş,ç,ğ...

**labworkN_name_surname.c**

**Warning2:** Be sure your file extension is “c”. You can check your file format by writing ls command on the command line. It will list all the files and their extensions on the current directory.

**WRONG:** labwork1_cagri_yesil.c.txt


**CORRECT:** labwork1_cagri_yesil.c

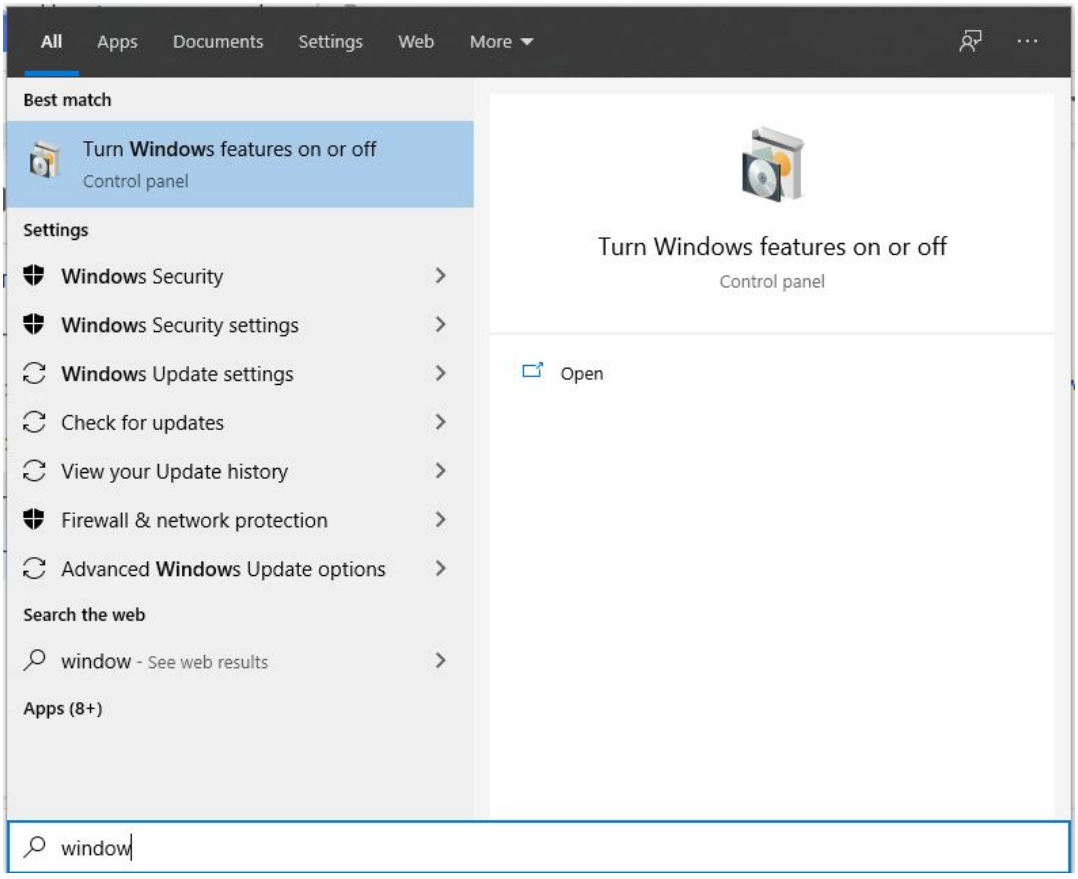


# 3 HOW TO INSTALL UBUNTU

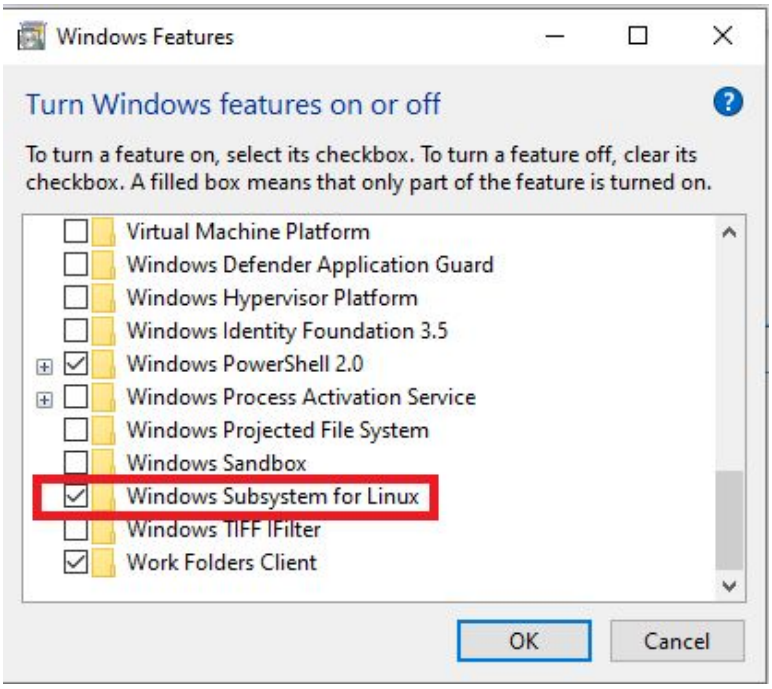
## 3.1 Windows 10

We use the Ubuntu application in the lab and the application works in windows 10. If you have windows 10, you can easily install it on your computer by following the steps below.

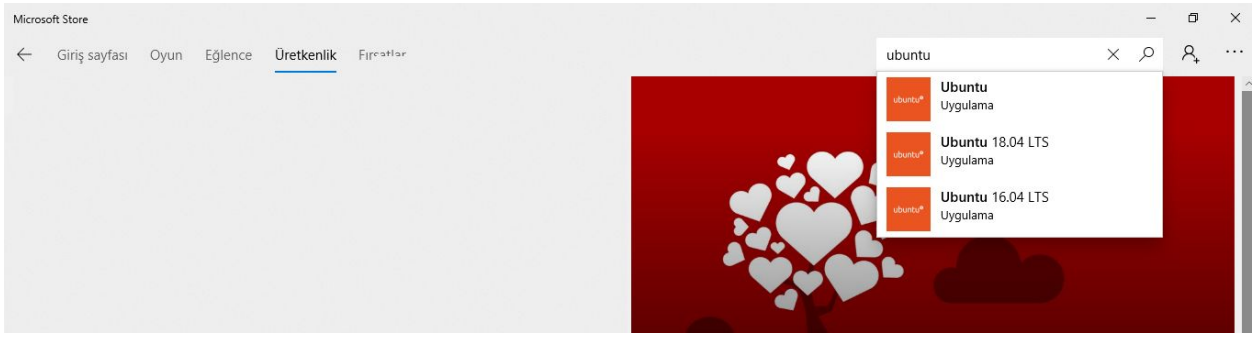
1. We have to enable support for linux on windows. So open “windows feature on or off” panel



2. Then, in the panel find “windows subsystem for linux” and put a tick on the box as it is seen from the figure below.




3. Open microsoft store on your computer and search ubuntu keyword, you will see the available ubuntu versions. In the lab, we use 16.04 but if you wish you can install 18.04.




4. Open Ubuntu 16.04 (or 18.04). Set the username and password of your new Ubuntu account then retype your password. (You will not be able to see what you type on the screen when you are writing your password.)

```
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: dergonul
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Installation successful!
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dergonul@CSELAB:~$
```

5. Write “sudo apt update” then hit *Enter*. Enter your password.

```
dergonul@CSELAB:~$ sudo apt update
[sudo] password for dergonul:
```

6. After it is done, write “sudo apt-get install gcc” then hit *Enter*. Enter ‘y’ when asked “Do you want to continue? [Y/n]”.

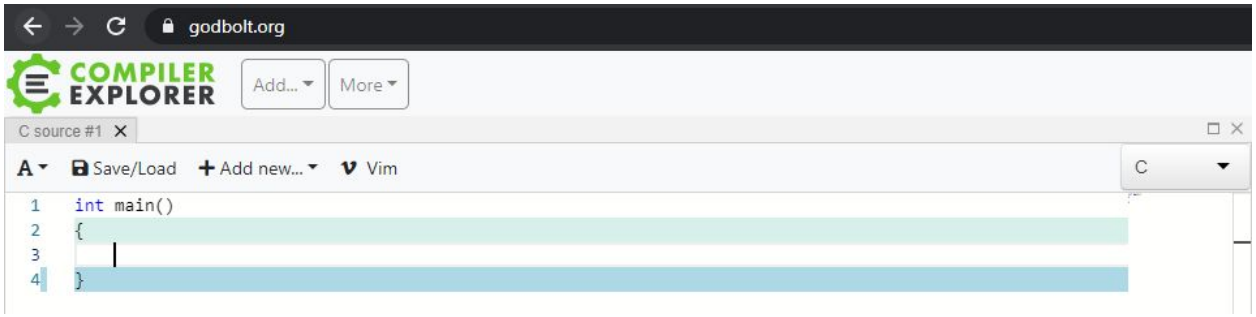
```
dergonul@CSELAB:~$ sudo apt-get install gcc
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  libfreetype6
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-7 gcc-7 gcc-7-base gcc-8-base libasan4 libatomic1
  libbinutils libc-dev-bin libc6-dev libcc1-0 libcilkrts5 libgcc-7-dev libgcc1 libgomp1 libisl19 libitm1 liblsan0
  libmpc3 libmpx2 libquadmath0 libstdc++6 libtsan0 libubsan0 linux-libc-dev manpages-dev
Suggested packages:
  binutils-doc cpp-doc gcc-7-locales gcc-multilib make autoconf automake libtool flex bison gdb gcc-doc gcc-7-multilib
  gcc-7-doc libgcc1-dbg libgomp1-dbg libitm1-dbg libatomic1-dbg libasan4-dbg liblsan0-dbg libtsan0-dbg libubsan0-dbg
  libcilkrts5-dbg libmpx2-dbg libquadmath0-dbg glibc-doc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu cpp cpp-7 gcc gcc-7 gcc-7-base libasan4 libatomic1 libbinutils
  libc-dev-bin libc6-dev libcc1-0 libcilkrts5 libgcc-7-dev libgomp1 libisl19 libitm1 liblsan0 libmpc3 libmpx2
  libquadmath0 libtsan0 libubsan0 linux-libc-dev manpages-dev
The following packages will be upgraded:
  gcc-8-base libgcc1 libstdc++6
3 upgraded, 27 newly installed, 0 to remove and 139 not upgraded.
Need to get 27.4 MB of archives.
After this operation, 115 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

## 3.2 Windows OS Other than 10

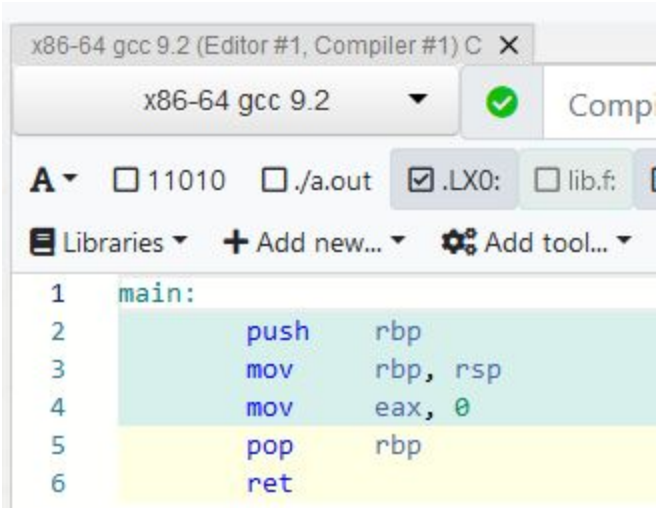
You can use integrated development environments (IDE) like codeblocks, eclipse, devc on your computer. But we will evaluate your assignments with the gnu gcc compiler (Version 5.4.0).Even if your code works in the listed IDEs, it may not work with gnu gcc compiler. So it is strongly suggest to test your code in gnu gcc compiler version before submission. You can test your code in the labs of faculty or you can install gnu gcc compiler version in different ways.

Or you can use [https://godbolt.org/](https://godbolt.org/):

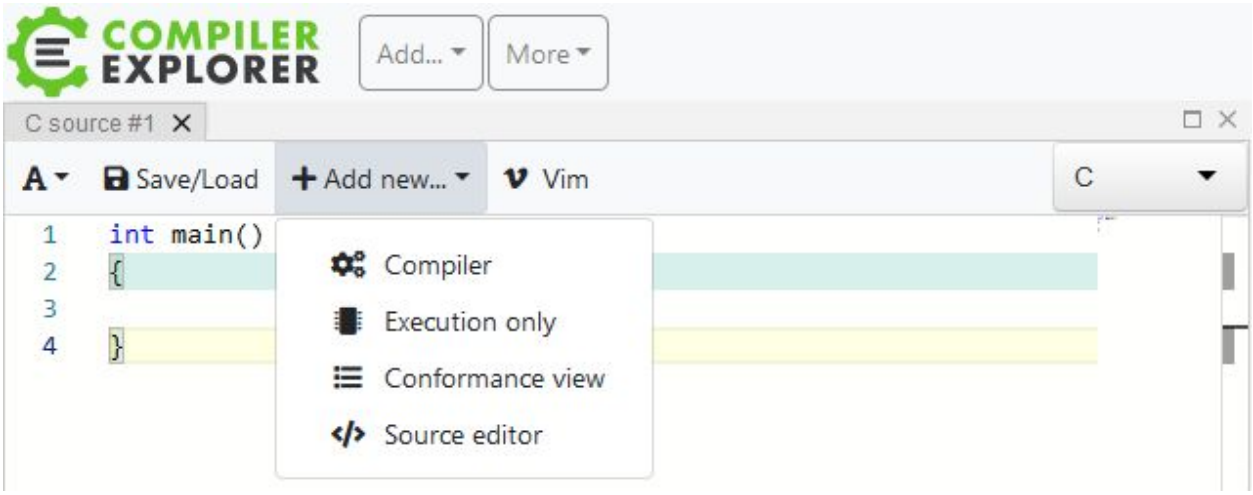
1. Paste your code to the area on the left. (Make sure you picked "**C**" as the language.)



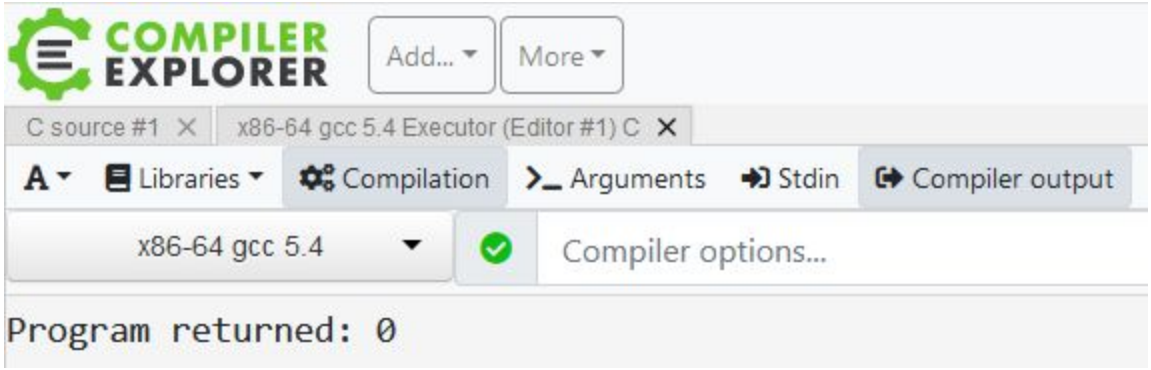

2. (You can close the tab on the right if you want to.)




3. Select "Execution only" from "Add new...". This will add a new tab.



4. On the new tab, pick “**x86-64 gcc 5.4**” as your compiler. Make sure you see the “Program returned: 0” message instead of any errors.




## 3.3 Mac Computers

If you have a Mac computer, you can directly  use your terminal tool to compile your code. But since the mac directory system is different from the windows, you cannot access the Desktop by using the steps in section 1.1.