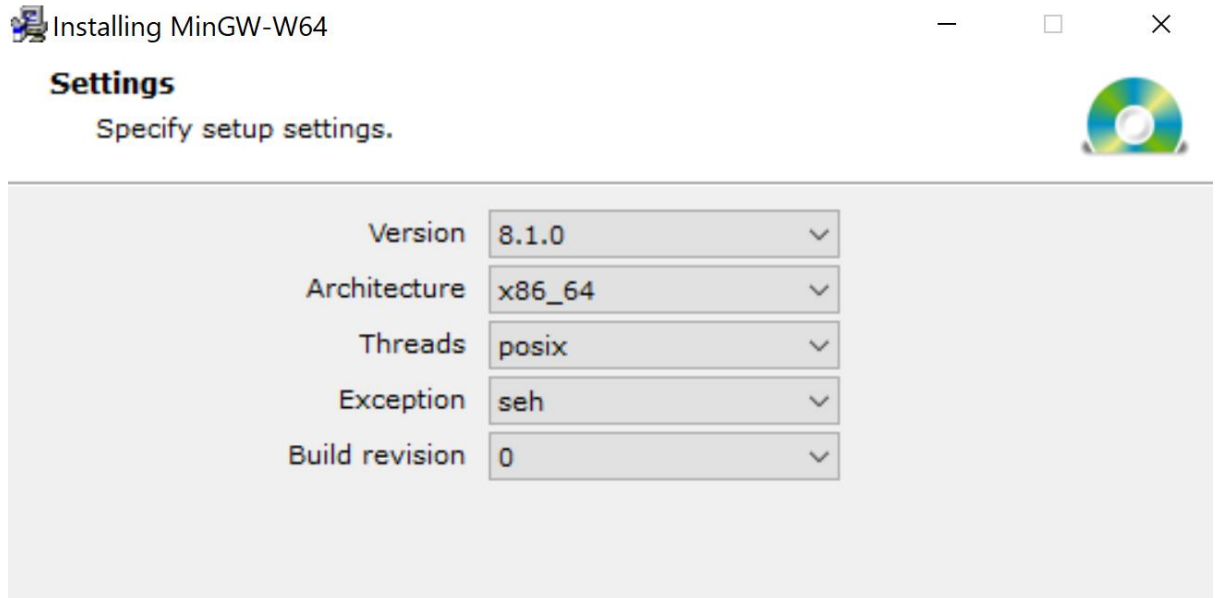


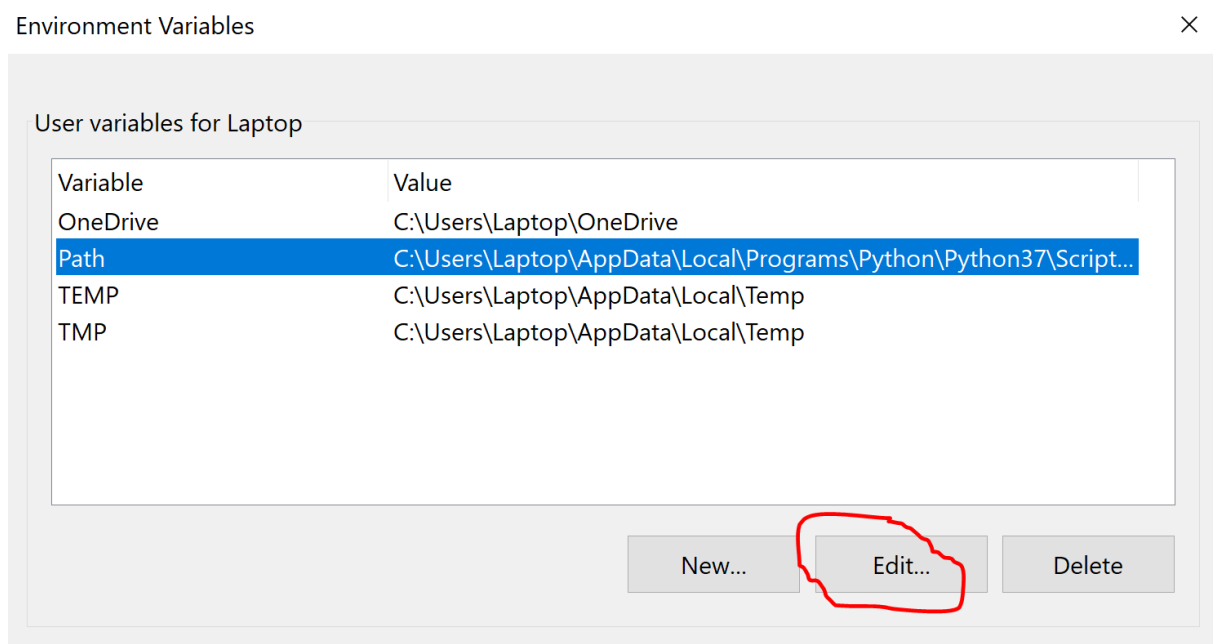
First, you will need MingGW installed on your computer in order to compile the C++ Code.

### Installing MinGW

1. Go to <https://sourceforge.net/projects/mingw-w64/files/Toolchains%20targetting%20Win32/Personal%20Builds/mingw-builds/installer/mingw-w64-install.exe/download> to download the MinGW installer (MinGW-W64-install.exe option). You should have a .exe called "mingw-w64-install.exe."
2. When launching the installer, you should have a settings menu which prompts for version, architecture, etc. Change Architecture to "x86\_64" and Exception to "seh" like so.



3. Next, choose your destination folder. This can be your choice, but to follow this tutorial you should make it "C:\Program Files\mingw-w64\x86\_64-8.1.0-posix-seh-rt\_v6-rev0" as I have.
4. Next, MinGW should install, this can take a while
5. After it has done installing, type "environment variables" in the windows search bar. Click on the search result "Edit the system environment variables." This should direct you to System Properties.
6. Click on the button "Environment Variables..." Then edit Variable "Path"



7. One of your paths should be the file path to where you chose your

{destination folder}\mingw64\bin for the MinGW install. If you chose the same destination folder, it should be this:

```
C:\Program Files\mingw-w64\x86_64-8.1.0-posix-seh-rt_v6-rev0\mingw64\bin
```

If you do not have this, add in a new directory

```
"C:\Program Files\mingw-w64\x86_64-8.1.0-posix-seh-rt_v6-rev0\mingw64\bin"
```

8. Finally, open Windows PowerShell and type `g++ --version`. You should have the following g++ version as your output.

```
PS C:\Users\Laptop> g++ --version
g++.exe (x86_64-posix-seh-rev0, Built by MinGW-W64 project) 8.1.0
```

### Installing Geany

Just go to <https://www.geany.org/download/releases/> and download the option for Windows "geany-1.36\_setup.exe" and install.

### Installing SFML

1. Go to <https://www.sfml-dev.org/download/sfml/2.5.1/>. As our MinGW version is x86\_64... we download the option "GCC 7.3.0 MinGW (SEH) - 64-bit." If you already had MinGW installed, you can check your version of MinGW (again, with "g++ --version" in the PowerShell), and see whether or not it is 64-bit (x86\_64). If it is not x86\_64, then you will have to download the option "GCC 7.3.0 MinGW (DW2) - 32-bit".
2. Open the .zip file and copy the file "SFML-2.5.1" onto your local disk. Then rename SFML-2.5.1 to just "SFML".

▼ ↑ This PC > Local Disk (C:)

| <input type="checkbox"/>            | Name                | Date modified        | Type        | Size |
|-------------------------------------|---------------------|----------------------|-------------|------|
| <input type="checkbox"/>            | AVC_Win10           | 4/06/2020 11:40 P... | File folder |      |
| <input type="checkbox"/>            | Dell                | 12/03/2019 9:51 P... | File folder |      |
| <input type="checkbox"/>            | Intel               | 11/06/2020 6:27 A... | File folder |      |
| <input type="checkbox"/>            | PerfLogs            | 11/06/2020 3:40 A... | File folder |      |
| <input type="checkbox"/>            | Program Files       | 15/06/2020 9:25 P... | File folder |      |
| <input type="checkbox"/>            | Program Files (x86) | 19/06/2020 3:03 P... | File folder |      |
| <input checked="" type="checkbox"/> | SFML                | 5/06/2020 1:26 AM    | File folder |      |

### Installing The Robot

Download/clone the project on GitHub. There will be a folder called AVC\_Project\_Install in the project .zip file. Extract AVC\_Project\_Install onto your desktop. Then copy and paste the contents of the bin folder in SFML into both AVC\_Server and AVC\_Robot within the AVC\_Project\_Install folder.






File Home Share View

← → ▼ ↑ This PC > Local Disk (C:) > SFML > bin


| <input type="checkbox"/>            | Name                  | Date modified     | Type                  | Size     |
|-------------------------------------|-----------------------|-------------------|-----------------------|----------|
| <input checked="" type="checkbox"/> | opengl32.dll          | 5/06/2020 1:26 AM | Application extens... | 654 KB   |
| <input checked="" type="checkbox"/> | sfml-audio-2.dll      | 5/06/2020 1:26 AM | Application extens... | 1,618 KB |
| <input checked="" type="checkbox"/> | sfml-audio-d-2.dll    | 5/06/2020 1:26 AM | Application extens... | 3,466 KB |
| <input checked="" type="checkbox"/> | sfml-graphics-2.dll   | 5/06/2020 1:26 AM | Application extens... | 1,204 KB |
| <input checked="" type="checkbox"/> | sfml-graphics-d-2.dll | 5/06/2020 1:26 AM | Application extens... | 4,367 KB |
| <input checked="" type="checkbox"/> | sfml-network-2.dll    | 5/06/2020 1:26 AM | Application extens... | 198 KB   |
| <input checked="" type="checkbox"/> | sfml-network-d-2.dll  | 5/06/2020 1:26 AM | Application extens... | 1,367 KB |
| <input checked="" type="checkbox"/> | sfml-system-2.dll     | 5/06/2020 1:26 AM | Application extens... | 112 KB   |
| <input checked="" type="checkbox"/> | sfml-system-d-2.dll   | 5/06/2020 1:26 AM | Application extens... | 841 KB   |
| <input checked="" type="checkbox"/> | sfml-window-2.dll     | 5/06/2020 1:26 AM | Application extens... | 235 KB   |
| <input checked="" type="checkbox"/> | sfml-window-d-2.dll   | 5/06/2020 1:26 AM | Application extens... | 2,395 KB |


Open server3.cpp and robot.cpp with Geany. Click on the “Build” tab at the top and then “Set Build Commands” in the drop down menu. Then edit the **Independent Commands** to those in the picture

.

| Independent commands      |                               |                   |   |
|---------------------------|-------------------------------|-------------------|---|
| 1.                        | <u>M</u> ake                  | mingw32-make      |  |
| 2.                        | Make Custom <u>T</u> arget... | mingw32-make      |  |
| 3.                        | Make <u>O</u> bject           | mingw32-make %e.o |  |
| 4.                        |                               |                   |  |
| Error regular expression: |                               |                   |  |

Then click Okay.

Click on the server3.cpp tab, then click on the arrow next to the build button (this one ). And then click “Make All” on the drop-down menu. Do the same with robot.cpp.

Execute server3.cpp (  ), and then execute robot.cpp. You will be prompted with an option of which task to choose (core, completion or challenge). Type in their respective numbers to choose (core – 1, completion – 2, challenge – 3). But before doing this, make sure to change to the appropriate map by editing the name of the .txt file on the first line of config.txt (in AVC\_Server folder). E.g. for completion, the first line would look like “mazeFile,completion.txt”.