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디필드 / HOW TO or WHY



공유

...

# 윈도우즈10에 Anaconda, Jupyter, Tensorflow 설치, VSCode, Jupyter 연동



dohyoung rim(0)가 만들

조금 전에 마지막 업데이트됨 • 🔍 페이지를 조회한 사람 2명

Anacoda는 Python과 기타 중요 라이브러리에 대한 통합 환경이다.

Anaconda를 설치하면 개별적으로 python, jupyter 설치를 하지 않아도 된다.

## 전제

python, jupyter는 설치 되어 있지 않아도 된다.

VSCode와 연동을 위해서는 VSCode가 설치되어 있어야 한다.

## 설치 시나리오

Anaconda를 설치하고

가상환경 my\_env를 생성하고

가상환경 my\_env 안에서 tensorflow를 설치.

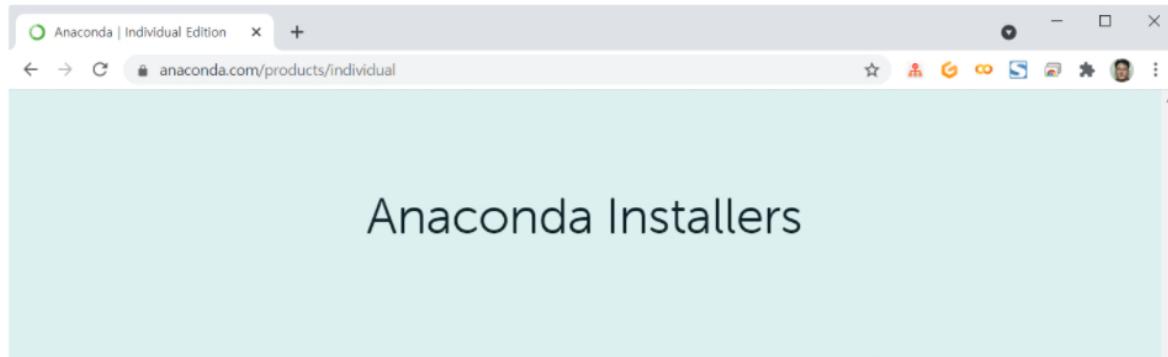
VSCode에서 my\_env를 연동하고 tensorflow 로딩 확인

jupyter에서 가상환경을 사용하기 위해 jupyter 커널에 my\_env를 등록

jupyter에서 my\_env에 연동하여 노트북 생성하고 tensorflow 로딩 확인

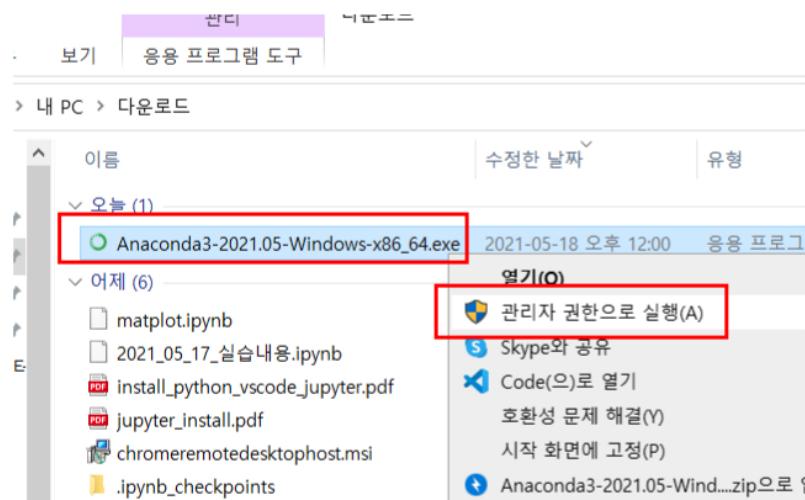
## Anaconda 설치

<https://www.anaconda.com/products/individual>에서 Windows 밑의 64-bit xxx Installer를 클릭.





다운로드 받은 Anaconda3-xxxx-Windows-x86\_64.exe에 우측클릭하고 '관리자 권한으로 실행'을 클릭.



'Next' 클릭.



'I Agree' 클릭.



## License Agreement

Please review the license terms before installing Anaconda3 2021.05 (64-bit).

Press Page Down to see the rest of the agreement.

=====  
End User License Agreement - Anaconda Individual Edition  
=====

Copyright 2015-2021, Anaconda, Inc.

All rights reserved under the 3-clause BSD License:

This End User License Agreement (the "Agreement") is a legal agreement between you and Anaconda, Inc. ("Anaconda") and governs your use of Anaconda Individual Edition (which was formerly known as Anaconda Distribution).

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Anaconda3 2021.05 (64-bit).

Anaconda, Inc. \_\_\_\_\_

< Back

I Agree

Cancel

'Next' 클릭.



## Select Installation Type

Please select the type of installation you would like to perform for Anaconda3 2021.05 (64-bit).

Install for:

Just Me (recommended)

All Users (requires admin privileges)

Anaconda, Inc. \_\_\_\_\_

< Back

Next >

Cancel

'Next' 클릭.



## Choose Install Location

Choose the folder in which to install Anaconda3 2021.05 (64-bit).

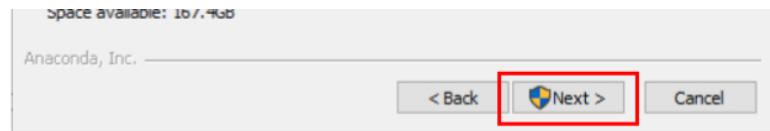
Setup will install Anaconda3 2021.05 (64-bit) in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

Destination Folder

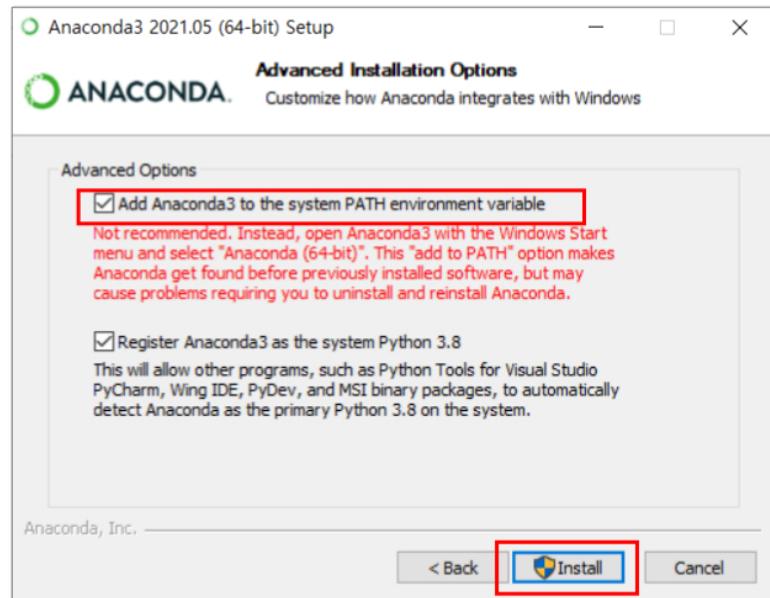
C:\ProgramData\Anaconda3

Browse...

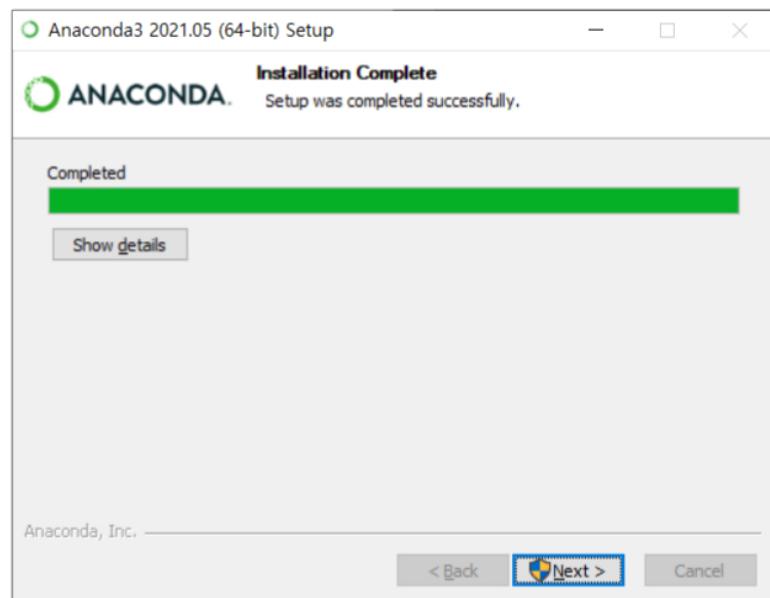
Space required: 2.9GB



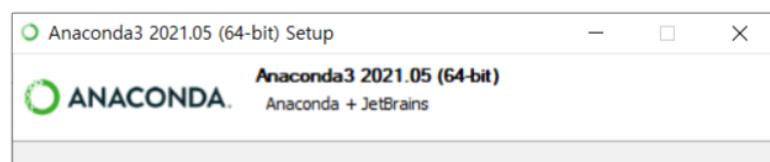
'Add Anaconda3 to the system PATH environment variable'을 체크하고 'Install' 클릭.

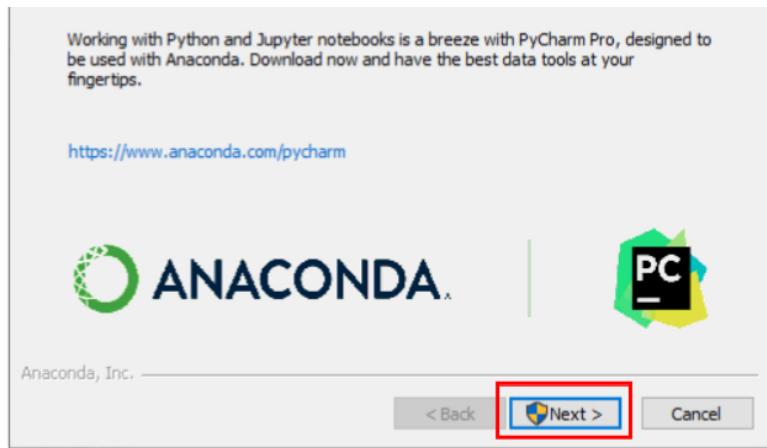


'Next' 클릭.

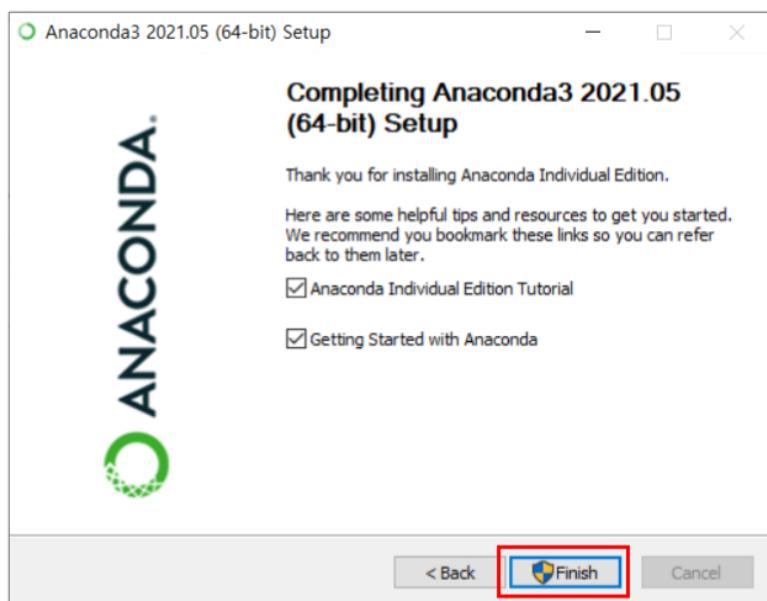


'Next' 클릭.



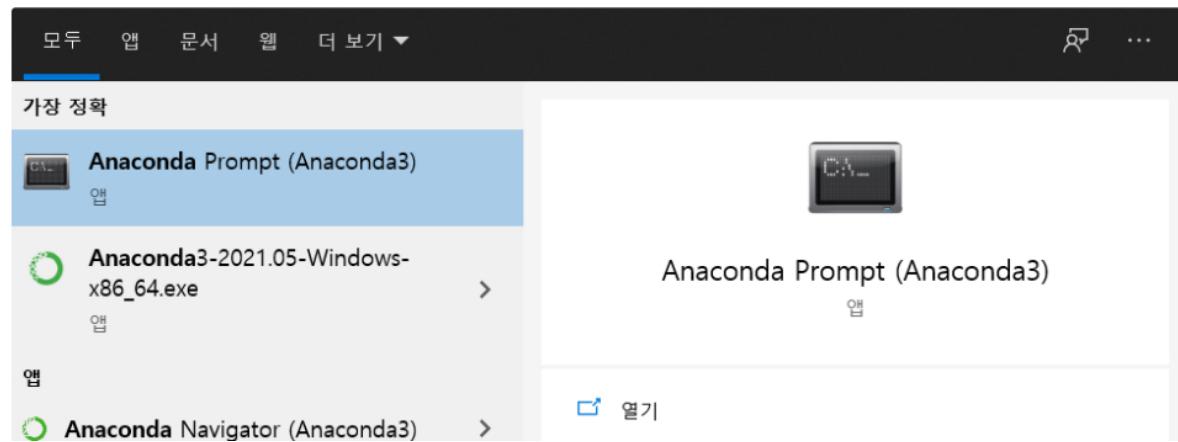


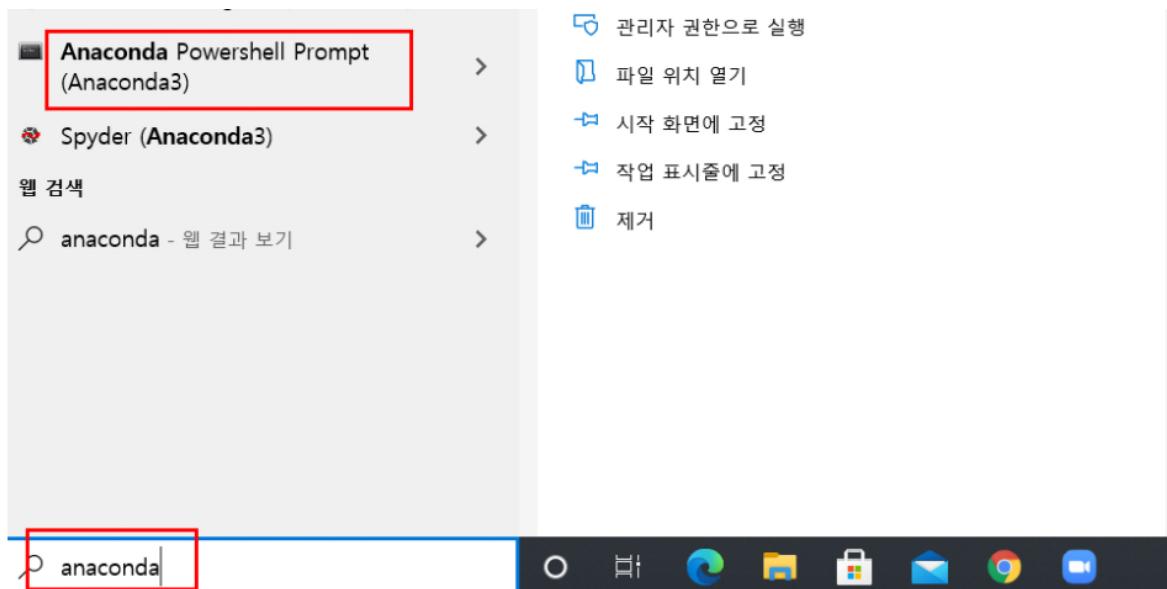
'Finish' 클릭.



## Anaconda 설치 확인

원도우 실행 창에 'anaconda'를 입력하고 'anaconda Powershell Prompt'를 실행.





실행된 창에서 다음을 입력

```
1 python
```

```
Anaconda Powershell Prompt (Anaconda3)
(base) PS C:\Users\DMC CONET> python
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)] :
Type "help", "copyright", "credits" or "license" for more information.
>>> -
```

python 프롬프트에서 다음을 입력하여 설치된 라이브러리 임포팅되는지 확인.

```
1 import pandas as pd
2 import numpy as np
3 import matplotlib.pyplot as plt
4 import seaborn as sns
```

```
Anaconda Powershell Prompt (Anaconda3)
(base) PS C:\Users\DMC CONET> python
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)] :
Type "help", "copyright", "credits" or "license" for more information.
>>> import pandas as pd
>>> import numpy as np
>>> import matplotlib.pyplot as plt
>>> import seaborn as sns
>>> -
```

에러 메시지가 보이지 않으면 설치되어 있는 것이고 잘 임포팅 된 것이다.

다음을 입력하여 python 종료.

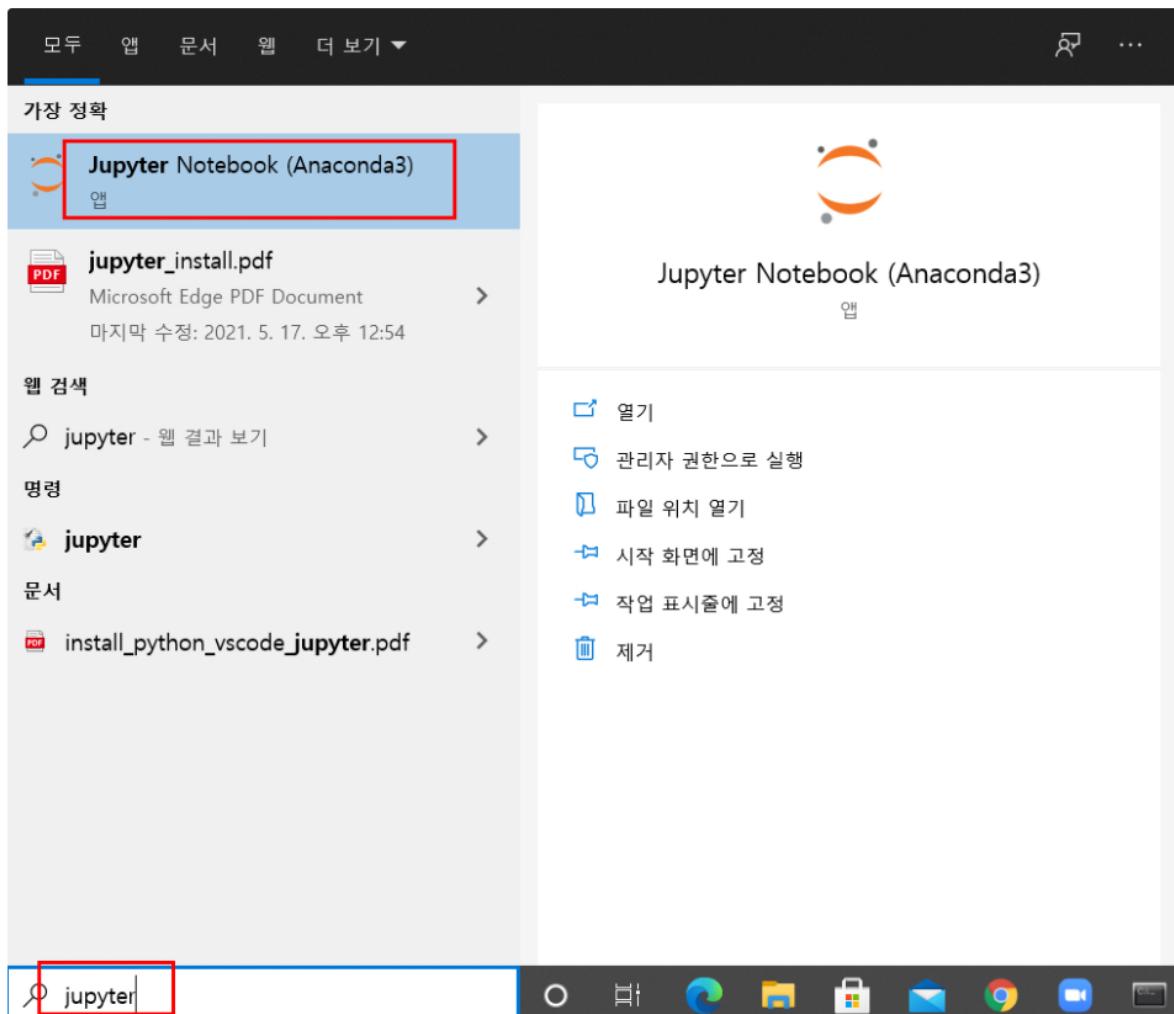
```
1 exit()
```

A screenshot of the Anaconda Powershell Prompt window titled '(base) PS C:\Users\DMC CONET>'. The command 'exit()' is highlighted with a red box. The output shows the Python version and imports for pandas, numpy, matplotlib.pyplot, and seaborn, followed by the prompt again.

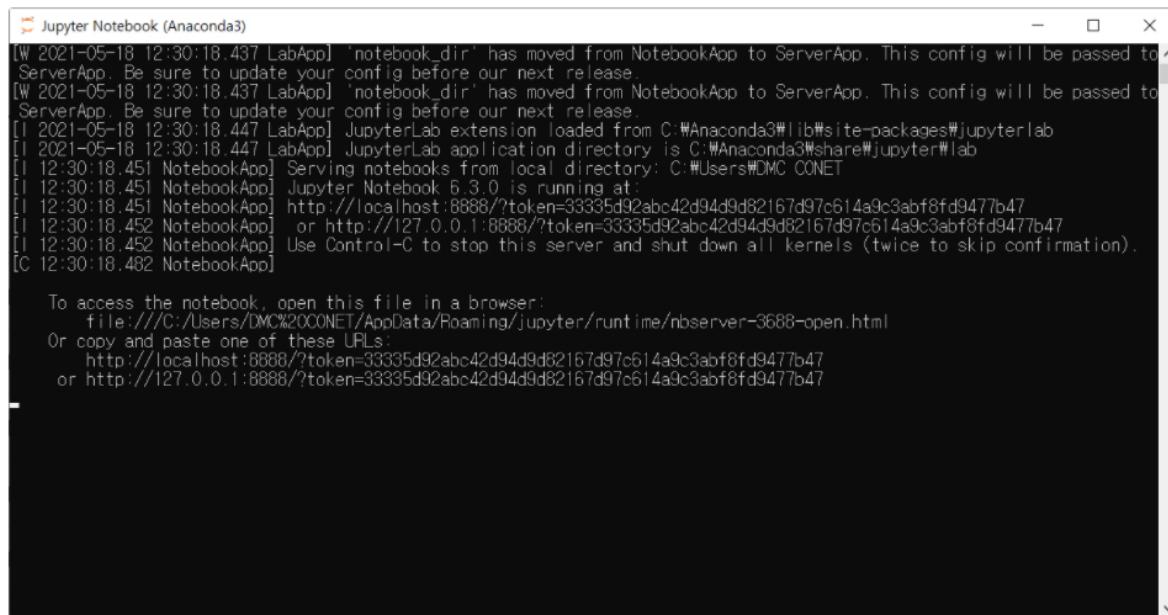
```
(base) PS C:\Users\DMC CONET> python
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916
Type "help", "copyright", "credits" or "license" for more
>>> import pandas as pd
>>> import numpy as np
>>> import matplotlib.pyplot as plt
>>> import seaborn as sns
>>> exit()
(base) PS C:\Users\DMC CONET>
```

## Jupyter 실행

윈도우 실행창에 'jupyter'를 입력하고 'Jupyter notebook (Anaconda3)'를 실행.

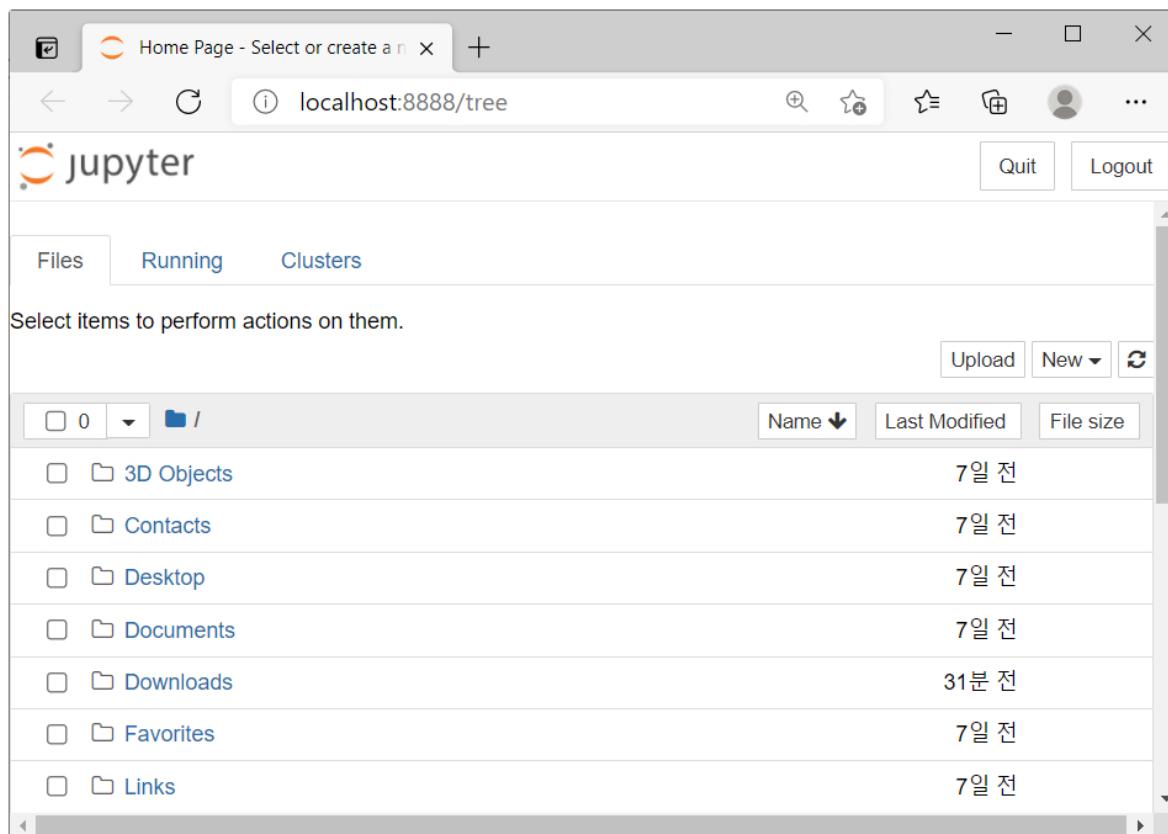


쉘 창이 뜨고 곧이어 웹브라우저가 뜨면서 jupyter화면이 보인다.

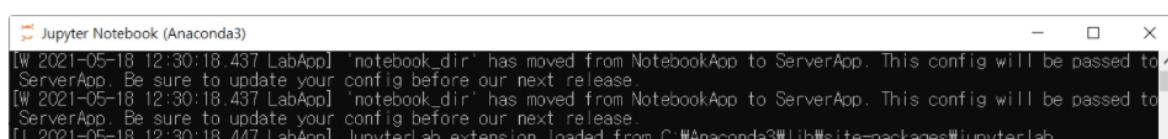


```
[W 2021-05-18 12:30:18.437 LabApp] 'notebook_dir' has moved from NotebookApp to ServerApp. This config will be passed to ServerApp. Be sure to update your config before our next release.
[W 2021-05-18 12:30:18.437 LabApp] 'notebook_dir' has moved from NotebookApp to ServerApp. This config will be passed to ServerApp. Be sure to update your config before our next release.
[I 2021-05-18 12:30:18.447 LabApp] JupyterLab extension loaded from C:\Anaconda3\lib\site-packages\jupyterlab
[I 2021-05-18 12:30:18.447 LabApp] JupyterLab application directory is C:\Anaconda3\share\jupyter\lab
[I 12:30:18.451 NotebookApp] Serving notebooks from local directory: C:\Users\DMC\ONET
[I 12:30:18.451 NotebookApp] Jupyter Notebook 6.3.0 is running at:
[I 12:30:18.451 NotebookApp] http://localhost:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47
[I 12:30:18.452 NotebookApp] or http://127.0.0.1:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47
[I 12:30:18.452 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 12:30:18.482 NotebookApp]

To access the notebook, open this file in a browser:
  file:///C:/Users/DMC%20ONET/AppData/Roaming/jupyter/runtime/nbserver-3688-open.html
Or copy and paste one of these URLs:
  http://localhost:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47
  or http://127.0.0.1:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47
```



만약 웹브라우저가 뜨지 않고 jupyter 화면이 보이지 않으면, 실행된 쉘창에 출력된 다음 url을 카피하여 웹브라우저를 실행하고 주소창에 url을 입력하여 이동한다.

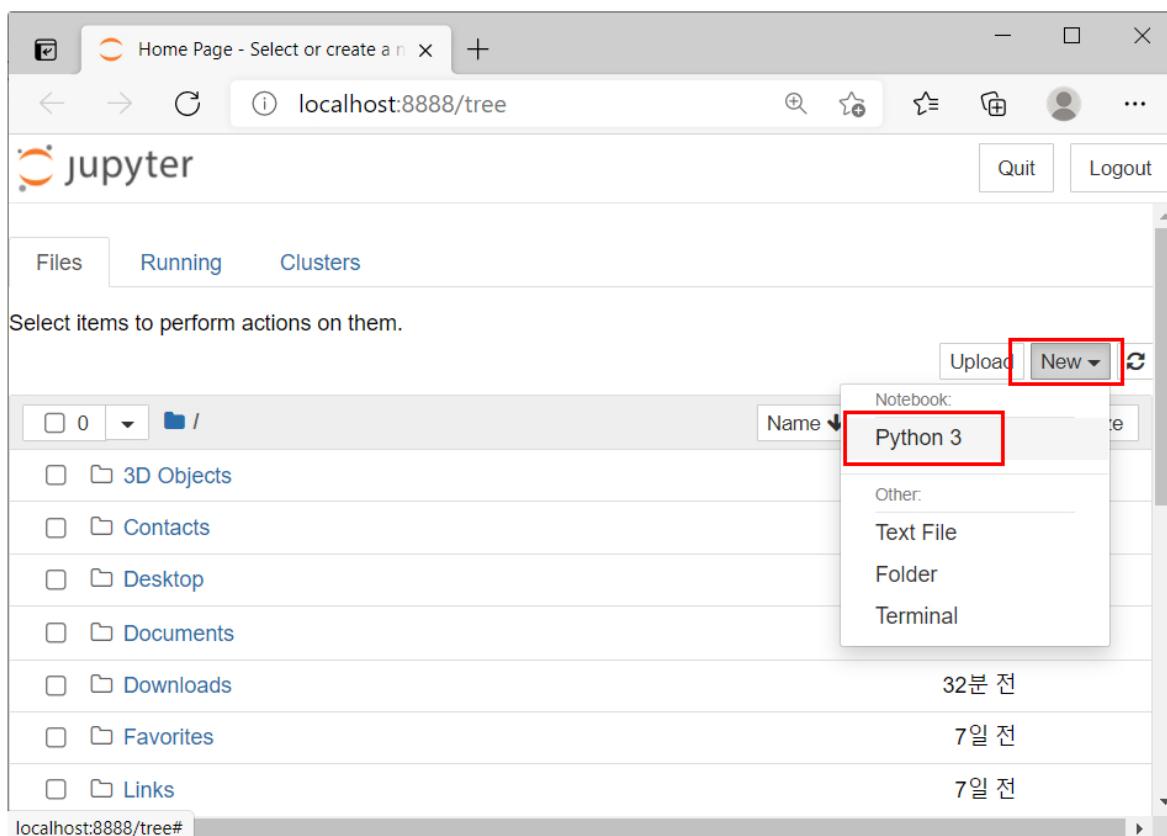


```
[W 2021-05-18 12:30:18.437 LabApp] 'notebook_dir' has moved from NotebookApp to ServerApp. This config will be passed to ServerApp. Be sure to update your config before our next release.
[W 2021-05-18 12:30:18.437 LabApp] 'notebook_dir' has moved from NotebookApp to ServerApp. This config will be passed to ServerApp. Be sure to update your config before our next release.
[I 2021-05-18 12:30:18.447 LabApp] JupyterLab extension loaded from C:\Anaconda3\lib\site-packages\jupyterlab
```

```
[I 2021-05-18 12:30:18.447 LabApp] JupyterLab application directory is C:\Anaconda3\share\jupyter\lab
[I 12:30:18.451 NotebookApp] Serving notebooks from local directory: C:\Users\DMC CONET
[I 12:30:18.451 NotebookApp] Jupyter Notebook 6.3.0 is running at:
[I 12:30:18.451 NotebookApp] http://localhost:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47
[I 12:30:18.452 NotebookApp] or http://127.0.0.1:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47
[I 12:30:18.452 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 12:30:18.482 NotebookApp]
```

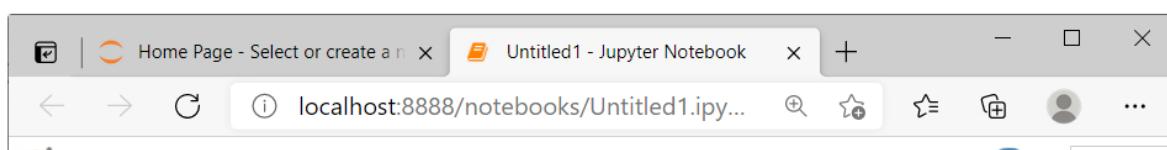
To access the notebook, open this file in a browser:  
file:///C:/Users/DMC CONET/AppData/Roaming/jupyter/runtime/nbserver-3688-open.html  
Or copy and paste one of these URLs:  
<http://localhost:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47>  
[or http://127.0.0.1:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47](http://127.0.0.1:8888/?token=33335d92abc42d94d9d82167d97c614a9c3abf8fd9477b47)

Jupyter 화면에서 'New' > 'Python 3' 클릭.



새로 열린 노트북에 다음을 입력하고 실행 시켜 에러 메시지가 안 뜨는지 확인.

```
1 import pandas as pd
2 import numpy as np
3 import matplotlib.pyplot as plt
4 import seaborn as sns
```



The screenshot shows the Jupyter Notebook interface. At the top, there's a menu bar with File, Edit, View, Insert, Cell, Kernel, Widgets, Help, Trusted, Python 3, and Logout. Below the menu is a toolbar with various icons for file operations like Open, Save, and Run. A red box highlights the 'Run' button. The main area has two code cells. The first cell, labeled 'In [1]:', contains Python code to import pandas, numpy, matplotlib.pyplot, and seaborn. The second cell, labeled 'In [ ]:', is currently empty. The background of the notebook window is light gray.

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

## 가상환경 생성과 사용

'Anaconda Powershell Prompt (Anaconda3)'을 실행.

**conda env list**

현재 생성된 가상환경 리스트 출력

```
(base) PS C:\Users\DMC CONET> conda env list
# conda environments:
#
base                  *  C:\Anaconda3
(base) PS C:\Users\DMC CONET>
```

**conda create -n my\_env**

'my\_env'라는 가상 환경 생성

```
(base) PS C:\Users\DMC CONET> conda create -n my_env
Collecting package metadata (current_repodata.json): done
Solving environment: done

## Package Plan ##

environment location: C:\Anaconda3\envs\my_env

Proceed ([y]/n)? y
Preparing transaction: done
```

```
Verifying transaction: done
Executing transaction: done
#
# To activate this environment, use
#
#     $ conda activate my_env
#
# To deactivate an active environment, use
#
#     $ conda deactivate
(base) PS C:\Users\DMC CONET>
```

다시 'conda env list'를 하면 환경 리스트에 my\_env 이름으로 추가되었다.

```
(base) PS C:\Users\DMC CONET> conda env list
# conda environments:
#
base                  * C:\Anaconda3
my_env                C:\Anaconda3\envs\my_env
(base) PS C:\Users\DMC CONET>
```

### conda activate my\_env

가상환경 my\_env으로 들어가기. 해당 가상환경을 사용하게 된다.

```
(base) PS C:\Users\DMC CONET> conda activate my_env
(my_env) PS C:\Users\DMC CONET>
```

현재 환경의 이름 my\_env가 맨 앞에 보인다.

### conda deactivate

가상환경에서 나가기.

```
(my_env) PS C:\Users\DMC CONET> conda deactivate
(base) PS C:\Users\DMC CONET>
```

## TensorFlow 설치

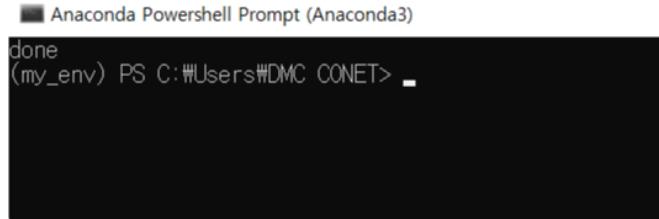
'conda activate my\_env'를 실행하여 가상 환경 my\_env로 들어간다.

### conda install tensorflow

패키지 tensorflow를 설치.

중간에 'y'를 입력한다.

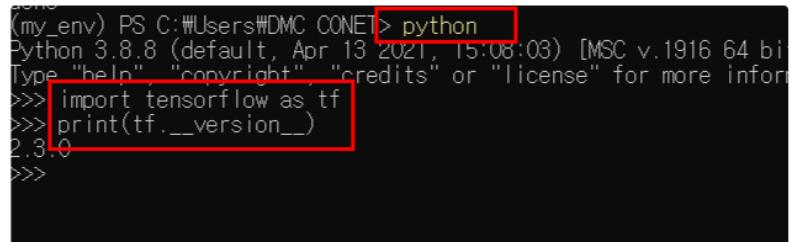
설치 완료되면 다음과 같다.



Anaconda Powershell Prompt (Anaconda3)  
done  
(my\_env) PS C:\Users\DMC CONET> -

python 실행 후 다음 실행으로 tensorflow 설치와 임포팅됨을 확인할 수 있다.

```
1 import tensorflow as tf  
2 print(tf.__version__)
```

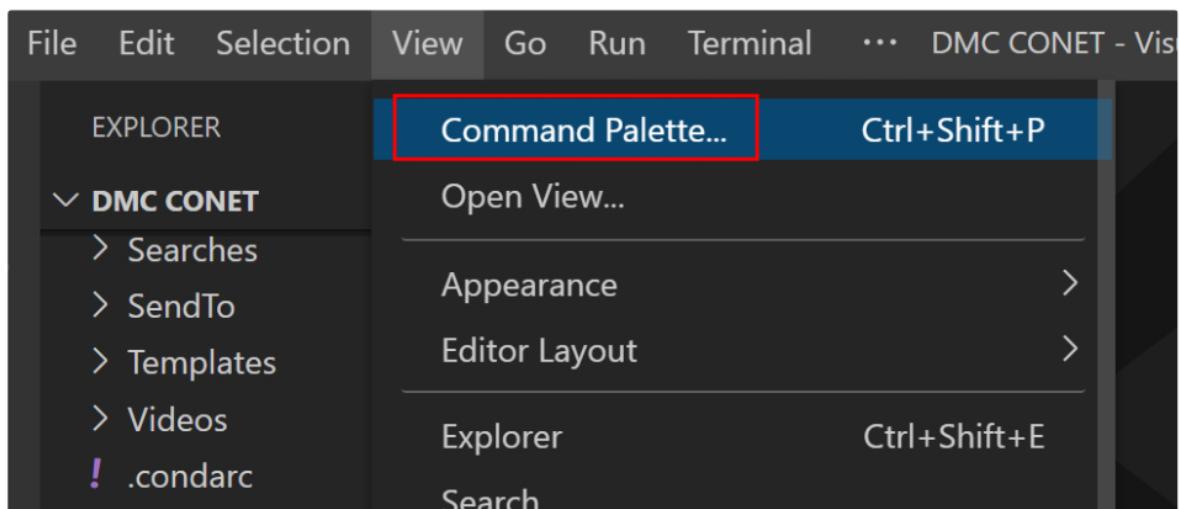


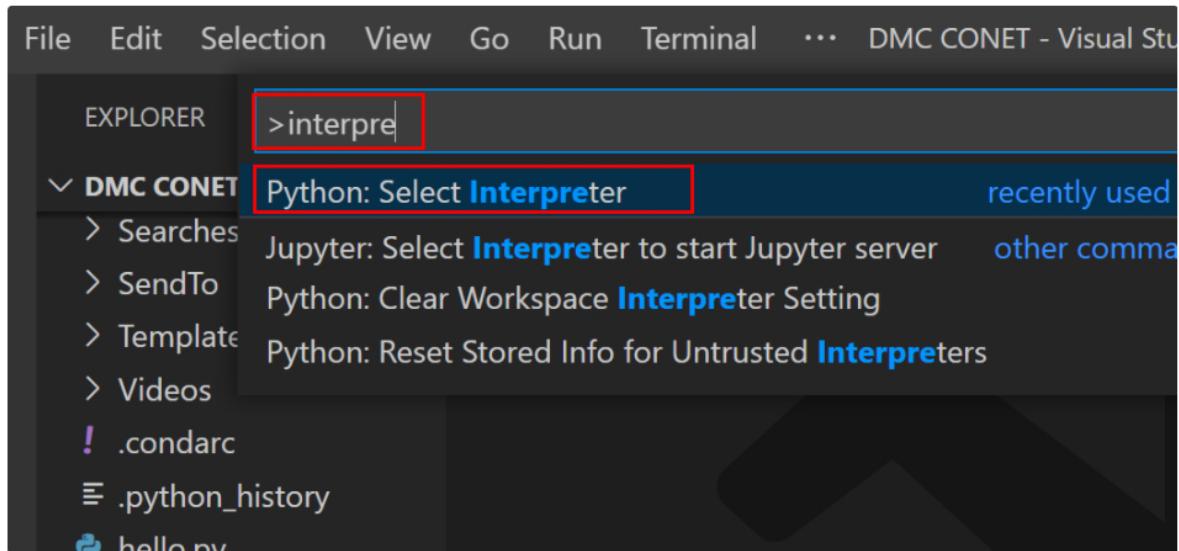
```
(my_env) PS C:\Users\DMC CONET> python  
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)]  
Type "help", "copyright", "credits" or "license" for more information  
>>> import tensorflow as tf  
>>> print(tf.__version__)  
2.3.0  
>>>
```

## 가상 환경과 VSCode와 연동

VSCode를 실행.

'View' > 'Command Palette...'를 클릭.

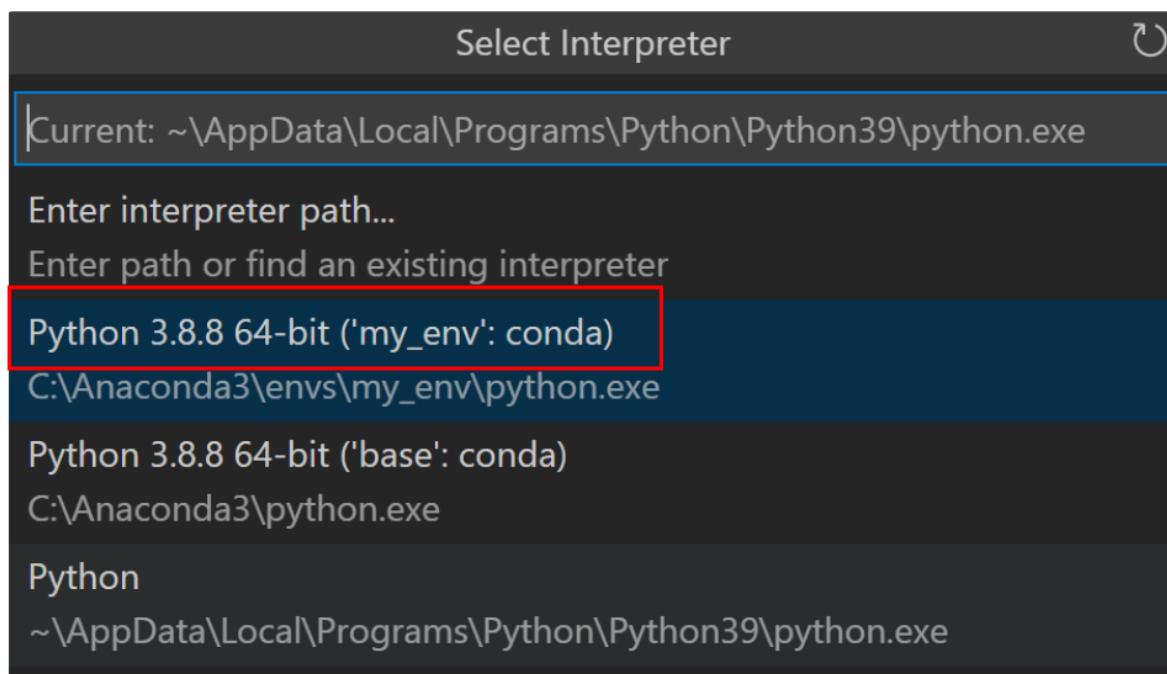




기본 가상환경 'base'와 생성한 가상환경 'my\_env'가 보입니다.

이외에 별개로 설치한 python(~\AppData\Local\Programs\Python\Python39\Python.exe)도 보입니다.

이중에 my\_env의 것을 클릭.



이제 VSCode는 가상환경 my\_env를 사용합니다.

my\_env에 설치된 라이브러리들을 사용할 수 있습니다.

다음과 같이 tensorflow 임포팅 문을 작성하고 실행하면 my\_env에 설치한 tensorflow가 잘 임포팅 됨을 확인할 수 있습니다.

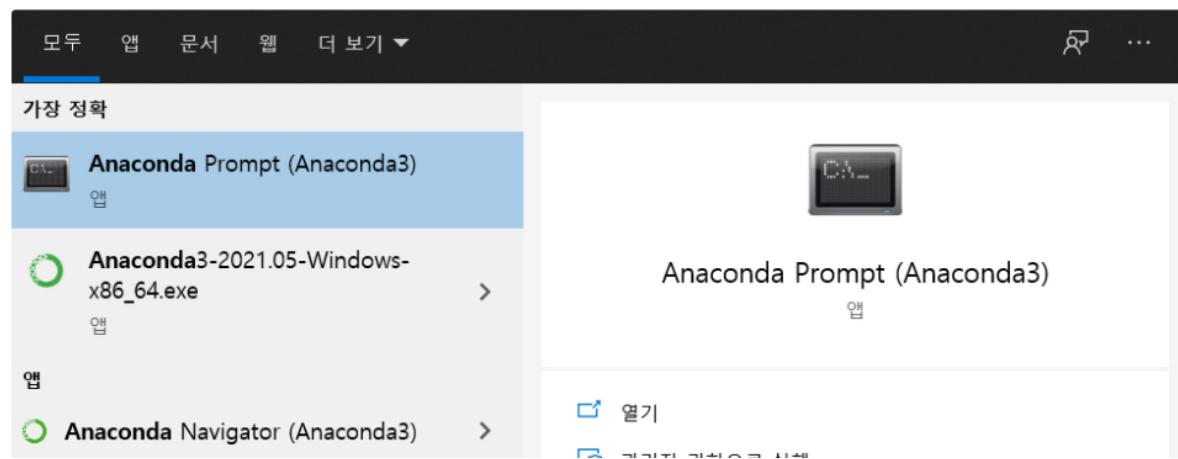
```
check_tf.py X
check_tf.py > ...
1 import tensorflow as tf
2 print(tf.__version__)

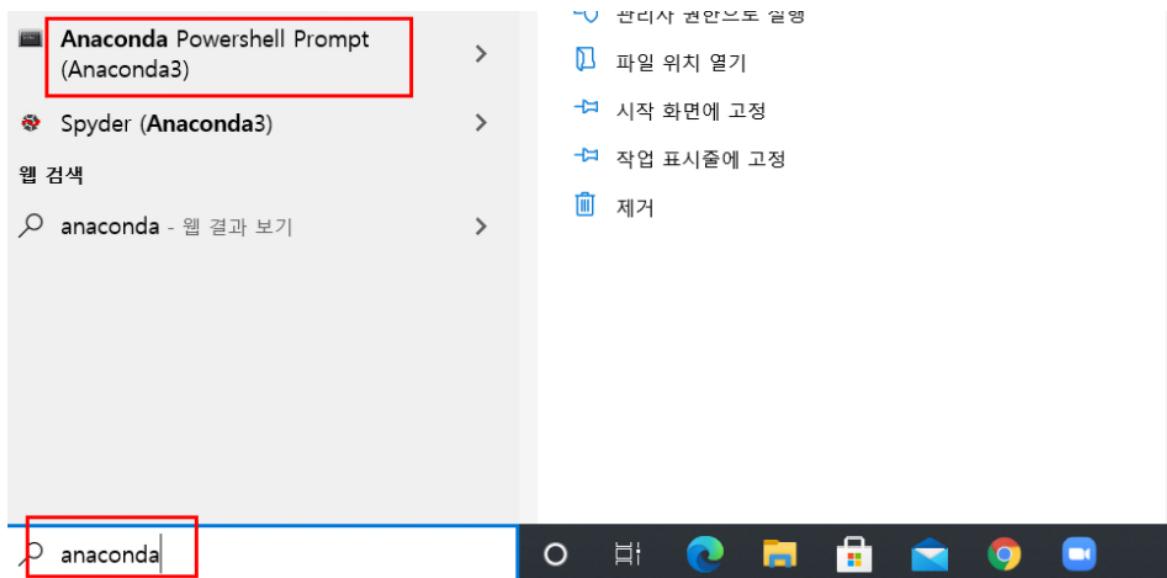
PROBLEMS TERMINAL ... 2: Python Debug Consc + - × □ ^

:\Users\DMC CONET\.vscode\extensions\ms-python.python-2021.5.829
0558\pythonFiles\lib\python\debugpy\launcher' '51348' '--' 'c:\U
rs\DMC CONET\check_tf.py'
2.3.0
PS C:\Users\DMC CONET>
```

## 가상 환경과 Jupyter 연동

'Anaconda Powershell Prompt (Anaconda3)'을 실행.





쉘에서 대상 환경으로 들어감.

```
1 conda activate my_env
```

다음 명령으로 ipykernel 설치

```
1 pip insall ipykernel
```

```
(my_env) PS C:\Users\DMC CONET> pip install ipykernel
Collecting ipykernel
  Using cached ipykernel-5.5.5-py3-none-any.whl (120 kB)
Collecting ipython>=5.0.0
  Using cached ipython-7.23.1-py3-none-any.whl (785 kB)
Collecting jupyter-client
  Using cached jupyter_client-6.1.12-py3-none-any.whl (112 kB)
Collecting tornado>=4.2
  Downloading tornado-6.1-cp38-cp38-win_amd64.whl (422 kB)
    |██████████| 422 kB 1.7 MB/s
Collecting traitlets>=4.1.0
  Using cached traitlets-5.0.5-py3-none-any.whl (100 kB)
Collecting jedi>=0.16
  Using cached jedi-0.18.0-py2.py3-none-any.whl (1.4 MB)
Collecting pickleshare
  Using cached pickleshare-0.7.5-py2.py3-none-any.whl (6.9 kB)
```

쥬피터가 사용할 커널에 환경 추가

```
1 python -m ipykernel install --user --name my_env --display-name my_env
```

```
(my_env) PS C:\Users\DMC CONET> python -m ipykernel install --user --name my_env --display-name my_env
Installed kernelspec my_env in C:\Users\DMC CONET\AppData\Roaming\jupyter\kernels\my_env
(my_env) PS C:\Users\DMC CONET>
```

## 그리고 쥬피터 실행

1 jupyter-notebook

```
■ Anaconda Powershell Prompt (Anaconda3)
(base) PS C:\Users\DMC CONET> conda env list
# conda environments:
#
base                  *  C:\Anaconda3
my_env                C:\Anaconda3\envs\my_env

(base) PS C:\Users\DMC CONET> conda activate my_env
(my_env) PS C:\Users\DMC CONET> jupyter-notebook
[1 2021-05-18 15:53:29.649 LabApp] JupyterLab extension loaded from C:\Anaconda3\lib\site-packages\jupyterlab
[1 2021-05-18 15:53:29.649 LabApp] JupyterLab application directory is C:\Anaconda3\share\jupyter\lab
[1 15:53:29.654 NotebookApp] Serving notebooks from local directory: C:\Users\DMC CONET
[1 15:53:29.654 NotebookApp] Jupyter Notebook 6.3.0 is running at:
[1 15:53:29.654 NotebookApp] http://localhost:8888/?token=455c6dff8537dbc14a9aa402f7150024f9420265e83c801e
[1 15:53:29.654 NotebookApp] or http://127.0.0.1:8888/?token=455c6dff8537dbc14a9aa402f7150024f9420265e83c801e
[1 15:53:29.654 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice)
[C 15:53:29.700 NotebookApp]

To access the notebook, open this file in a browser:
file:///C:/Users/DMC%20CONET/AppData/Roaming/jupyter/runtime/nbserver-13260-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=455c6dff8537dbc14a9aa402f7150024f9420265e83c801e
or http://127.0.0.1:8888/?token=455c6dff8537dbc14a9aa402f7150024f9420265e83c801e
```

웹브라우저 창이 뜬다.

Home Page - Select or create a new notebook

localhost:8888/tree

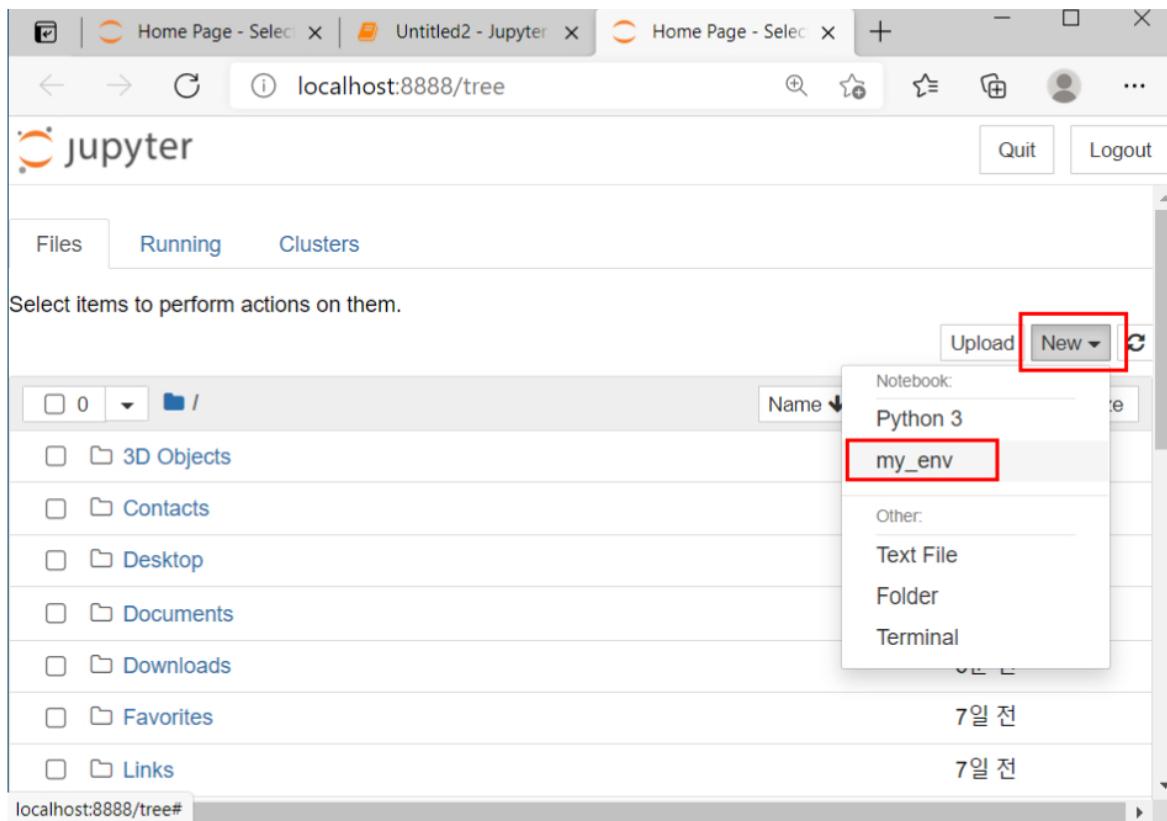
jupyter

Files Running Clusters

Select items to perform actions on them.

	Name	Last Modified	File size
<input type="checkbox"/>	3D Objects	7일 전	
<input type="checkbox"/>	Contacts	7일 전	
<input type="checkbox"/>	Desktop	7일 전	
<input type="checkbox"/>	Documents	7일 전	
<input type="checkbox"/>	Downloads	4시간 전	
<input type="checkbox"/>	Favorites	7일 전	
<input type="checkbox"/>	Links	7일 전	

'New' > 'my\_env' 선택으로 새 노트북 생성.



새 노트북을 만들고 다음 코드를 입력 실행하여 tensorflow가 임포팅 되는지 확인.

The screenshot shows the Jupyter Notebook interface at `localhost:8888/notebooks/Untitled3.ipynb`. The top navigation bar includes tabs for 'Home Page - Select' and 'Untitled3 - Jupyter'. The main area shows a code cell with the following content:

```
In [2]: import tensorflow as tf  
print(tf.__version__)
```

The output of the cell is:

```
2.3.0
```

The status bar at the bottom shows the URL `localhost:8888/notebooks/Untitled3.ipynb#`.

▶ 좋아요 처음으로 좋아하는 사람이 되어 볼까요?

레이블 없음



대고 쓰기



入社一ヶ月