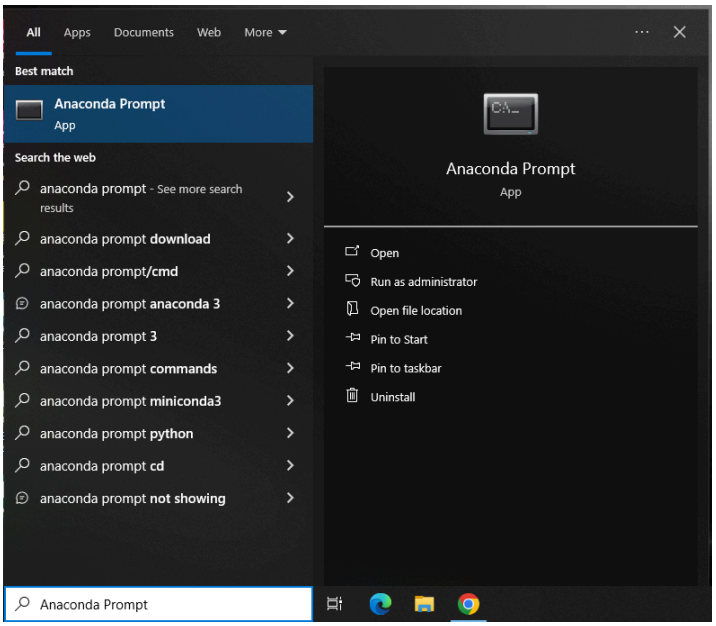
Assignment 3 Installation Instructions (Windows)

The following Instructions have been tested and found to work on cluster computers in Engineering Building A and George Begg, however Anaconda may not be installed on university computers in other buildings. If you are using your own computer you can install Anaconda from here: https://docs.anaconda.com/free/anaconda/install/index.html.

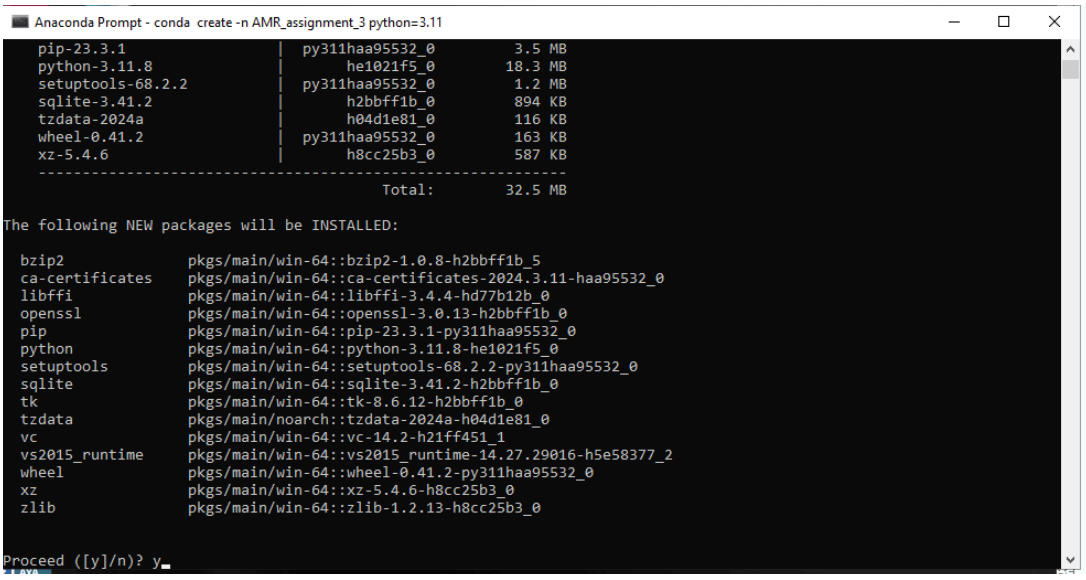
1. Launch Anaconda Prompt from the start menu



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:



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. On University cluster computers, by default Anaconda Prompt will be in the C drive so use the following command to change to the P drive where your documents are stored:

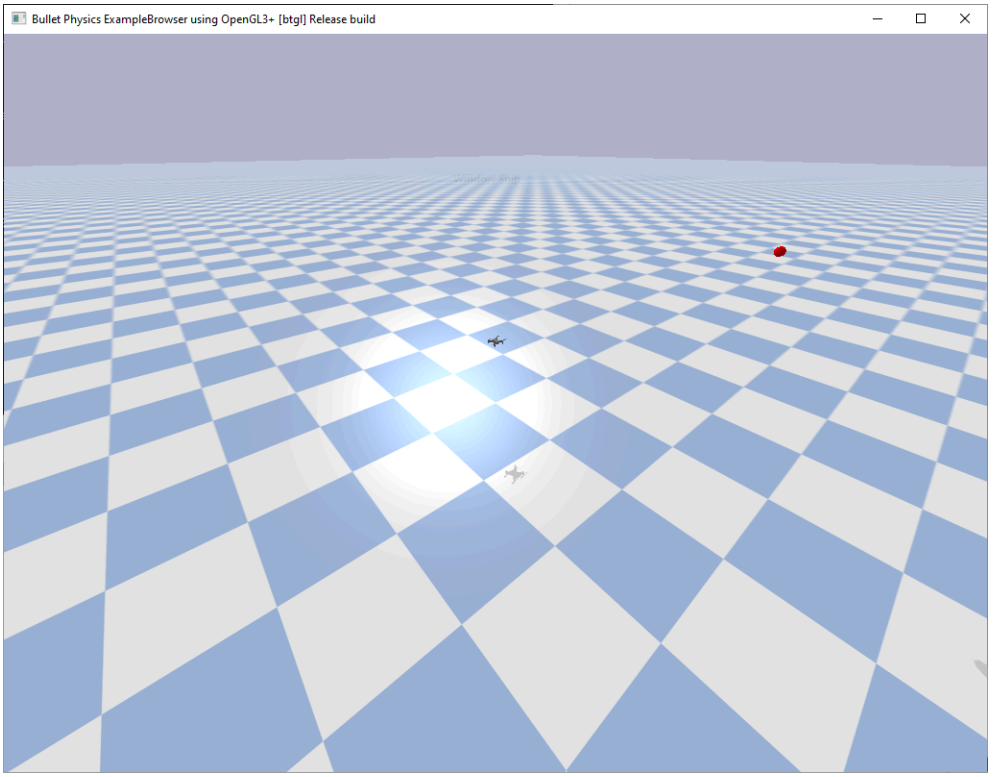
```
cd /d P:\<path to assignment_3 directory>
```

Where <path to assignment_3 directory> is where you have saved the assignment, for example \Documents\AMR\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:



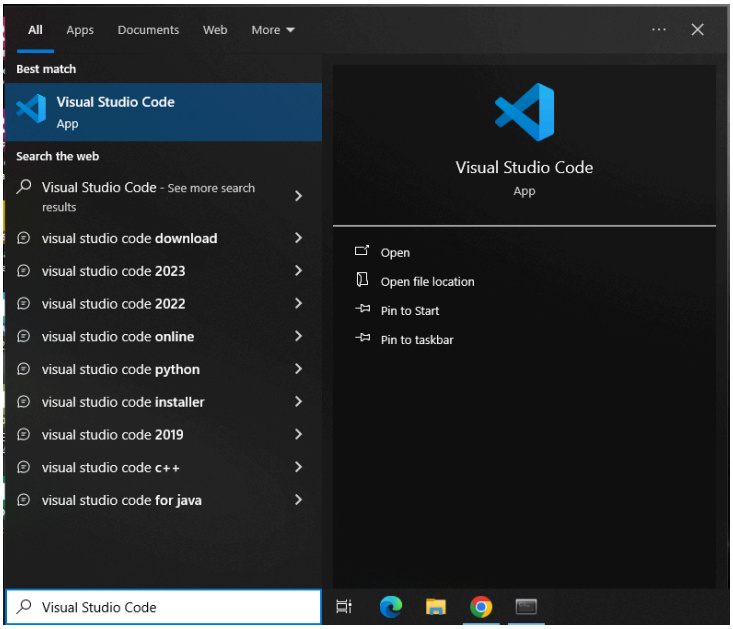
You can now edit controller.py using a text editor of your choice such as Visual Studio Code, you do not need to relaunch the simulation when you make changes, your code will be reloaded every time you press r on the keyboard.

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.

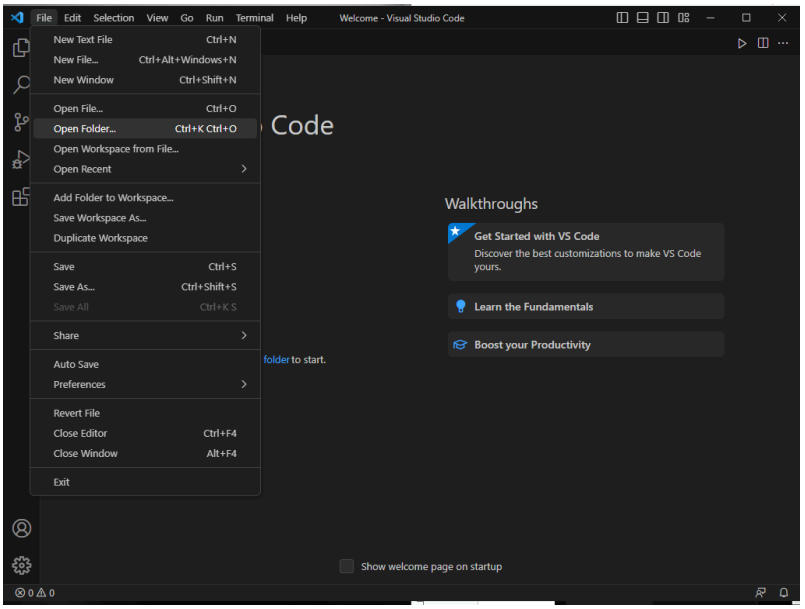
Optional Instructions to set up Visual Studio Code

University cluster computers in Engineering Building A and George Begg will have Visual Studio Code installed. If you are using your own computer Visual Studio code can be installed from https://code.visualstudio.com/download.

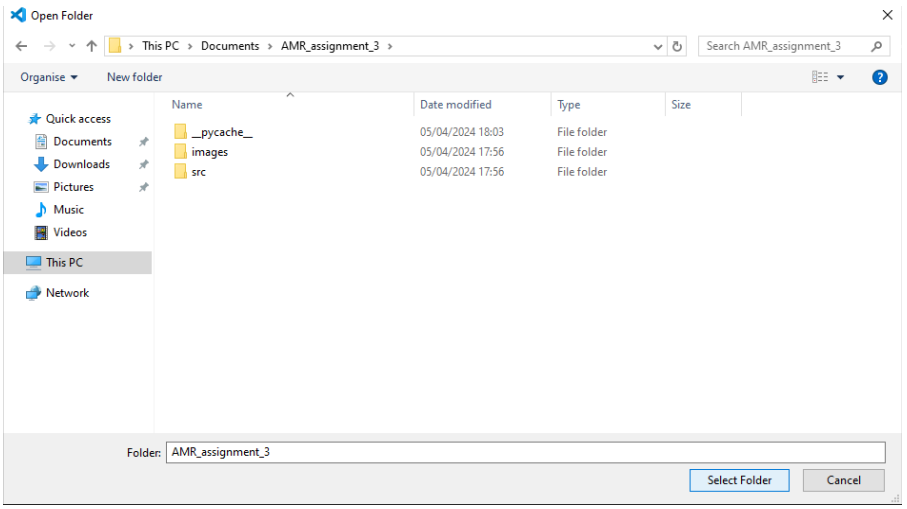
1. Launch Visual Studio code from the start menu:



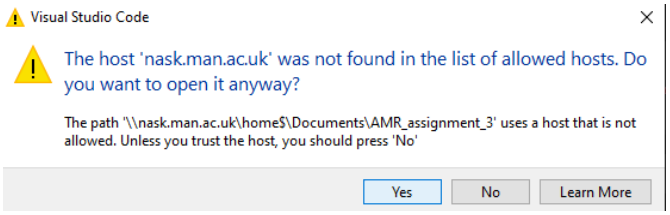
2. Click on file and then open folder:



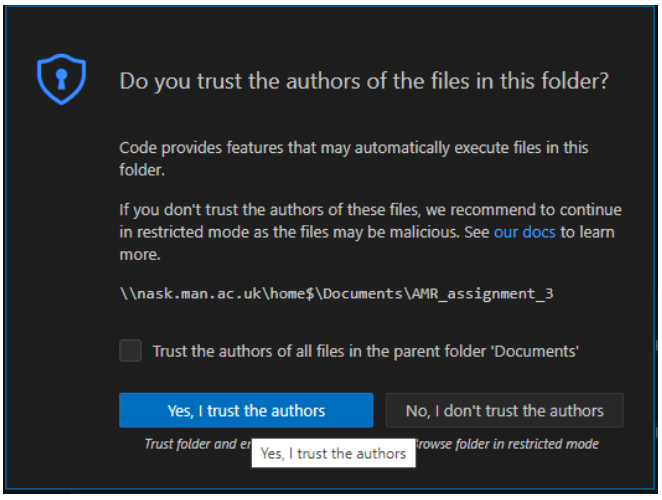
3. Navigate to the assignment 3 folder and click select folder:



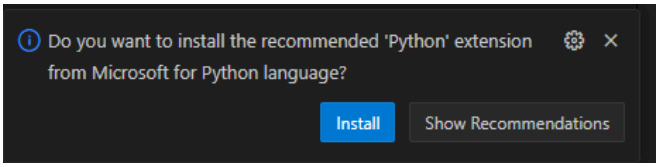
4. If you are greeted with the following dialog, select yes to allow the folder to be opened:



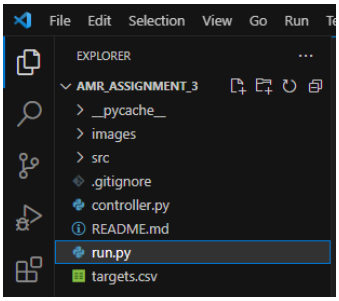
5. You will be asked if you trust the authors of this folder, select “Yes, I trust the authors”:



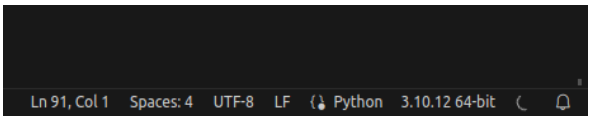
6. If you have not used Visual Studio Code for Python programming before you will be asked if you want to install the Python extension, click install:

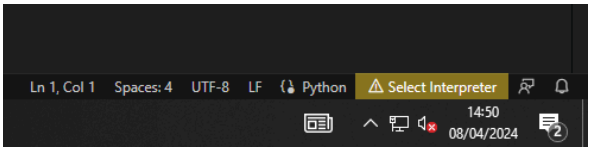


7. Once the extension is installed, navigate back to the files tab on the left of the screen and click on “run.py”:



8. 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:



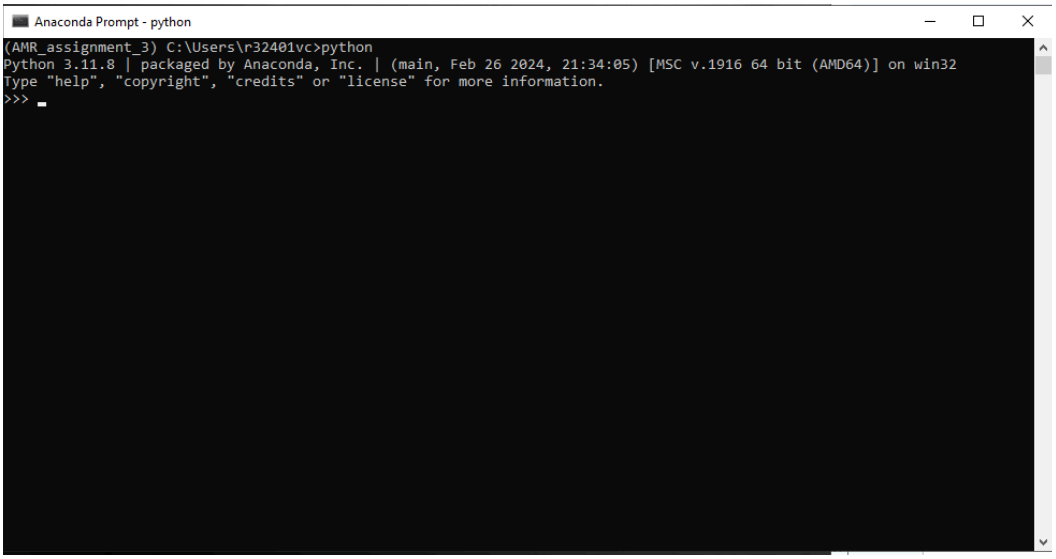


If an interpreter is shown, click on this and it will bring up a list of interpreters, select the one with the label "('AMR_assignment_3')", this is the conda environment you created in step 2 of the installation instructions. You can now continue to step 11.

9. 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 Anaconda Prompt and make sure the environment is activated then enter the following command:

```
python
```

This will launch an interactive python session:

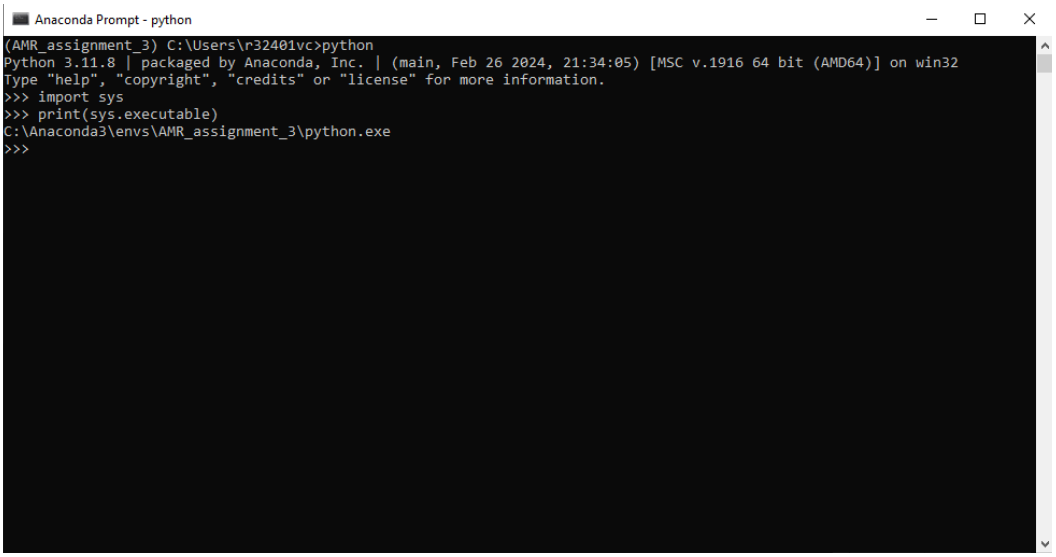


Type the following two commands into the python shell:

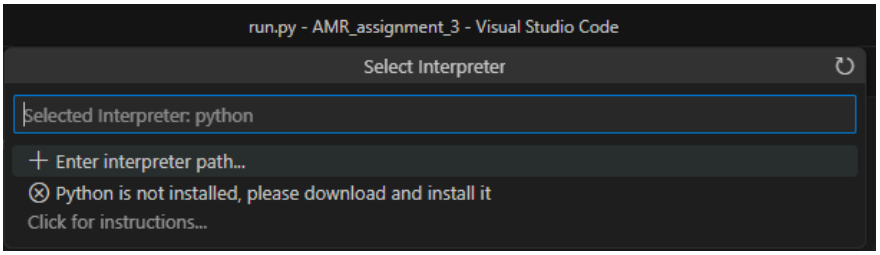
```
import sys
```

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

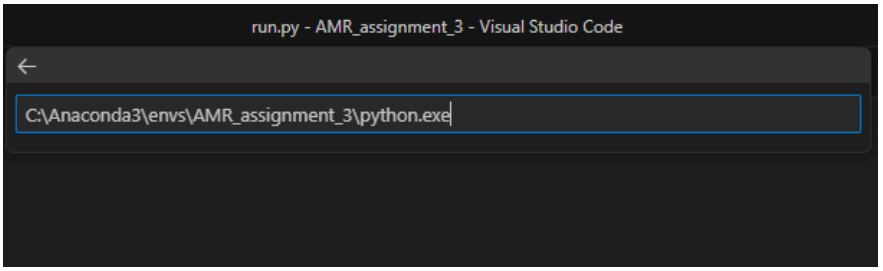
This will print out the location of the python interpreter, in this case “C:\Anaconda3\envs\AMR_assignment_3\python.exe”:



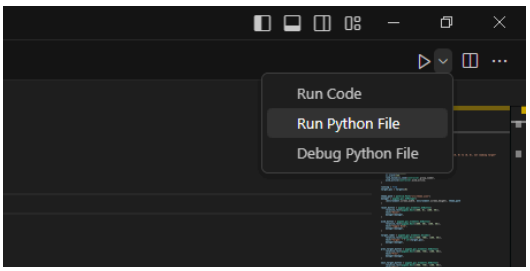
10. Go back to the Visual Studio Code window and click on “Select Interpreter”, you will be presented with the following options:



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:



11. 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:



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