

# 파이썬활용 데이터 분석과정



**Python**



강사: 황성민

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# 1. Python이란?

1. 1989년 귀도 반 로섬(Guido van Rossum)에 의해 개발된 고급 프로그래밍 언어.
2. 비교적 쉽고 간단한 문법으로 배우고 사용하기 쉬운 언어.
3. 머신러닝(Machine Learning), 딥러닝(Deep Learning)등 4차 산업의 핵심적인 기술을 구현하는데 필요한 라이브러리가 많음.

Aug 2021	Aug 2020	Change	Programming Language		Ratings	Change
1	1			C	12.57%	-4.41%
2	3	▲		Python	11.86%	+2.17%
3	2	▼		Java	10.43%	-4.00%
4	4			C++	7.36%	+0.52%
5	5			C#	5.14%	+0.46%

세계 프로그래밍 언어 순위

출처: <https://www.tiobe.com/tiobe-index/>

## 2. Python 언어의 특징

1. 인터프리터드 언어로 컴파일이 필요 없다.  
C 언어처럼 컴파일을 하지 않기 때문에
2. 읽고 쓰기 편하다. (공백 4칸 들여쓰기 = 코드를 적으면서 자동적으로 정리가 됨)

```
def bigger_than_five(x):  
    if x > 5: print("X is bigger than five")  
    else:  
        print("x is 5 or smaller")
```

## 2. Python 언어의 특징

### 3. 변수 타입을 자동으로 지정

자바

```
String myName = "Erik";  
int myAge = 37;  
float mySalary = 1250.70;
```

파이썬

```
my_name = "Erik"  
my_age = 37  
my_salary = 1250.70
```

### 4. Garbage Collection (메모리 관리)을 자동으로 해줌

### 5. 간결한 코드로 쉽고 빠르게 프로그래밍 가능



**ANACONDA®**

### 3. Anaconda?

파이썬의 여러 패키지 간 호환성을 관리해 주는 배포판



# 4. Mini-forge 설치

1. google에서 mini-forge 검색 후 mini-forge github 접속  
<https://github.com/conda-forge/miniforge>





# 4. Mini-forge 설치

README License

## Miniforge

Build miniforge failing downloads 15M

This repository holds the minimal installers for [Conda](#) and [Mamba](#) specific to [conda-forge](#), with the following features pre-configured:

- Packages in the base environment are obtained from the [conda-forge channel](#).
- The [conda-forge](#) channel is set as the default (and only) channel.

We put an emphasis on supporting various CPU architectures (x86\_64, ppc64le, and aarch64 including Apple Silicon). Optional support for PyPy in place of standard Python interpreter (aka "CPython") is provided in the installers with `-pypy3-` in their filename.

### Download

Miniforge installers are available here: <https://github.com/conda-forge/miniforge/releases>

#### Miniforge3

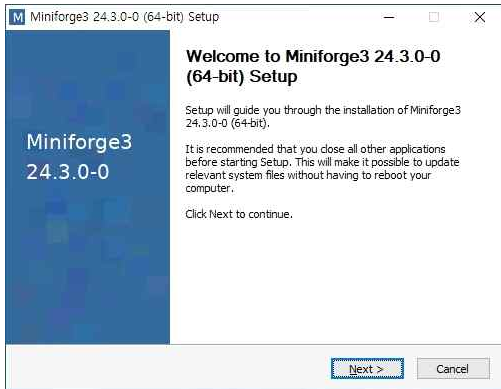
Latest installers with Python 3.10 (\*) in the base environment:

OS	Architecture	Download
Linux	x86_64 (amd64)	<a href="#">Miniforge3-Linux-x86_64</a>
Linux	aarch64 (arm64) (**)	<a href="#">Miniforge3-Linux-aarch64</a>
Linux	ppc64le (POWER8/9)	<a href="#">Miniforge3-Linux-ppc64le</a>
OS X	x86_64	<a href="#">Miniforge3-MacOSX-x86_64</a>
OS X	arm64 (Apple Silicon) (***)	<a href="#">Miniforge3-MacOSX-arm64</a>
Windows	x86_64	<a href="#">Miniforge3-Windows-x86_64</a>

(\*) The Python version is specific only to the base environment. Conda can create new environments with different Python versions and implementations.

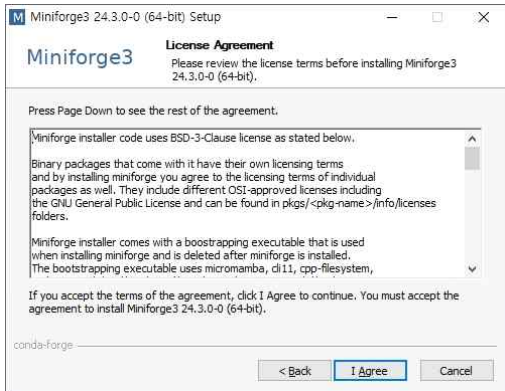
운영체제에 맞는 버전  
다운 후 설치

# 4. Mini-forge 설치



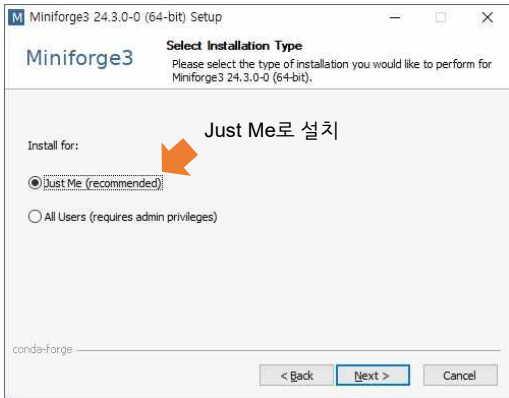
next 클릭

# 4. Mini-forge 설치



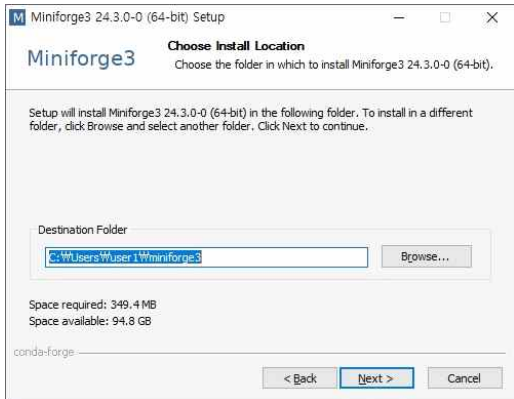
I Agree 클릭

## 4. Mini-forge 설치



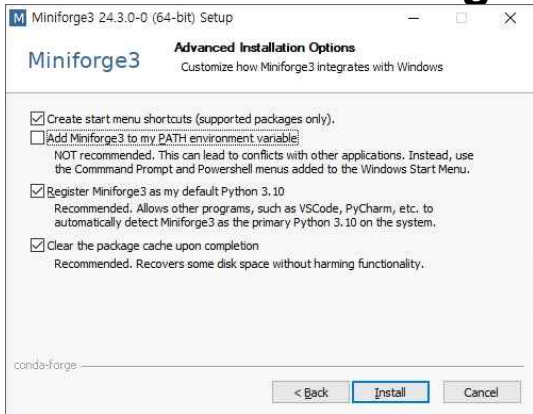
Just Me로 설치

## 4. Mini-forge 설치



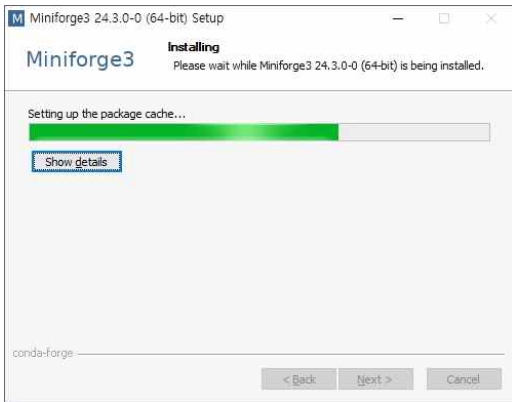
기본 경로로 설치  
설치 용량 약 350MB

## 4. Mini-forge 설치

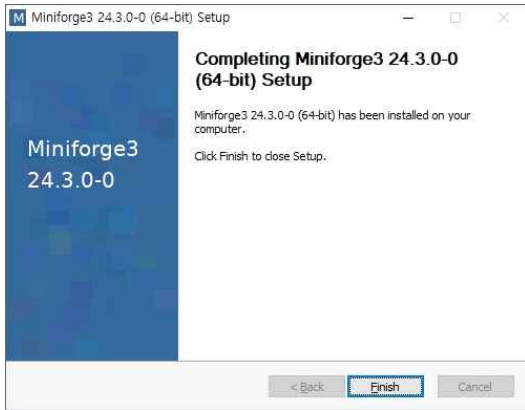


왼쪽과 같이  
Add MiniForge3 to my Path만  
제외하고 체크 후  
Install 누름

# 4. Mini-forge 설치



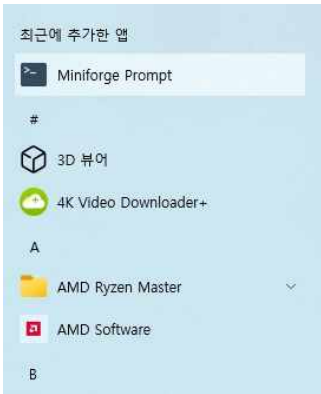
## 4. Mini-forge 설치



설치가 완료되면  
Finish를 누르고 닫음



# 5.conda 가상환경 생성



윈도우 시작버튼



Miniforge Prompt 클릭

# 5.conda 가상환경 생성

```
Miniforge Prompt
(base) C:\Users\User1>conda
usage: conda-script.py [-h] [-v] [--no-plugins] [-V] COMMAND ...

conda is a tool for managing and deploying applications, environments and packages.

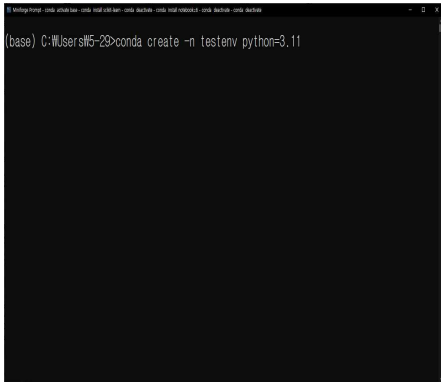
options:
  -h, --help            Show this help message and exit.
  -v, --verbose          Can be used multiple times. Once for detailed output, twice for INFO logging, thrice for DEBUG logging, four times for TRACE logging.
  --no-plugins          Disable all plugins that are not built into conda.
  -V, --version          Show the conda version number and exit.

commands:
  The following built-in and plugins subcommands are available.

COMMAND
  activate              Activate a conda environment.
  clean                 Remove unused packages and caches.
  compare               Compare packages between conda environments.
  config                Modify configuration values in .condarc.
  create                Create a new conda environment from a list of specified packages.
  deactivate            Deactivate the current active conda environment.
  doctor                Display a health report for your environment.
  export                Export a given environment
  info                  Display information about current conda install.
  init                  Initialize conda for shell interaction.
  install               Install a list of packages into a specified conda environment.
  list                  List installed packages in a conda environment.
  notices               Retrieve latest channel notifications.
```

경로에 (base)가 보이고  
conda 명령어를 입력했을  
때 실행이 되면 성공

## 5.conda 가상환경 생성

A screenshot of a Windows command prompt window. The title bar at the top reads "Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook - conda deactivate - conda deactivate". The command prompt shows the current directory as "C:\Users\W5-29" and the prompt as "(base)". The command entered is "conda create -n testenv python=3.11".

```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook - conda deactivate - conda deactivate
(base) C:\Users\W5-29>conda create -n testenv python=3.11
```

conda create -n 가상환경명 python=버전

conda create -n testenv python=3.11

# 5.conda 가상환경 생성

```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook - conda deactivate - conda deactivate - conda create -e testenv python3.11

bzip2                conda-forge/win-64::bzip2-1.0.8-hcfefb64_5
ca-certificates       conda-forge/win-64::ca-certificates-2024.7.4-h56e8100_0
libexpat              conda-forge/win-64::libexpat-2.6.2-h63175ca_0
libffi                conda-forge/win-64::libffi-3.4.2-h8ffe710_5
libsqlite             conda-forge/win-64::libsqlite-3.46.0-h2466b09_0
libzlib               conda-forge/win-64::libzlib-1.3.1-h2466b09_1
openssl               conda-forge/win-64::openssl-3.3.1-h2466b09_1
pip                   conda-forge/noarch::pip-24.0-pyhd8ed1ab_0
python                conda-forge/win-64::python-3.11.9-h631f459_0_cpython
setuptools             conda-forge/noarch::setuptools-70.1.1-pyhd8ed1ab_0
tk                    conda-forge/win-64::tk-8.6.13-h5226925_1
tzdata                conda-forge/noarch::tzdata-2024a-h0c530f3_0
ucrt                  conda-forge/win-64::ucrt-10.0.22621.0-h57928b3_0
vc                    conda-forge/win-64::vc-14.3-h8a93ad2_20
vc14_runtime           conda-forge/win-64::vc14_runtime-14.40.33810-ha82c5b3_20
vs2015_runtime         conda-forge/win-64::vs2015_runtime-14.40.33810-h3bf8584_20
wheel                  conda-forge/noarch::wheel-0.43.0-pyhd8ed1ab_1
xz                    conda-forge/win-64::xz-5.2.6-h8d14728_0

Proceed ([y]/n)?
```

Proceed([y]/n)? 이 나오면

y 입력 후 엔터

## 5.conda 가상환경 생성

```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebooks...
done
#
# To activate this environment, use
#
#     $ conda activate testenv
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) C:\Users\W5-29>
```

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

가 뜨면 가상환경 생성 완료

# 5.conda 가상 환경 생성 확인

```
Miniforge Prompt - conda activate base - conda install solik-learn - conda deactivate - conda install notebook8 - conda deactivate - conda deactivate
# $ conda activate testenv
#
# To deactivate an active environment, use
#
# $ conda deactivate

(base) C:\Users\W5-29>conda info --envs
# conda environments:
#
base                * C:\Users\W5-29\miniforge3
fintech              C:\Users\W5-29\miniforge3\envs\wfintech
testenv              C:\Users\W5-29\miniforge3\envs\wtestenv

(base) C:\Users\W5-29>_
```

conda info --envs

아나콘다의 가상 환경 확인 가능  
\* 이 있는 곳이 현재의 가상 환경

가상 환경은 여러 개를 만들고 삭제 가능

가상 환경을 만드는 이유

프로젝트 별로 다른 버전의 python이나 패키지  
를 설치해서 의존성 충돌 문제를 방지

# 5.conda 가상 환경 활성화

## 가상 환경 활성화

(base) C:\Users\5-29>conda activate testenv

가상 환경이 활성화 되면 base가 활성화된 가상 환경 이름으로 변경됨

(base) C:\Users\5-29>



(testenv) C:\Users\5-29>

## 가상 환경 비활성화

(testenv) C:\Users\5-29>conda deactivate

```
선택 Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook - conda deactivate - conda deactivate
#
base          * C:\Users\5-29\miniforge3
fintech       C:\Users\5-29\miniforge3\envs\fintech
testenv       C:\Users\5-29\miniforge3\envs\testenv

(base) C:\Users\5-29>conda activate testenv

(testenv) C:\Users\5-29>
```

# 5.conda 가상 환경 패키지 목록

```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook - conda deactivate - conda deactivate
libffi                3.4.2                h8ffe710_5    conda-forge
libsqlite              3.46.0              h2466b09_0    conda-forge
libzlib                1.3.1               h2466b09_1    conda-forge
openssl                3.3.1               h2466b09_1    conda-forge
pip                    24.0                pyhd8ed1ab_0    conda-forge
python                 3.11.9              h631f459_0_cpython    conda-forge
setuptools              70.1.1              pyhd8ed1ab_0    conda-forge
tk                      8.6.13              h5226925_1    conda-forge
tzdata                 2024a               h0c530f3_0    conda-forge
ucrt                    10.0.22621.0        h57928b3_0    conda-forge
vc                      14.3                h8a93ad2_20    conda-forge
vc14_runtime            14.40.33810         ha82c5b3_20    conda-forge
vs2015_runtime          14.40.33810         h3bf8584_20    conda-forge
wheel                   0.43.0              pyhd8ed1ab_1    conda-forge
xz                      5.2.6               h8d14728_0    conda-forge

(testenv) C:\Users\W5-29>.
```

conda activate testenv



conda list

가상환경 testenv에 설치된  
패키지 목록 확인



# 5.conda 가상 환경 패키지 목록

```
testenv
C:\Users\W5-29\miniforge3\envs\testenv

(base) C:\Users\W5-29>conda activate testenv
(testenv) C:\Users\W5-29>conda list
# packages in environment at C:\Users\W5-29\miniforge3\envs\testenv:
#
# Name                    Version            Build                Channel          Zip2
ca-certificates           2024.7.4            h56e8100_0           conda-forge      1.0.8
libexpat                  2.6.2               h63175ca_0           conda-forge
libffi                    3.4.2               h8ffe710_5           conda-forge
libsqlite                  3.46.0              h2466b09_0           conda-forge
libzlib                   1.3.1               h2466b09_1           conda-forge
openssl                   3.3.1               h2466b09_1           conda-forge
pip                       24.0                pyhd8ed1ab_0         conda-forge
python                    3.11.9              h631f459_0_cpython   conda-forge
setuptools                70.1.1              pyhd8ed1ab_0         conda-forge
tk                         8.6.13              h5226925_1           conda-forge
tzdata                    2024a               h0c530f3_0           conda-forge
ucrt                      10.0.22621.0        h57928b3_0           conda-forge
vc                         14.3                h8a93ad2_20          conda-forge
vc14_runtime              14.40.33810         ha82c5b3_20          conda-forge
vs2015_runtime            14.40.33810         h3b1f8584_20         conda-forge
wheel                     0.43.0              pyhd8ed1ab_1         conda-forge
xz                         5.2.6               h8d14728_0           conda-forge
```

```
(testenv) C:\Users\W5-29>
```

```
lz4-c                     1.9.4               hcfcfb64_0           conda-forge
lzo                       2.10                he774522_1000       conda-forge
mamba                     1.5.8               py310h8d17308f_0    conda-forge
menuinst                  2.0.2               py310h000ffb61_0    conda-forge
miniforge_console_shortcut 1.0                 h57928b3_0           conda-forge
openssl                   3.2.1               hcfcfb64_1           conda-forge
packaging                 24.0                pyhd8ed1ab_0         conda-forge
pip                       24.0                pyhd8ed1ab_0         conda-forge
platformdirs              4.2.0               pyhd8ed1ab_0         conda-forge
pluggy                   1.4.0               pyhd8ed1ab_0         conda-forge
pybind11-abi              4                   hd8ed1ab_3           conda-forge
pycosat                   0.6.6               py310h8d17308_0     conda-forge
pyparser                  2.22                pyhd8ed1ab_0         conda-forge
pysocks                   1.7.1               pyh0701188_6         conda-forge
python                    3.10.14             h4de0772_0_cpython   conda-forge
python_abi                 3.10                4_cp310              conda-forge
reproc                    14.2.4.post0        hcfcfb64_1           conda-forge
reproc-cpp                14.2.4.post0        h63175ca_1           conda-forge
requests                  2.31.0              pyhd8ed1ab_0         conda-forge
ruamel.yaml               0.18.6              py310h8d17308_0     conda-forge
ruamel.yaml.clib          0.2.8               py310h8d17308_0     conda-forge
setuptools                69.5.1              pyhd8ed1ab_0         conda-forge
tk                         8.6.13              h5226925_1           conda-forge
tqdm                      4.66.2              pyhd8ed1ab_0         conda-forge
truststore                0.8.0               pyhd8ed1ab_0         conda-forge
tzdata                    2024a               h0c530f3_0           conda-forge
ucrt                      10.0.22621.0        h57928b3_0           conda-forge
urllib3                   2.2.1               pyhd8ed1ab_0         conda-forge
vc                         14.3                hcfcfb64_18          conda-forge
vc14_runtime              14.38.33130         h82b7239_18          conda-forge
vs2015_runtime            14.38.33130         hcb4865c_18          conda-forge
wheel                     0.43.0              pyhd8ed1ab_1         conda-forge
win_inet_pton             1.1.0               pyhd8ed1ab_6         conda-forge
xz                         5.2.6               h8d14728_0           conda-forge
yaml-cpp                  0.8.0               h63175ca_0           conda-forge
zstandard                 0.22.0              py310h0009e47_0     conda-forge
zstd                      1.5.5               h12be248_0           conda-forge
```

```
(base) C:\Users\W5-29>
```

**testenv** 가상 환경의 패키지 목록  
Python 버전 3.11.9

**base** 가상 환경의 패키지 목록  
Python 버전 3.10.14

# 5.conda 가상 환경 삭제

```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook=8 - conda deactivate...
(testenv) C:\Users\H5-29>conda deactivate

(base) C:\Users\H5-29>conda remove -n testenv --all

Remove all packages in environment C:\Users\H5-29\miniforge3\envs\testenv:

## Package Plan ##

  environment location: C:\Users\H5-29\miniforge3\envs\testenv

The following packages will be REMOVED:

bzip2-1.0.8-hcfcbf64_5
ca-certificates-2024.7.4-h56e8100_0
libexpat-2.6.2-h63175ca_0
libffi-3.4.2-h8ffe710_5
libsqlite-3.46.0-h2466b09_0
libzlib-1.3.1-h2466b09_1
openssl-3.3.1-h2466b09_1
pip-24.0-pyhd8ed1ab_0
python-3.11.9-h631f459_0_cpython
setuptools-70.1.1-pyhd8ed1ab_0
tk-8.6.13-h5226925_1
tzdata-2024a-h0c530f3_0
ucrt-10.0.22621.0-h57928b3_0
vc-14.3-h8a93ad2_20
vc14_runtime-14.40.33810-ha82c5b3_20
vs2015_runtime-14.40.33810-h3bf8584_20
wheel-0.43.0-pyhd8ed1ab_1
xz-5.2.6-h8d14728_0

Proceed ([y]/n)? _
```

`conda remove -n testenv --all`

testenv 가상 환경에 있는 모든 것을 삭제

Proceed([y]/n)?가 나오면 Y

The Jupyter logo consists of two orange curved lines forming a partial circle around the word "jupyter". There are four dark gray circles positioned at the top-left, top-right, bottom-left, and bottom-right of the logo's frame.

jupyter



php



Spark



C#



F#



## 6. Jupyter Notebook 설치



```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook=6 - conda deactiva...  
(base) C:\Users\#5-29>conda create -n fintech python=3.10
```

### 가상 환경 재설치

conda create -n 가상환경명 python=버전

conda create -n fintech python=3.10

## 6. Jupyter Notebook 설치

```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivate - conda install notebook=6 - conda deactiva... - □ X

(base) C:\Users\#5-29>conda info --envs
# conda environments:
#
base                * C:\Users\#5-29\miniforge3
fintech              C:\Users\#5-29\miniforge3\envs\#fintech

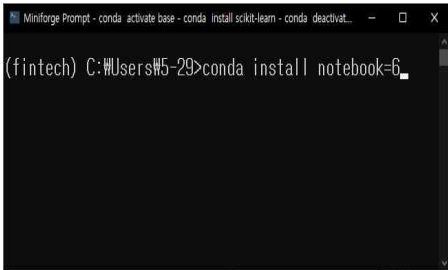
(base) C:\Users\#5-29>.
```

### 가상 환경 생성 확인

conda info --envs

아나콘다의 가상 환경 확인 가능  
\* 이 있는 곳이 현재의 가상 환경

## 6. Jupyter Notebook 설치



```
Miniforge Prompt - conda activate base - conda install scikit-learn - conda deactivat...  
(fintech) C:\Users\5-29>conda install notebook=6.
```

### 가상 환경 활성화

(base) C:\Users\5-29>conda activate fintech

가상 환경이 활성화 되면 base가 활성화된 가상 환경 이름으로 변경되는 것 확인

(base) C:\Users\5-29>



(fintech) C:\Users\ 5-29 >

## 6. Jupyter Notebook 설치

```
Anaconda Prompt (Anaconda3) - deactivate mda - conda deactivate - conda deactivate - conda deacti...
(base) C:\Users\wharam>conda info --envs
# conda environments:
#
bigdata                D:\ProgramData\Anaconda3\envs\bigdata
pythonProject          D:\ProgramData\Anaconda3\envs\pythonProject
base                   * d:\ProgramData\Anaconda3
bigdata                d:\ProgramData\Anaconda3\envs\bigdata
mdai                   d:\ProgramData\Anaconda3\envs\mdai
mpp1                   d:\ProgramData\Anaconda3\envs\mpp1
pythonProject          d:\ProgramData\Anaconda3\envs\pythonProject

(base) C:\Users\wharam>conda activate mpp1

(mpp1) C:\Users\wharam>conda list
# packages in environment at d:\ProgramData\Anaconda3\envs\mpp1:
#
# Name                    Version            Build    Channel
ca-certificates           2021.7.5            haa95532_1
certifi                   2021.5.30           py38haa95532_0
openssl                   1.1.1i              h2bfff1b_0
pip                       21.0.1              py38haa95532_0
python                   3.8.11              h6244533_1
setuptools                52.0.0              py38haa95532_0
sqlite                    3.36.0              h2bfff1b_0
vc                        14.2                h21ffa51_1
vs2015_runtime            14.27.29016         h5e58377_2
wheel                     0.37.0              pyhd3eb1b0_0
wincertstore              0.2                 py38_0

(mpp1) C:\Users\wharam>
```

가상환경 fintech에 설치된 패키지 목록 확인

conda activate fintech



conda list

Jupyter notebook이 없으므로 설치

conda install notebook=6

# 6. Jupyter Notebook 설치

```
Anaconda Prompt (Anaconda3)

(mpp1) C:\Users\haram>conda list
# packages in environment at d:\ProgramData\Anaconda3\envs\mpp1:
#
# Name                        Version                        Build      Channel
argon2-cffi                   21.1.0                        pypi_0     pypi
attrs                         21.2.0                        pypi_0     pypi
backcall                      0.2.0                         pypi_0     pypi
bleach                        4.1.0                         pypi_0     pypi
ca-certificates               2021.7.5                      haa95532_1
certifi                       2021.5.30                     py38haa95532_0
cffi                           1.14.6                        pypi_0     pypi
colorama                      0.4.4                         pypi_0     pypi
debugpy                       1.4.1                         pypi_0     pypi
decorator                     5.0.9                         pypi_0     pypi
defusedxml                    0.7.1                         pypi_0     pypi
entrypoints                   0.3                           pypi_0     pypi
ipykernel                     6.3.1                         pypi_0     pypi
ipython                       7.27.0                        pypi_0     pypi
ipython-genutils              0.2.0                         pypi_0     pypi
jedi                           0.18.0                       pypi_0     pypi
jinja2                        3.0.1                         pypi_0     pypi
jsonschema                    3.2.0                         pypi_0     pypi
jupyter-client                 7.0.2                         pypi_0     pypi
jupyter-core                   4.7.1                         pypi_0     pypi
jupyterlab-pygments            0.1.2                         pypi_0     pypi
markupsafe                     2.0.1                         pypi_0     pypi
matplotlib-inline              0.1.2                         pypi_0     pypi
mistune                       0.8.4                         pypi_0     pypi
nbclient                       0.5.4                         pypi_0     pypi
```

conda list

List 중에 jupyter 설치 확인



# 7. Jupyter Notebook 환경설정

```
Anaconda Prompt (Anaconda3)

sqlite 3.36.0 h2bfff1b_0
terminado 0.11.1 pypi_0 pypi
testpath 0.5.0 pypi_0 pypi
tornado 6.1 pypi_0 pypi
traitlets 5.1.0 pypi_0 pypi
vc 14.2 h21ff451_1
vs2015_runtime 14.27.29016 h5e58377_2
wcwidth 0.2.5 pypi_0 pypi
webencodings 0.5.1 pypi_0 pypi
wheel 0.37.0 pyhd3eb1b0_0
wincentstore 0.2 py38_0

(mpp1) C:\Users\Wharam>jupyter notebook --generate-config_
```

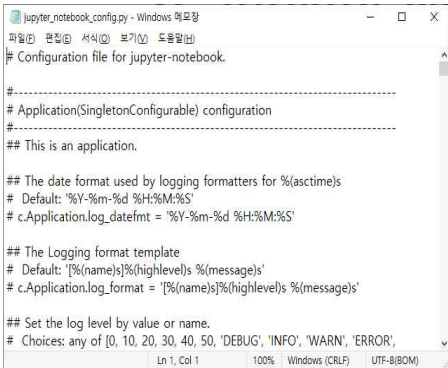
주피터 노트북을 실행하면  
시작 폴더가 c:/로되어 있어 불편

1. 프로젝트 폴더를 따로 만들고
2. Jupyter Notebook 시작 폴더를 프로젝트 폴더로 변경

Jupyter notebook --generate-config  
로 설정파일 생성

Writing default config to: 뒤에 나오는  
경로 복사 후 윈도우 탐색기 경로창에 붙여넣기

# 7. Jupyter Notebook 환경설정



```
jupyter_notebook_config.py - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)
# Configuration file for jupyter-notebook.

#-----
# Application(SingletonConfigurable) configuration
#-----

## This is an application.

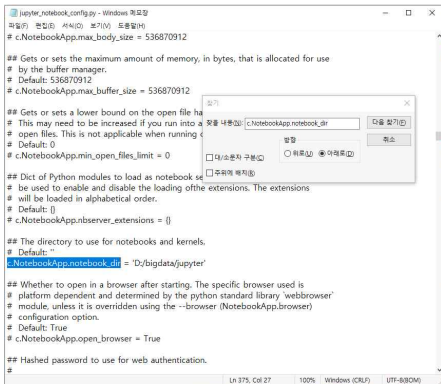
## The date format used by logging formatters for %(asctime)s
# Default: '%Y-%m-%d %H:%M:%S'
# c.Application.log_datefmt = '%Y-%m-%d %H:%M:%S'

## The Logging format template
# Default: '[%(name)s]%(highlevel)s %(message)s'
# c.Application.log_format = '[%(name)s]%(highlevel)s %(message)s'

## Set the log level by value or name.
# Choices: any of [0, 10, 20, 30, 40, 50, 'DEBUG', 'INFO', 'WARN', 'ERROR',
```

메모장 혹은 다른 텍스트 에디터를 이용해서  
jupyter\_notebook\_config.py 열기

# 7. Jupyter Notebook 환경설정



```
jupyter_notebook_config.py - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)
# c.NotebookApp.max_body_size = 536870912

## Gets or sets the maximum amount of memory, in bytes, that is allocated for use
# by the buffer manager.
# Default: 536870912
# c.NotebookApp.max_buffer_size = 536870912

## Gets or sets a lower bound on the open file handle
# This may need to be increased if you run into a
# open files. This is not applicable when running c
# Default: 0
# c.NotebookApp.min_open_files_limit = 0

## Dict of Python modules to load as notebook server
# be used to enable and disable the loading of the extensions. The extensions
# will be loaded in alphabetical order.
# Default: {}
# c.NotebookApp.nbserver_extensions = {}

## The directory to use for notebooks and kernels.
# Default: ''
c.NotebookApp.notebook_dir = 'D:/bigdata/jupyter'

## Whether to open in a browser after starting. The specific browser used is
# platform dependent and determined by the python standard library 'webbrowser'
# module, unless it is overridden using the --browser (NotebookApp.browser)
# configuration option.
# Default: True
# c.NotebookApp.open_browser = True

## Hashed password to use for web authentication.
#
```

1. F3키를 누른 뒤 찾을 내용에

**notebook\_dir**

입력 후 **다음 찾기** 클릭

2. 앞에 **# 삭제** 후 **공백 없이 왼쪽 끝으로 붙임**

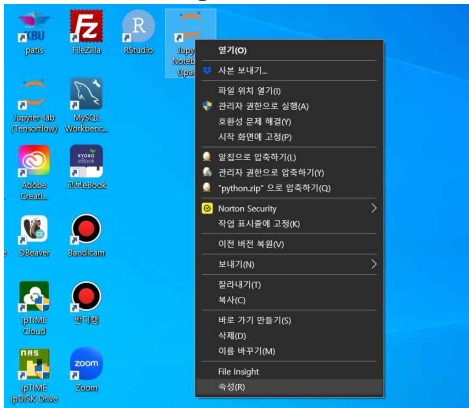
3. dir = " **따옴표 안쪽에** 프로젝트 경로 지정

예) 'C:/fintech\_service'

4. #삭제 후 공백 없애기, ' '안에 경로 설정 확인

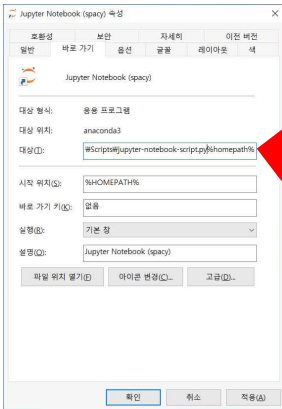
5. 파일 → 저장

# 7. Jupyter Notebook 환경설정



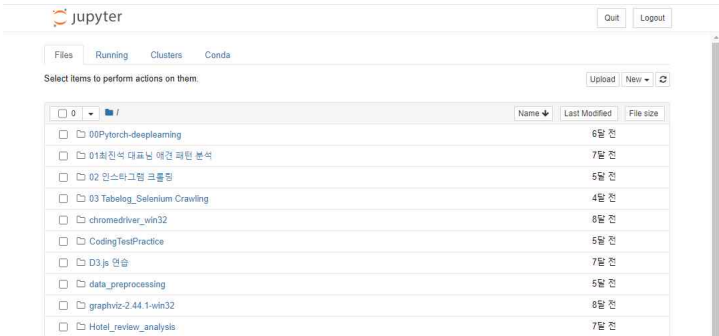
- Jupyter Notebook 아이콘에 마우스를 올려놓고 우측 버튼 클릭.
- 가장 아래의 속성 클릭
- 가장 아래의 속성 클릭

# 7. Jupyter Notebook 환경설정



대상(T): 내용중 script.py  
뒤의 %로 시작하는 부분  
삭제

# 7. Jupyter Notebook 환경설정



The screenshot shows the Jupyter Notebook web interface. At the top, there's a header with the Jupyter logo and the word "jupyter". To the right are "Quit" and "Logout" buttons. Below the header, there are tabs for "Files", "Running", "Clusters", and "Conda". The "Files" tab is active. Below the tabs, there's a text prompt "Select items to perform actions on them." and buttons for "Upload", "New", and a refresh icon. The main area displays a file browser table with columns for "Name", "Last Modified", and "File size". The table lists several folders, each with a checkbox on the left. The folders are: "00Pytorch-deeplearning", "01최진석 대표님 애견 패턴 분석", "02 인스타그램 크롤링", "03 Tabelog\_Selenium Crawling", "chromedriver\_win32", "CodingTestPractice", "D3.js 연습", "data\_preprocessing", "graphviz-2.44.1-win32", and "Hotel\_review\_analysis".

	Name	Last Modified	File size
<input type="checkbox"/>	0		
<input type="checkbox"/>	/		
<input type="checkbox"/>	00Pytorch-deeplearning	6달 전	
<input type="checkbox"/>	01최진석 대표님 애견 패턴 분석	7달 전	
<input type="checkbox"/>	02 인스타그램 크롤링	5달 전	
<input type="checkbox"/>	03 Tabelog_Selenium Crawling	4달 전	
<input type="checkbox"/>	chromedriver_win32	8달 전	
<input type="checkbox"/>	CodingTestPractice	5달 전	
<input type="checkbox"/>	D3.js 연습	7달 전	
<input type="checkbox"/>	data_preprocessing	5달 전	
<input type="checkbox"/>	graphviz-2.44.1-win32	8달 전	
<input type="checkbox"/>	Hotel_review_analysis	7달 전	

Jupyter notebook을 실행했을 때 설정한 폴더가 루트로 나오면 끝