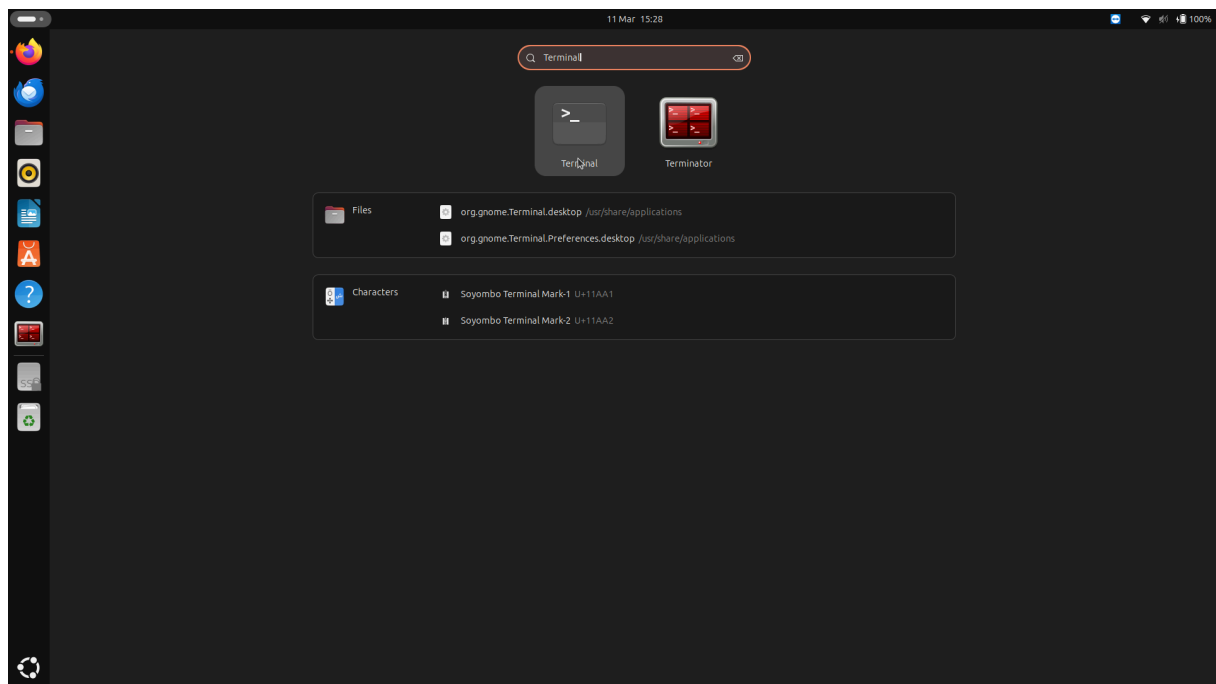


# Assignment 3 Installation Instructions (Linux/Mac)

University-issued Linux Computers will have Anaconda installed, if you are using your own computer you can install Anaconda from here:

<https://docs.anaconda.com/free/anaconda/install/index.html>. Alternatively, you can install miniconda from here: <https://docs.anaconda.com/free/miniconda/miniconda-install/> you are free to choose either option as we do not need all the features of a full Anaconda installation. The following screenshots are from Ubuntu however these steps should work on all linux distros and on Mac.

## 1. Launch Terminal from the Applications Menu



## 2. Enter the following command to create a new environment, the python version is specified to ensure compatibility with the assignment program:

```
conda create -n AMR_assignment_3 python=3.11
```

When prompted, press y and the enter key to complete the environment creation:

```
nathan@nathan: ~  
- python=3.11  
The following packages will be downloaded:  
-----  
package | build  
-----  
ca-certificates-2025.2.25 | h06a4388_0 | 129 KB  
openssl-3.0.16 | h5eee18b_0 | 5.2 MB  
pip-25.0 | py311h06a4388_0 | 2.9 MB  
python-3.11.11 | he870216_0 | 32.9 MB  
setuptools-75.8.0 | py311h06a4388_0 | 2.2 MB  
tzdata-2025a | h04d1e81_0 | 117 KB  
wheel-0.45.1 | py311h06a4388_0 | 151 KB  
xz-5.6.4 | h5eee18b_1 | 567 KB  
-----  
Total: 44.2 MB  
The following NEW packages will be INSTALLED:  
_libgcc_mutex pkgs/main/linux-64::_libgcc_mutex-0.1-main  
_openmp_mutex pkgs/main/linux-64::_openmp_mutex-5.1.1-gnu  
bzip2 pkgs/main/linux-64::bzip2-1.0.8-h5eee18b_5  
ca-certificates pkgs/main/linux-64::ca-certificates-2025.2.25-h06a4388_0  
ld_impl_linux-64 pkgs/main/linux-64::ld_impl_linux-64-2.40-h12ee557_0  
libbfl pkgs/main/linux-64::libbfl-3.4.4-h6a678d5_1  
libgcc-ng pkgs/main/linux-64::libgcc-ng-11.2.0-h1234567_1  
libgomp pkgs/main/linux-64::libgomp-11.2.0-h1234567_1  
libstdcxx-ng pkgs/main/linux-64::libstdcxx-ng-11.2.0-h1234567_1  
libtbb pkgs/main/linux-64::libtbb-1.41.5-h5eee18b_0  
ncurses pkgs/main/linux-64::ncurses-6.4-h6a678d5_0  
openssl pkgs/main/linux-64::openssl-3.0.16-h5eee18b_0  
pip pkgs/main/linux-64::pip-25.0-py311h06a4388_0  
python pkgs/main/linux-64::python-3.11.11-he870216_0  
readline pkgs/main/linux-64::readline-8.2-h5eee18b_0  
setuptools pkgs/main/linux-64::setuptools-75.8.0-py311h06a4388_0  
sqlite pkgs/main/linux-64::sqlite-3.45.3-h5eee18b_0  
tk pkgs/main/linux-64::tk-8.6.14-h39e9969_0  
tzdata pkgs/main/noarch::tzdata-2025a-h04d1e81_0  
wheel pkgs/main/linux-64::wheel-0.45.1-py311h06a4388_0  
xz pkgs/main/linux-64::xz-5.6.4-h5eee18b_1  
zlib pkgs/main/linux-64::zlib-1.2.13-h5eee18b_1  
Proceed ([y]/n)?
```

3. Enter the following command to activate the environment you created in the previous step:

```
conda activate AMR_assignment_3
```

4. Next enter the following command to install numpy and pybullet which are required to run the simulation for the assignment:

```
conda install conda-forge::pybullet
```

NOTE! If you are using venv instead of conda you can install the dependencies using pip instead (you do not need to enter these commands if you have followed the instructions up to this point and are using conda):

```
pip install numpy  
pip install pybullet
```

5. Now that the prerequisites are installed you will need to change directory to the location where you have saved the assignment:

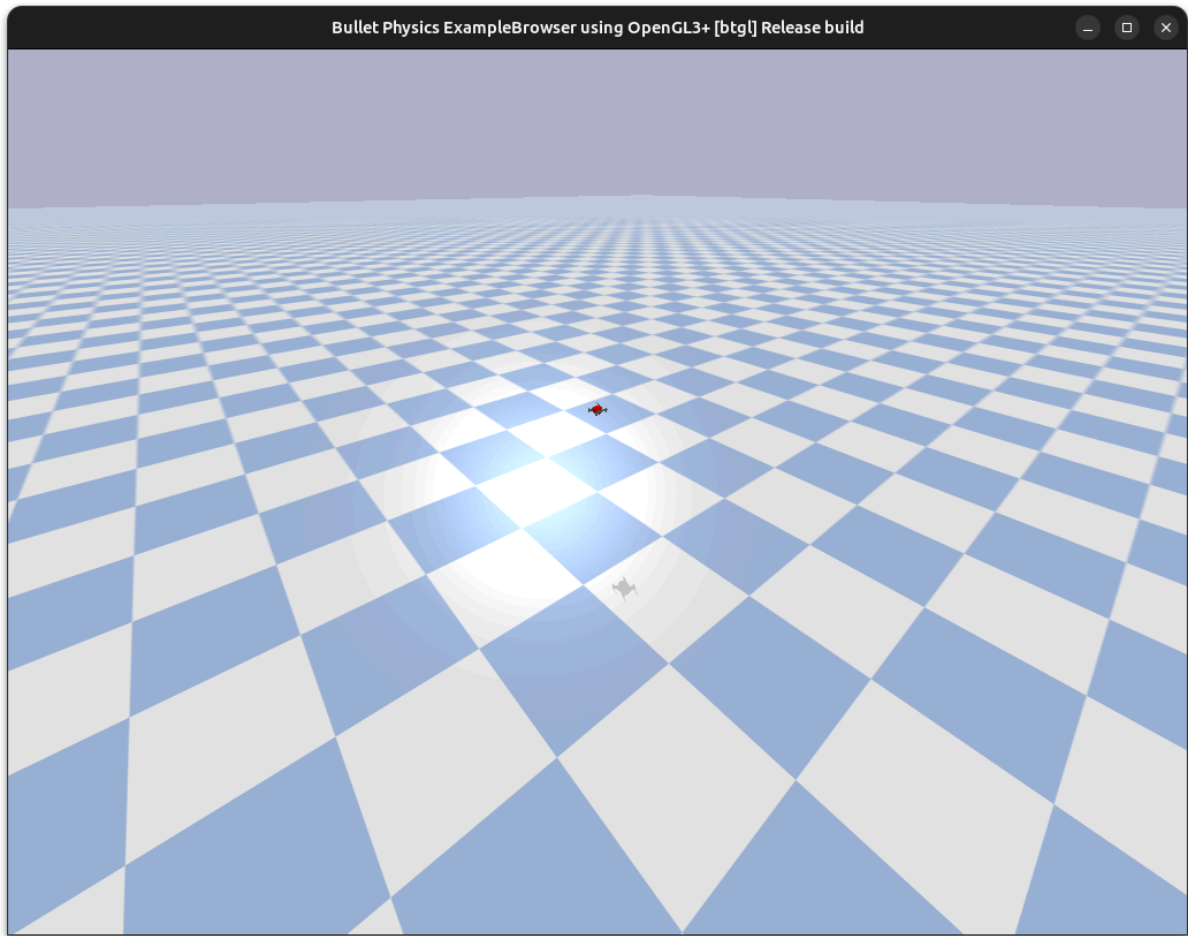
```
cd <path to assignment directory>
```

Where <path to assignment\_3 directory> is where you have saved the assignment, for example ~/AMR\_assignment\_3.

6. To launch the simulation enter the following command:

```
python run.py
```

If the assignment has been installed correctly you should see the 3D simulation window open:



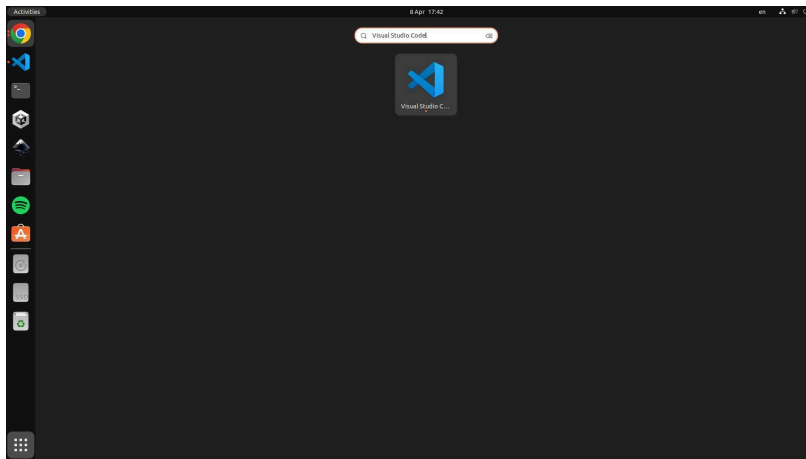
You can now edit controller.py using a text editor of your choice such as Visual Studio Code, you do not need to relaunch the simulation when you make changes, your code will be reloaded every time you click Reset.

When you have completed the first time setup you will only need to complete steps 1, 3, 5 and 6 in order to launch the simulation in the future. If you complete the following steps to setup VS code you will not need to use Anaconda Prompt to launch the simulation in the future.

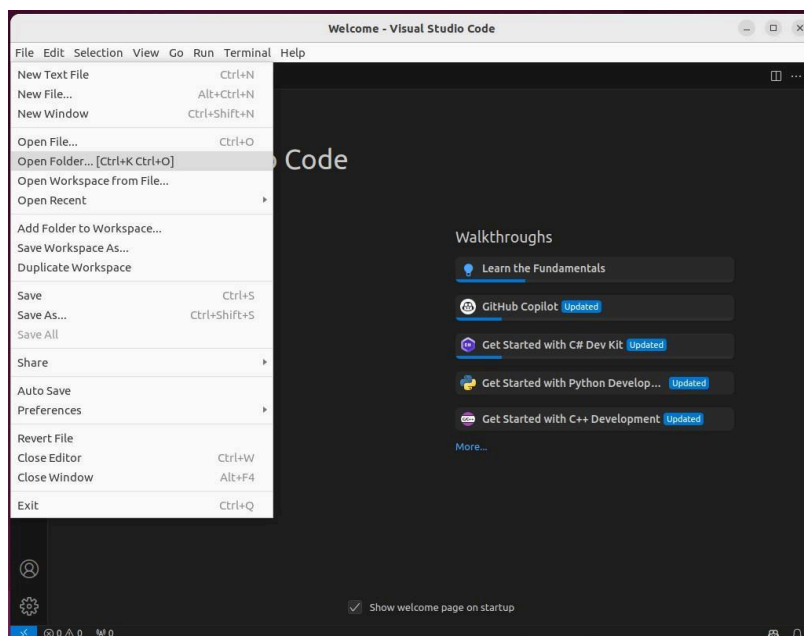
### Optional Instructions to set up Visual Studio Code

Visual Studio code can be installed from <https://code.visualstudio.com/download>.

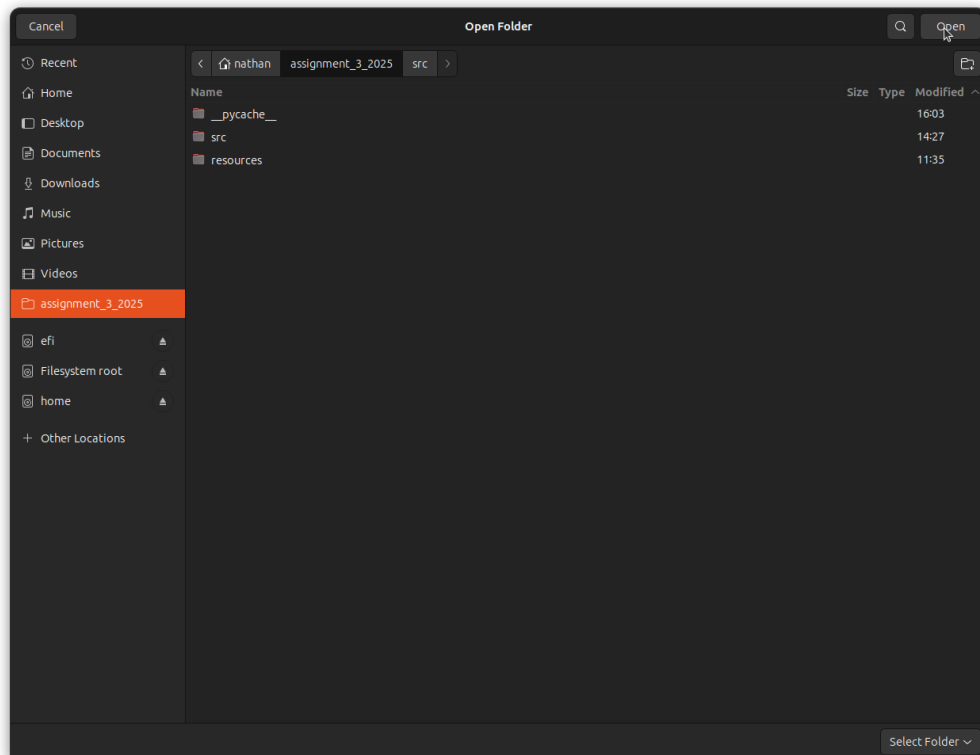
1. Launch Visual Studio code from the Applications menu:



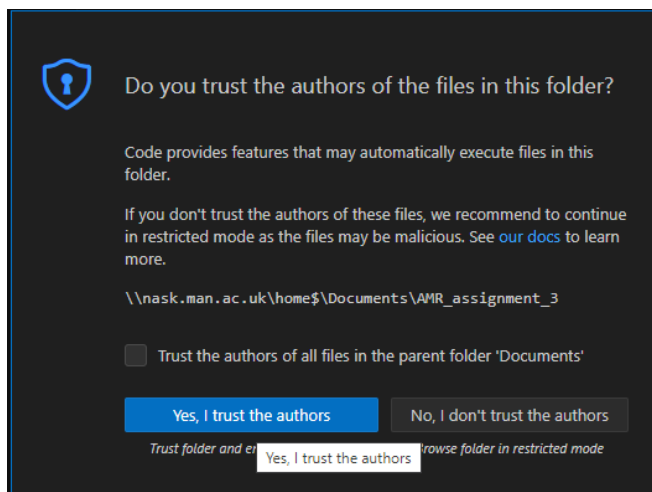
2. Click on file and then open folder:



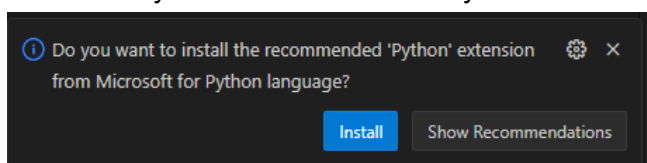
3. Navigate to the assignment 3 folder and click Open:



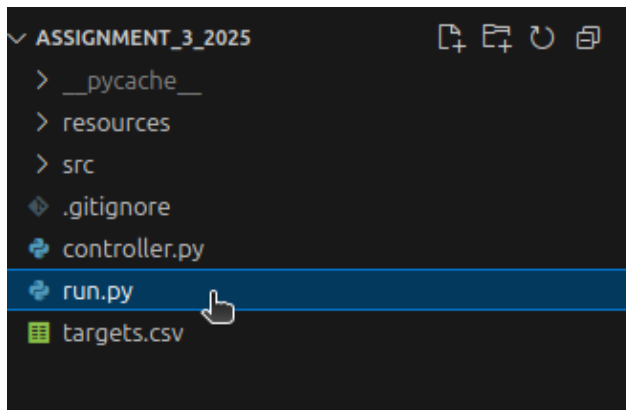
4. You will be asked if you trust the authors of this folder, select “Yes, I trust the authors”:



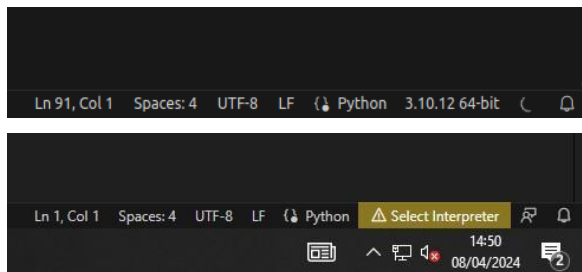
5. If you have not used Visual Studio Code for Python programming before you will be asked if you want to install the Python extension, click install:



6. Once the extension is installed, navigate back to the files tab on the left of the screen and click on “run.py”:



7. On the bottom right of the window, the right of “Python” it will either show the currently selected python interpreter e.g. “3.10.12 64-bit” or “Select Interpreter” in yellow:



If an interpreter is shown, click on this and it will bring up a list of interpreters, select the one with the label “(‘AMR\_assignment\_3’)”, this is the conda environment you created in step 2 of the installation instructions. You can now continue to step 10.

8. If “Select Interpreter” is shown in yellow then Visual Studio Code cannot find any python interpreters, we will need to locate the interpreter for the environment you created in step 2 of the installation instructions. Go back to Terminal and make sure the environment is activated then enter the following command:

```
python
```

This will launch an interactive python session:

Type the following two commands into the python shell:

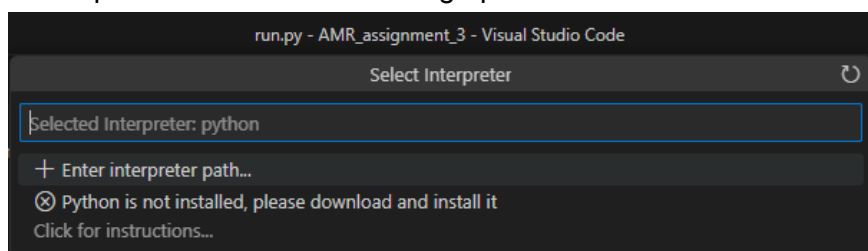
```
import sys
print(sys.executable)
```

This will print out the **location** of the python interpreter, in this case conda\_installation can be miniconda or anaconda:

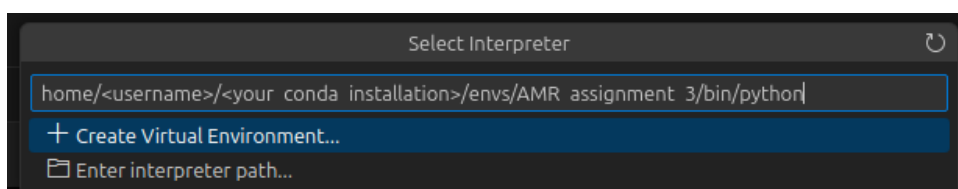
```
"home/<username>/<your_conda_installation>/envs/AMR_assignment_3/bin/python"
```

```
nathan@nathan:~/assignment_3_2025$ conda activate AMR_assignment_3
(AMR_assignment_3) nathan@nathan:~/assignment_3_2025$ python
Python 3.11.11 | packaged by conda-forge | (main, Mar  3 2025, 20:43:55) [GCC 13.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import sys
>>> print(sys.executable)
/home/nathan/anaconda3/envs/AMR_assignment_3/bin/python
>>> 
```

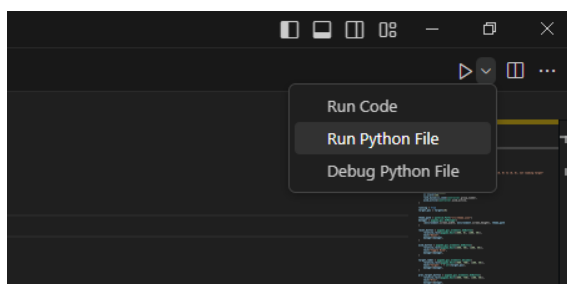
9. Go back to the Visual Studio Code window and click on “Select Interpreter”, you will be presented with the following options:



Click on “Enter interpreter Path” and copy and paste the path you found in the previous step in the text box which appears and press enter:



10. When the file “run.py” is selected, to run the program click the dropdown arrow next to the triangular play button in the top right corner and select “Run python file” to run the simulation:



11. Once you have completed the Visual Studio code setup instructions, you will only need to use step 10 to launch the simulation in future, Terminal is no longer needed. Visual Studio Code will retain the same configuration every time it is opened.