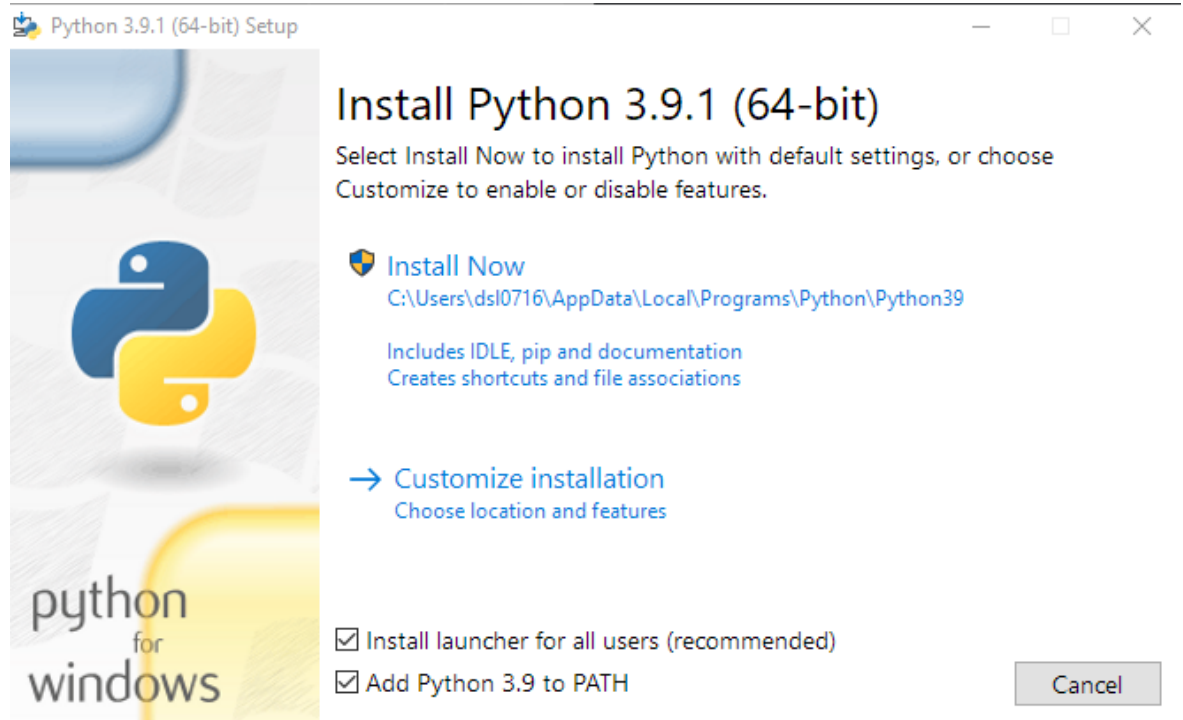


Below are instructions for installing python and gitbash. You can use command prompt (cmd) as well and there are instructions for that, but since I am on a Mac, gitbash will allow for everyone to use the same commands. If I only include one set of instructions, they should work for gitbash and cmd. All commands You need to run are highlighted, and anywhere you see <something> that means you need to replace it with the thing described between the <> and remove the <>.

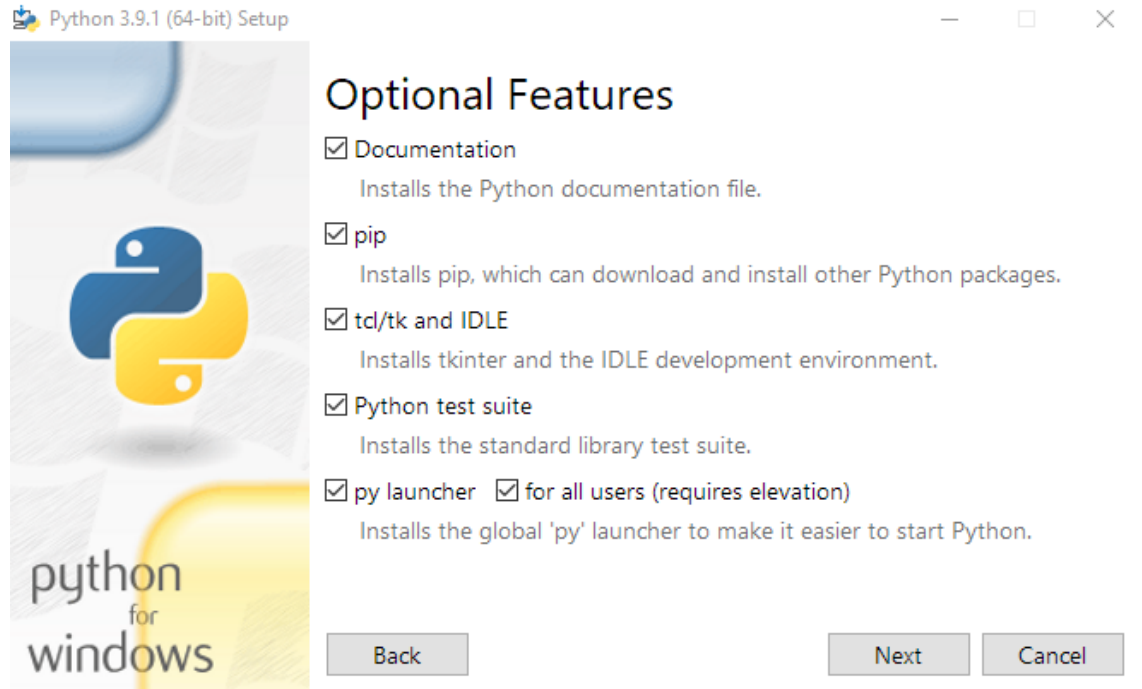
1. Install gitbash: <https://git-scm.com/downloads>

Installing Python

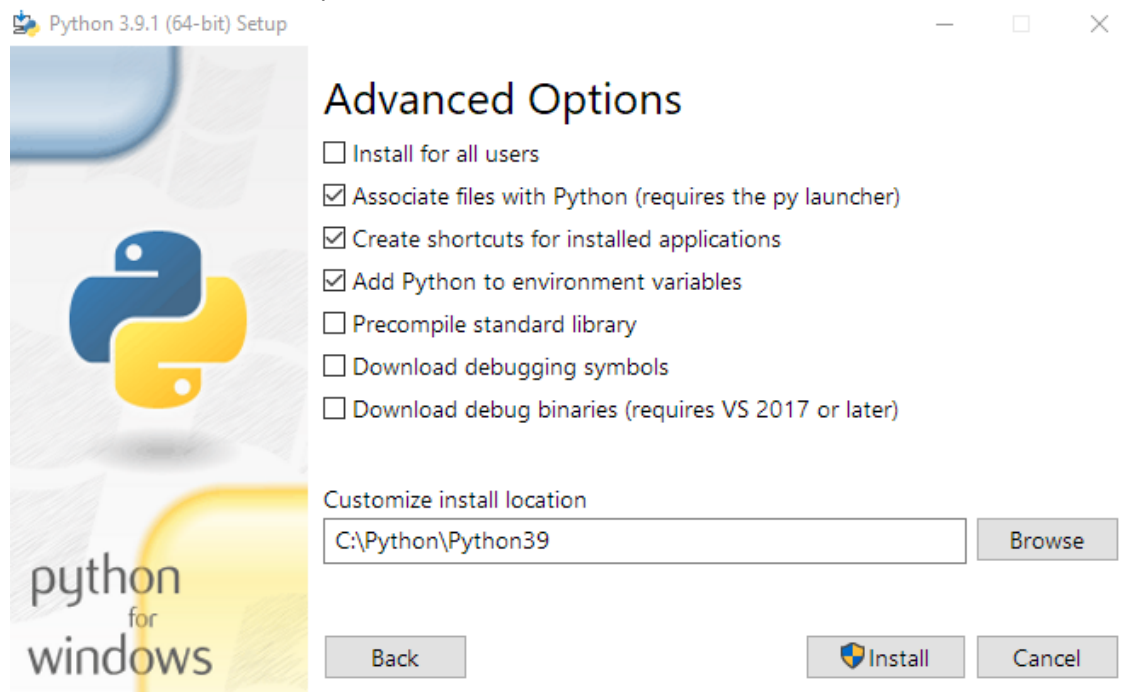
1. Download Python
 - a. All versions of Python can be found here: <https://www.python.org/downloads/>
 - b. Make sure to choose the correct executable (x86-64 = 64 bit)
 - c. DO NOT install the latest version of python. It is always best to use a bit older one because it takes the maintainers of libraries time to make them compatible with the latest versions. I would not select higher than python 3.10
2. Run the installer
 - a. Right-click on the installer and click Run as administrator
 - b. Select Add Python to PATH



- c.
- d. Click Customize installation



- e.
- f. Install to C: drive or Program Files or Program Data
- g. Make sure to check Add Python to environment variables



- h.
- 3. Validate install
 - a. Open command prompt (cmd) or git bash and type **python**

```
Command Prompt - python
Microsoft Windows [Version 10.0.18363.1316]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\ds10716>python
Python 3.9.1 (tags/v3.9.1:1e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927
64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information
>>> print("Hello World")
Hello World
>>> 3+4
7
>>>
```

b.

4. Upgrade pip and Install jupyter notebooks

- a. Upgrade pip by typing `python -m pip install -U pip`

```
Command Prompt

C:\Users\ds10716>python -m pip --version
pip 20.2.3 from C:\Python\Python39\lib\site-packages\pip (python 3.9)

C:\Users\ds10716>python -m pip install -U pip
Collecting pip
  Downloading pip-21.0-py3-none-any.whl (1.5 MB)
    | 1.5 MB 3.2 MB/s
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 20.2.3
    Uninstalling pip-20.2.3:
      Successfully uninstalled pip-20.2.3
Successfully installed pip-21.0

C:\Users\ds10716>
```

b.

- c. Type `pip install notebook`

```
Command Prompt

(du_install) C:\Users\dsl0716>pip install notebook
Collecting notebook
  Downloading notebook-6.2.0-py3-none-any.whl (9.5 MB)
    | 9.5 MB 3.3 MB/s
Collecting jupyter-client>=5.3.4
  Downloading jupyter_client-6.1.11-py3-none-any.whl (108 kB)
    | 108 kB 3.3 MB/s
Collecting jupyter-core>=4.6.1
  Using cached jupyter_core-4.7.0-py3-none-any.whl (82 kB)
Collecting python-dateutil>=2.1
  Using cached python_dateutil-2.8.1-py2.py3-none-any.whl (227 kB)
Collecting pywin32>=1.0
  Using cached pywin32-300-cp39-cp39-win_amd64.whl (9.2 MB)
Collecting pyzmq>=17
  Downloading pyzmq-21.0.1-cp39-cp39-win_amd64.whl (1.1 MB)
    | 1.1 MB 3.3 MB/s
Collecting Send2Trash>=1.5.0
  Using cached Send2Trash-1.5.0-py3-none-any.whl (12 kB)
Collecting six>=1.5
  Using cached six-1.15.0-py2.py3-none-any.whl (10 kB)
Collecting terminado>=0.8.3
```

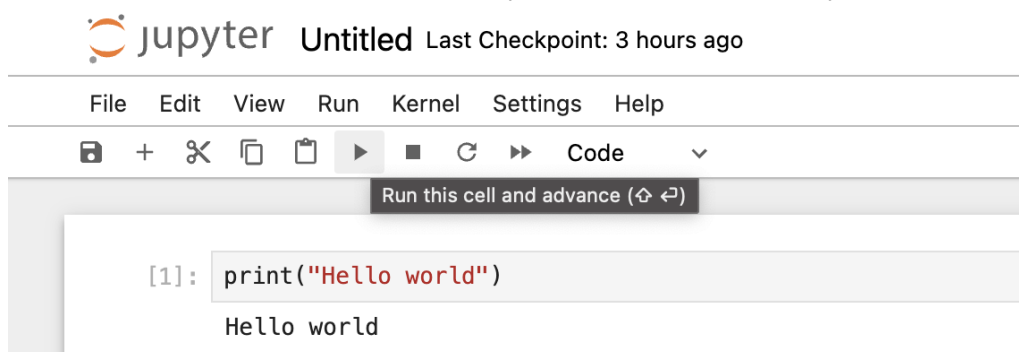
- d.
- e. Launch notebook by typing `jupyter notebook`

```
Command Prompt - jupyter notebook

(du_install) C:\Users\dsl0716>jupyter notebook
[W 22:57:15.268 NotebookApp] Terminals not available (error was No module named 'winpty.cython')
[I 22:57:15.490 NotebookApp] Serving notebooks from local directory:
C:\Users\dsl0716
[I 22:57:15.491 NotebookApp] Jupyter Notebook 6.2.0 is running at:
[I 22:57:15.492 NotebookApp] http://localhost:8888/?token=35e74d021c7672fb0b21560e5a112d18138f2a4b3486dde0
[I 22:57:15.492 NotebookApp] or http://127.0.0.1:8888/?token=35e74d021c7672fb0b21560e5a112d18138f2a4b3486dde0
[I 22:57:15.492 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 22:57:15.651 NotebookApp]

To access the notebook, open this file in a browser:
file:///C:/Users/dsl0716/AppData/Roaming/jupyter/runtime/nbserver-26832-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=35e74d021c7672fb0b21560e5a112d18138f2a4b3486dde0
or http://127.0.0.1:8888/?token=35e74d021c7672fb0b21560e5a112d18138f2a4b3486dde0
```

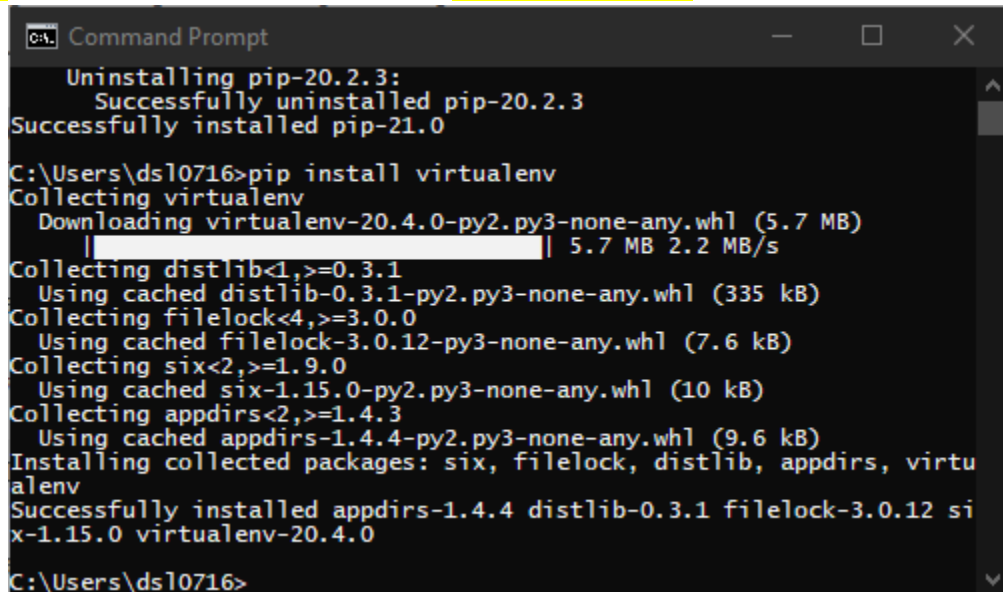
- f.
- g. You should now have a notebook that you can write code in! Try the below:



- 5. Create virtual environment

- a. Virtualenv is a tool to create isolated Python environments. Virtualenv creates a folder which contains all the necessary executables to use the packages that a Python project would need. It is helpful as you get more advanced and are using libraries on your machine where the versions might conflict with each other.

- b. In command prompt or git bash type `pip install virtualenv`



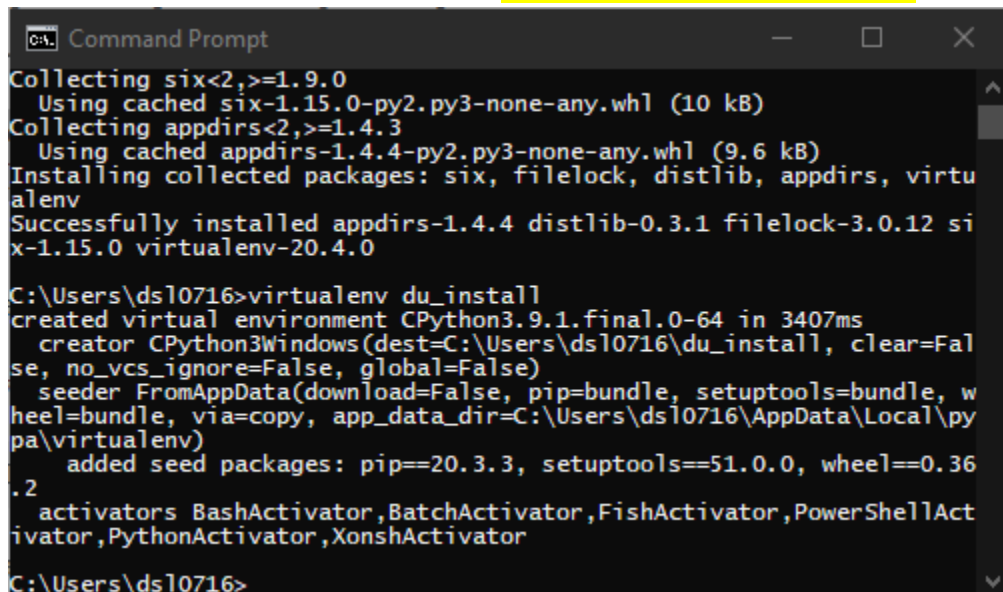
```
C:\> Command Prompt

Uninstalling pip-20.2.3:
  Successfully uninstalled pip-20.2.3
Successfully installed pip-21.0

C:\Users\ds10716>pip install virtualenv
Collecting virtualenv
  Downloading virtualenv-20.4.0-py2.py3-none-any.whl (5.7 MB)
    | 5.7 MB 2.2 MB/s
Collecting distlib<1,>=0.3.1
  Using cached distlib-0.3.1-py2.py3-none-any.whl (335 kB)
Collecting filelock<4,>=3.0.0
  Using cached filelock-3.0.12-py3-none-any.whl (7.6 kB)
Collecting six<2,>=1.9.0
  Using cached six-1.15.0-py2.py3-none-any.whl (10 kB)
Collecting appdirs<2,>=1.4.3
  Using cached appdirs-1.4.4-py2.py3-none-any.whl (9.6 kB)
Installing collected packages: six, filelock, distlib, appdirs, virtu
alenv
Successfully installed appdirs-1.4.4 distlib-0.3.1 filelock-3.0.12 si
x-1.15.0 virtualenv-20.4.0

C:\Users\ds10716>
```

- c. `C:\Users\ds10716>`
- d. Navigate to wherever you would like to install this environment in command prompt
- e. Create the virtual environment by typing `virtualenv <name of environment>`



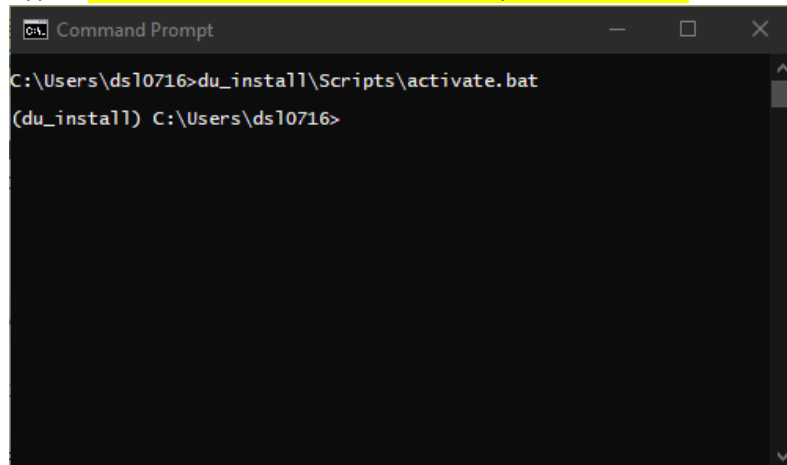
```
C:\Users\ds10716> virtualenv du_install
Collecting six<2,>=1.9.0
  Using cached six-1.15.0-py2.py3-none-any.whl (10 kB)
Collecting appdirs<2,>=1.4.3
  Using cached appdirs-1.4.4-py2.py3-none-any.whl (9.6 kB)
Installing collected packages: six, filelock, distlib, appdirs, virtu
alenv
Successfully installed appdirs-1.4.4 distlib-0.3.1 filelock-3.0.12 si
x-1.15.0 virtualenv-20.4.0

C:\Users\ds10716>virtualenv du_install
created virtual environment CPython3.9.1.final.0-64 in 3407ms
  creator CPython3Windows(dest=C:\Users\ds10716\du_install, clear=Fal
se, no_vcs_ignore=False, global=False)
  seeder FromAppData(download=False, pip=bundle, setuptools=bundle, w
heel=bundle, via=copy, app_data_dir=C:\Users\ds10716\AppData\Local\py
pa\virtualenv)
  added seed packages: pip==20.3.3, setuptools==51.0.0, wheel==0.36
.2
  activators BashActivator,BatchActivator,FishActivator,PowerShellAct
ivator,PythonActivator,XonshActivator

C:\Users\ds10716>
```

- f. `C:\Users\ds10716>`
- g. Activate the environment
- i. Command Prompt:

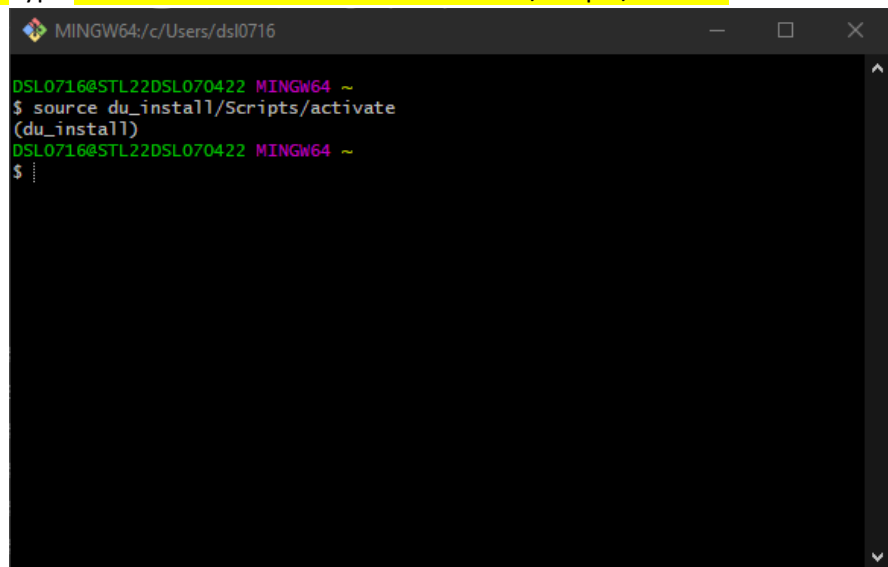
1. Type <name of virtual environment>\Scripts\activate.bat



```
Command Prompt
C:\Users\ds10716>du_install\Scripts\activate.bat
(du_install) C:\Users\ds10716>
```

ii. Git Bash

1. Type source <name of virtual environment>/Scripts/activate



```
MINGW64/c/Users/dsl0716
DSL0716@STL22DSL070422 MINGW64 ~
$ source du_install/Scripts/activate
(du_install)
DSL0716@STL22DSL070422 MINGW64 ~
$
```

- 2.

Optional (but helpful) installs:

- [VS Code](#) - I use VS code most of the time at work. It may be more difficult to set up jupyter notebooks to work correctly within VS Code in the beginning, but it is commonly what professional engineers/developers use. <https://code.visualstudio.com/>