

Installation Guide

- 1) We recommend Python 3. Install Python 3 latest version
 - a. Python 3 Installation on Windows
 - i. Open your web browser and navigate to the Downloads for Windows section of the official Python website (<https://www.python.org/>)
 - ii. Go to download section(<https://www.python.org/downloads/>), scroll your mouse to down and Select the python version: 3.7.4 (I use this). However, you can select the latest version also 3.9.0

Looking for a specific release?

Python releases by version number:

Release version	Release date		Click for more
Python 3.5.8	Oct. 29, 2019	Download	Release Notes
Python 2.7.17	Oct. 19, 2019	Download	Release Notes
Python 3.7.5	Oct. 15, 2019	Download	Release Notes
Python 3.8.0	Oct. 14, 2019	Download	Release Notes
Python 3.7.4	July 8, 2019	Download	Release Notes
Python 3.6.9	July 2, 2019	Download	Release Notes
Python 3.7.3	March 25, 2019	Download	Release Notes
Python 3.4.10	March 18, 2019	Download	Release Notes

[View older releases](#)

- iii. Select a link to download the **Windows x86-64 executable installer**

Files

Version	Operating System	Description	MD5 Sum	File Size	G
Zipped source tarball	Source release		68111671e5b2db4aef7b9ab01bf0f9be	23017663	S
XZ compressed source tarball	Source release		d33e4aa66097051c2eca45ee3604803	17131432	S
macOS 64-bit/32-bit installer	Mac OS X	for Mac OS X 10.6 and later	6428b4fa7583daff1a442cba8cee08e6	34898416	S
macOS 64-bit installer	Mac OS X	for OS X 10.9 and later	5dd605c38217a45773bf5e4a936b241f	28082845	S
Windows help file	Windows		d63999573a2c06b2ac56cade6b4f7cd2	8131761	S
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64	9b00c8cf6d9ec0b9abe83184a40729a2	7504391	S
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64	a702b4b0ad76debd3043a583e563400	26680368	S
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64	28cb1c608bbd73ae8e53a3bd351b4bd2	1362904	S
Windows x86 embeddable zip file	Windows		9fab3b81f8841879fda94133574139d8	6741626	S
Windows x86 executable installer	Windows		33cc602942a54446a3d6451476394789	25663848	S
Windows x86 web-based installer	Windows		1b670cfa5d317df82c30983ea371d87c	1324608	S



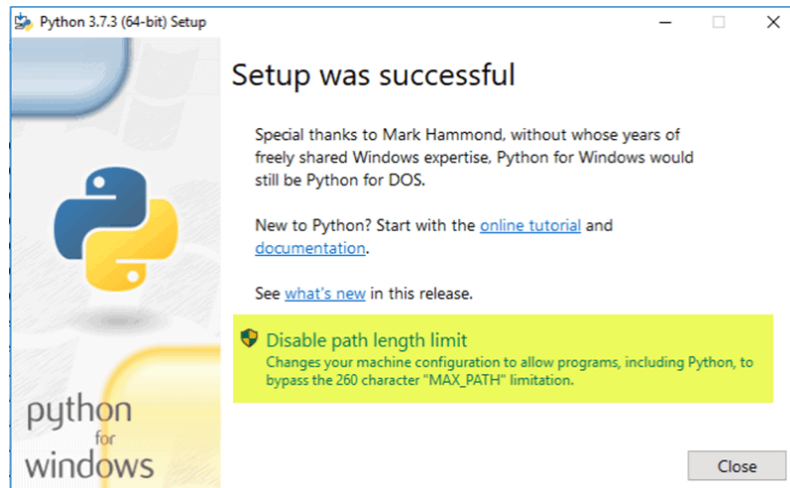
python-3.7.4-amd64.exe



- iv. Run the Python Installer once downloaded. (In this example, we have downloaded Python 3.7.4.)
- v. Make sure you select the Install launcher for all users and Add Python 3.7 to PATH checkboxes. The latter places the interpreter in the execution path
- vi. Select Install Now – the recommended installation options.



- vii. The next dialog will prompt you to select whether to Disable path length limit. Choosing this option will allow Python to bypass the 260-character MAX_PATH limit. Effectively, it will enable Python to use long path names. The Disable path length limit option will not affect any other system settings



- viii. Verify Python Was Installed On Windows. Open cmd prompt
 ix. Type python in cmd
 x. You will see the below output

```
C:\Users\User>python
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul 8 2019, 19:29:22) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
```

- xi. Terminate the python. TO terminate write quit() in cmd

```
>>> quit()
```

- xii. Check python version by write in cmd **python --version**

```
C:\Users\User>python --version
Python 3.7.4
```

- xiii. Now you have to install Pip. Pip is a package management system used to install and manage software packages written in Python. It stands for “preferred installer program” or “Pip Installs Packages.”
 xiv. PIP for Python is a utility to manage PyPI package installations from the command line.
 xv. Before you install PIP on Windows, check if PIP is already installed.

Type in the following command at the command prompt:

```
pip help
```

xvi. If PIP responds, then PIP is installed. Otherwise, there will be an error saying the program could not be found.

xvii. installing PIP, write the below command.

```
curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
```

xviii. Then run the following command in the folder where you have downloaded `get-pip.py`:

```
python get-pip.py
```

xix. Verify pip installation by writing `pip -V`

```
C:\Users\User>pip -V
pip 20.2.4 from e:\software\python\lib\site-packages\pip (python 3.7)
```

xx. Install virtualenv (Optional)

```
Type pip install virtualenv in cmd
```

xxi. FINISH

2) Download and install Anaconda

- a. Go to <https://www.anaconda.com/products/individual>
- b. Click Download button in <https://www.anaconda.com/products/individual>

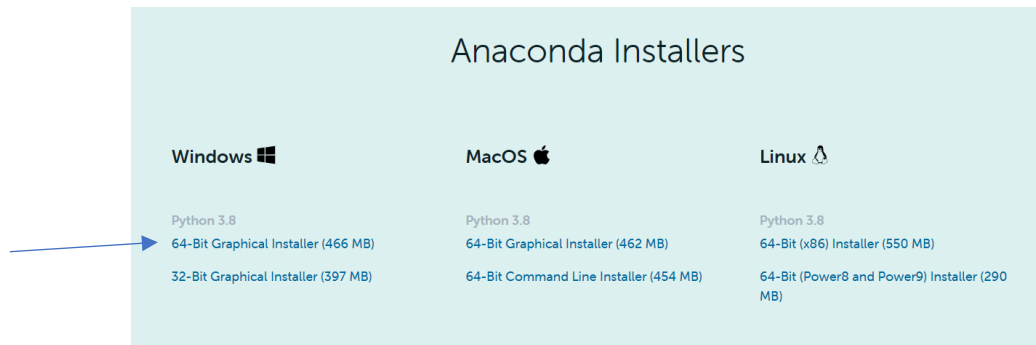
Individual Edition

Your data science toolkit

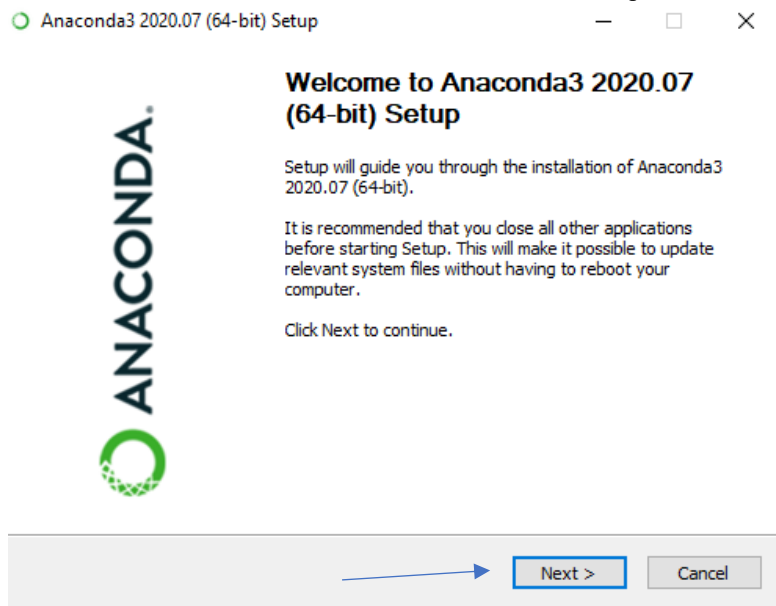
With over 20 million users worldwide, the open-source Individual Edition (Distribution) is the easiest way to perform Python/R data science and machine learning on a single machine. Developed for solo practitioners, it is the toolkit that equips you to work with thousands of open-source packages and libraries.

Download

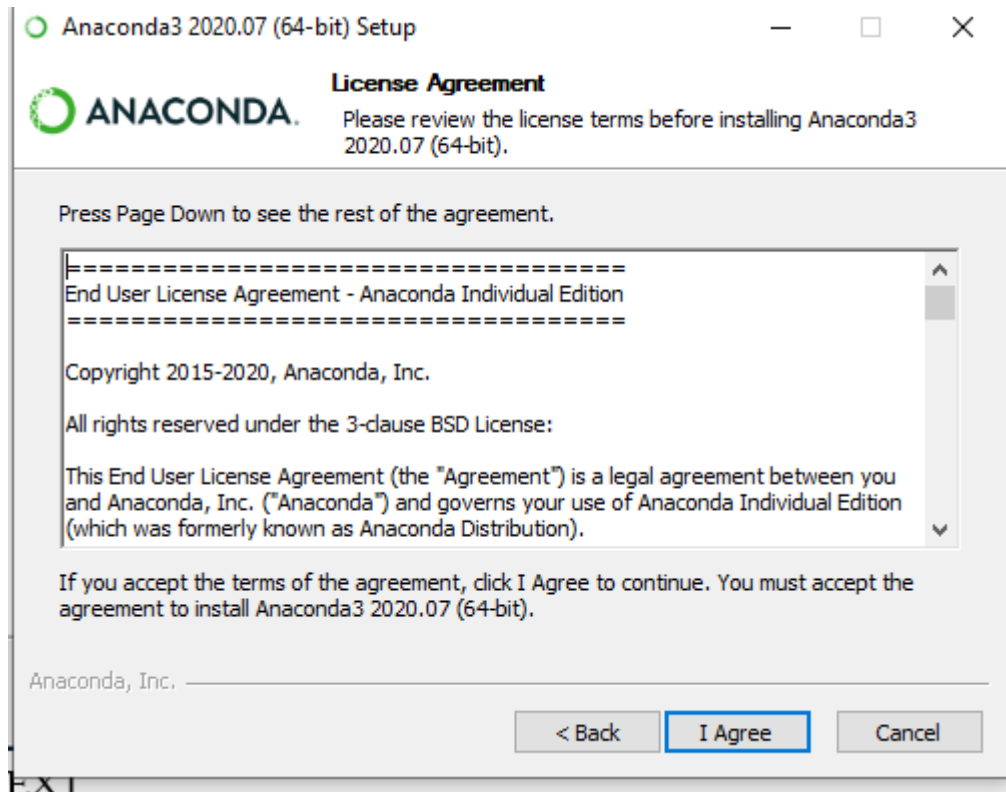




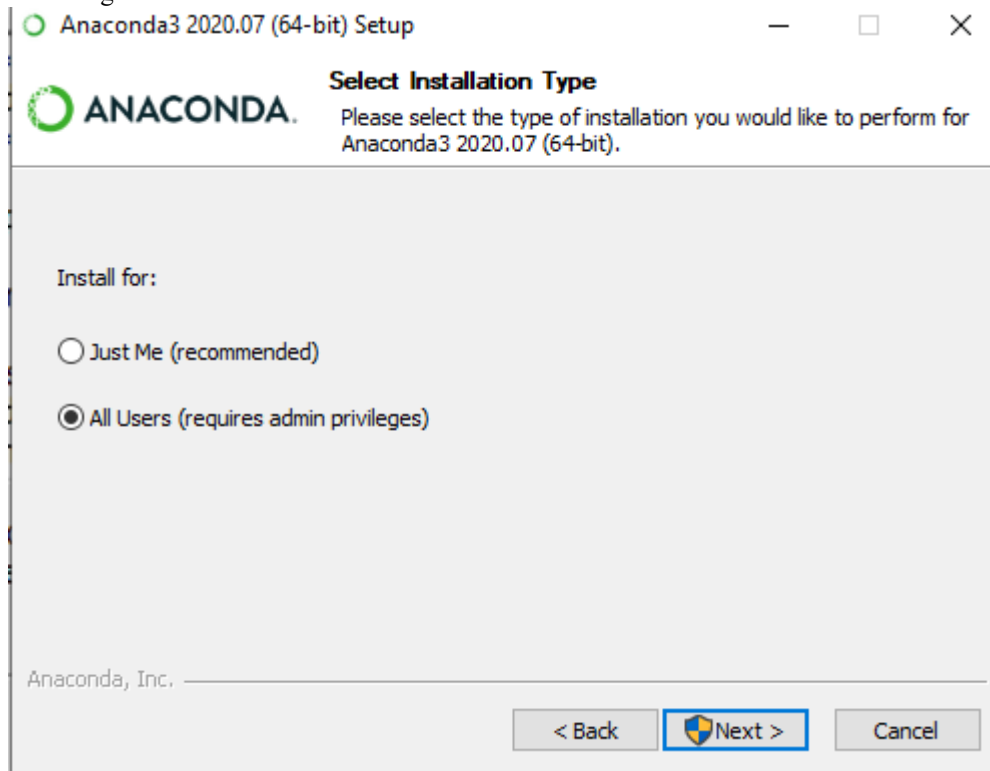
- c. Select installer for windows 64-bit and download this setup file. Click in the setup file



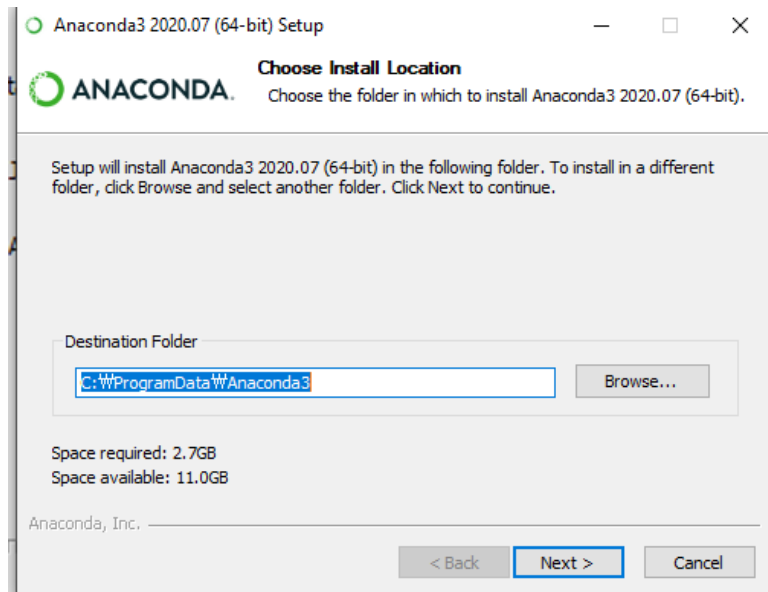
- d. Click NEXT



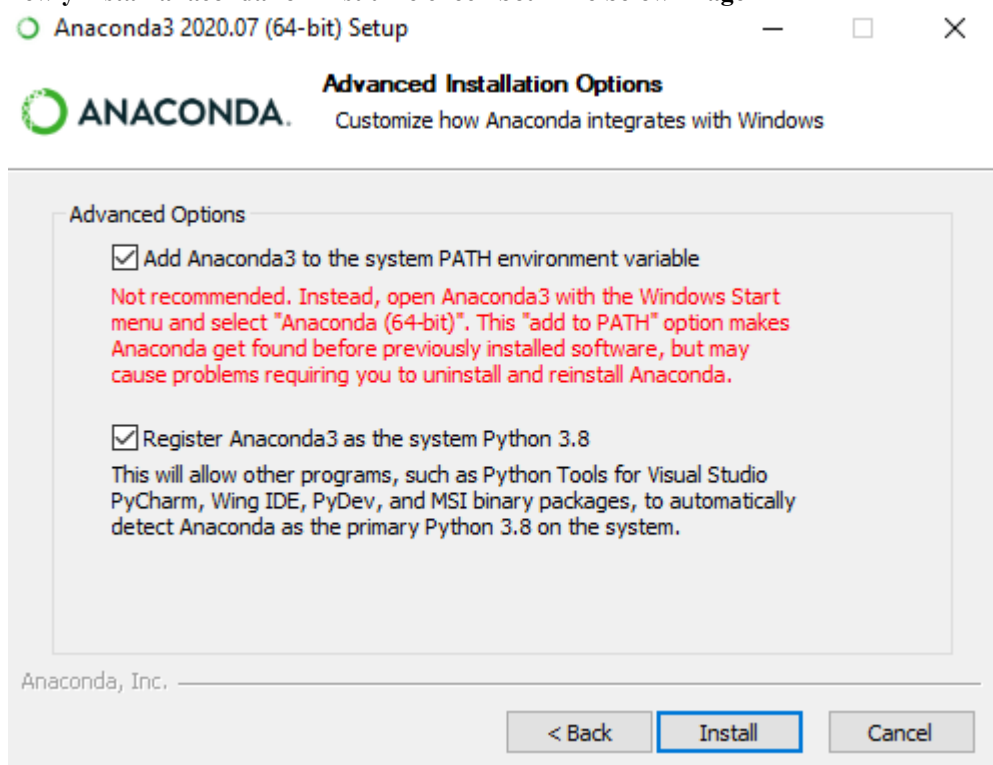
- e. Click I agree

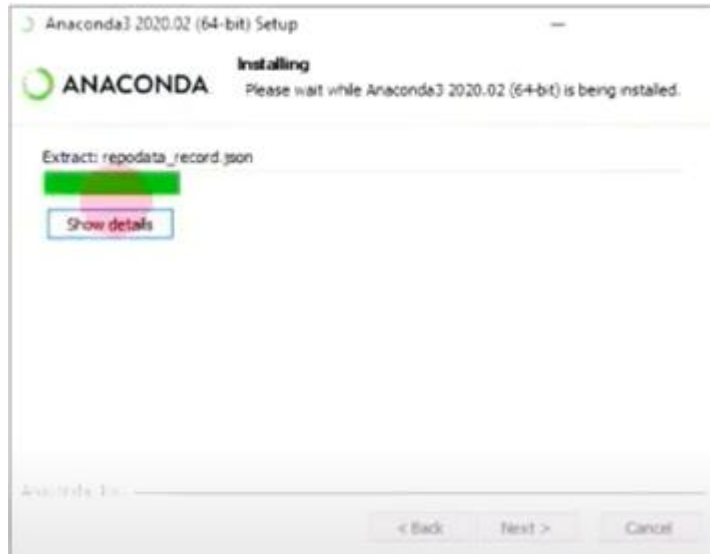


- f. Select All Users
g.

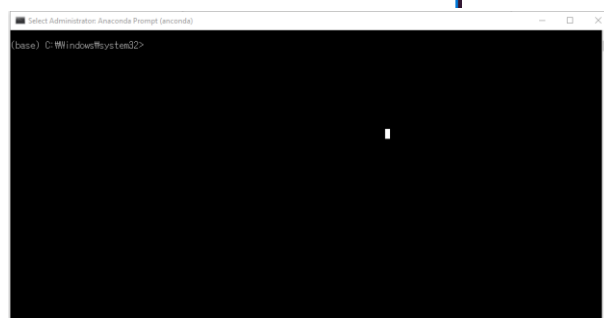
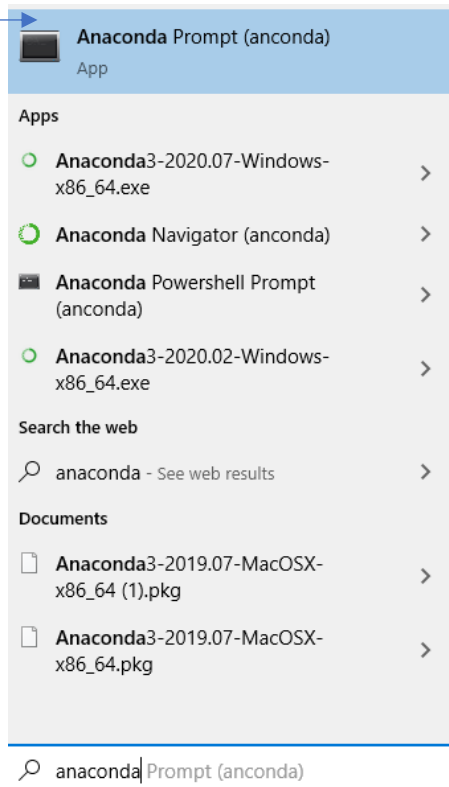


- h. Select your browser. It will take 2.7 GB
- i. **If you never install anaconda previously then do not select the first checkbox. If you are newly install anaconda for first time check both like below image**





- j. Start installation and wait until FINISH
- k. On Windows open the Start menu and open an **Anaconda Command Prompt as administrator**.



- l. Now install tensorflow in a new conda environment

- m. Type `conda create -n env_name tensorflow`. You can give any name instead of `env_name`. it takes some time to install tensorflow

```
(base) C:\Windows\system32>conda create -n env_name tensorflow
Collecting package metadata: |

tensorflow                pkgs/main/win-64::tensorflow-2.1.0-eigen_py37hd727fc0_0
tensorflow-base           pkgs/main/win-64::tensorflow-base-2.1.0-eigen_py37h49b2757_0
tensorflow-estimator      pkgs/main/noarch::tensorflow-estimator-2.1.0-pyhd54b08b_0
termcolor                 pkgs/main/win-64::termcolor-1.1.0-py37_1
urllib3                   pkgs/main/noarch::urllib3-1.25.11-py_0
vc                        pkgs/main/win-64::vc-14.1-h0510ff6_4
vs2015_runtime            pkgs/main/win-64::vs2015_runtime-14.16.27012-hf0eaf9b_3
werkzeug                  pkgs/main/noarch::werkzeug-0.16.1-py_0
wheel                     pkgs/main/noarch::wheel-0.35.1-pyhd3eb1b0_0
win_inet_pton             pkgs/main/win-64::win_inet_pton-1.1.0-py37haa95532_0
wincertstore              pkgs/main/win-64::wincertstore-0.2-py37_0
wrapt                     pkgs/main/win-64::wrapt-1.12.1-py37he774522_1
yarl                      pkgs/main/win-64::yarl-1.6.2-py37he774522_0
zipp                      pkgs/main/noarch::zipp-3.4.0-pyhd3eb1b0_0
zlib                      pkgs/main/win-64::zlib-1.2.11-h62dcd97_4
```

Proceed ([y]/n)? y

Downloading and Extracting Packages

numpy-base-1.19.2	4.8 MB	#####
pysocks-1.7.1	27 KB	#####
tensorflow-estimator	273 KB	#####
absl-py-0.11.0	170 KB	#####
cauthlib-3.1.0	88 KB	#####
requests-2.24.0	54 KB	#####
ca-certificates-2020	159 KB	#####
vs2015_runtime-14.16	2.4 MB	#####
protobuf-3.13.0.1	591 KB	#####

- n.
o. Type y. It start install all packages automatically.
p. After Finish you will see the below output

```
# To activate this environment, use
#
#     $ conda activate env_name
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) C:\Windows\system32>
```

- q. Activate your environment type: `conda activate env_name`.
r. To deactivate use: `conda deactivate` (when you finish work)
s. Install some necessary library
t. `conda install keras` (install keras)
u. `conda install gym` (install Gym)

v. `conda install -c conda-forge notebook`

- w. `python -m pip install -U matplotlib`
- x. `python -m pip install --user numpy scipy matplotlib ipython jupyter pandas sympy nose`
- y. Now deactivate you environment
`conda deactivate`
- z. Then close anaconda prompt
- aa. Open again the anaconda prompt as administrator from start menu
- bb. Activate your environment: `conda activate my_env`
- cc. Choose any directory your want to run code
- dd. To go another directory type your drive name like below

```
(base) C:\Windows\system32>conda activate env_name  
(env_name) C:\Windows\system32>E:  
(env_name) E:\>
```

ee.

ff. Create a new folder here: `mkdir folder_name`

gg.

```
(env_name) E:\>mkdir beam_forming
```

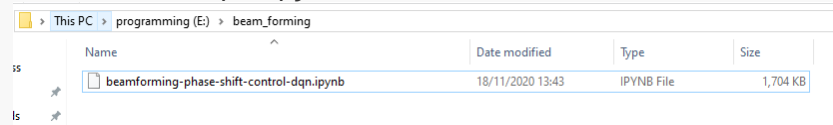
 (beam-forming is my folder name)

hh. Go to the created folder
`cd beam_forming`

```
(env_name) E:\>cd beam_forming  
(env_name) E:\beam_forming>
```

ii.

- jj. Now copy paste the new code file here (beamforming-phase-shift-control-dqn.ipynb)



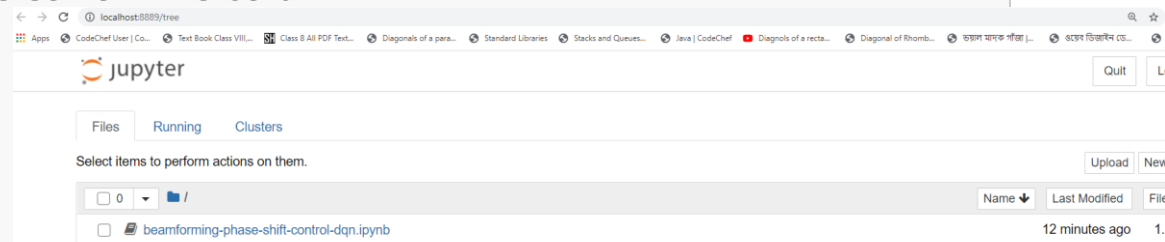
kk.

- ll. Open jupyter notebook
type : jupyter notebook

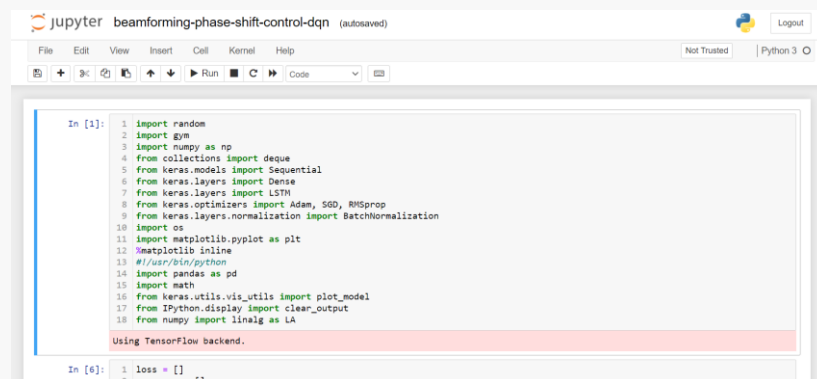
```
(env_name) E:\beam_forming>jupyter notebook
[13:53:40.663 NotebookApp] The port 8888 is already in use, trying another port.
[13:53:40.665 NotebookApp] Serving notebooks from local directory: E:\beam_forming
[13:53:40.665 NotebookApp] Jupyter Notebook 6.1.5 is running at:
[13:53:40.665 NotebookApp] http://localhost:8889/?token=d305724e780ea40d2b2454a82ef6f01bd3d7a597ab0ccb6d
[13:53:40.665 NotebookApp] or http://127.0.0.1:8889/?token=d305724e780ea40d2b2454a82ef6f01bd3d7a597ab0ccb6d
[13:53:40.666 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 13:53:40.731 NotebookApp]

To access the notebook, open this file in a browser:
file:///C:/Users/User/AppData/Roaming/jupyter/runtime/nbserver-4060-open.html
Or copy and paste one of these URLs:
http://localhost:8889/?token=d305724e780ea40d2b2454a82ef6f01bd3d7a597ab0ccb6d
or http://127.0.0.1:8889/?token=d305724e780ea40d2b2454a82ef6f01bd3d7a597ab0ccb6d
```

- mm. A local server will open in your browser. You will see the server like below



- nn. Open the file beamforming-phase-shift-control-dqn.ipynb.
oo. You will see the code like below



Now Run the code.
FINISH..

Reference:

- 1) <https://www.tensorflow.org/>
- 2) <https://www.anaconda.com/>
- 3) <https://www.python.org/>
- 4) <https://keras.io/>