

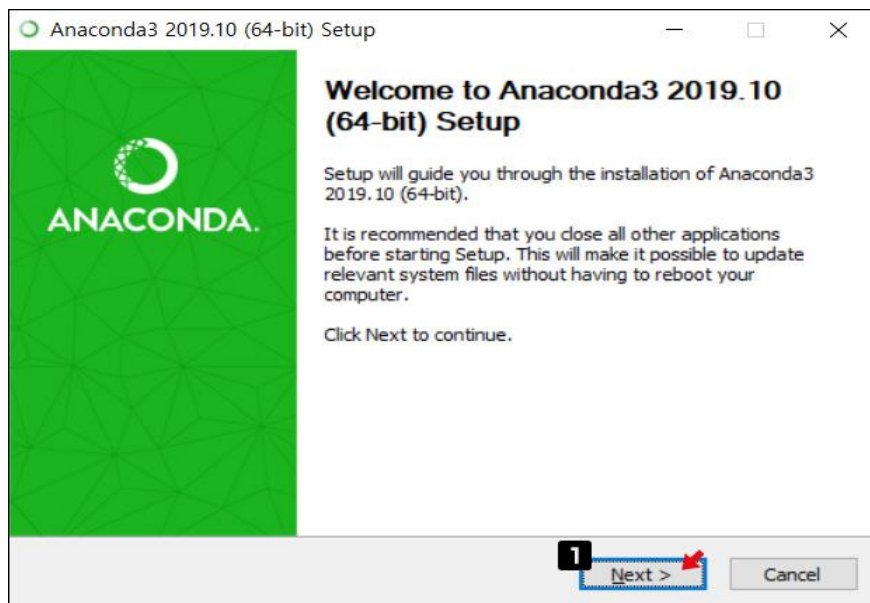
[Senior DS(Level 2) 이론] 프로그램 설치가이드

■ 기본환경 : Windows10 1909 (64bit), Internet Explorer 11, Chrome, MS Office 2013

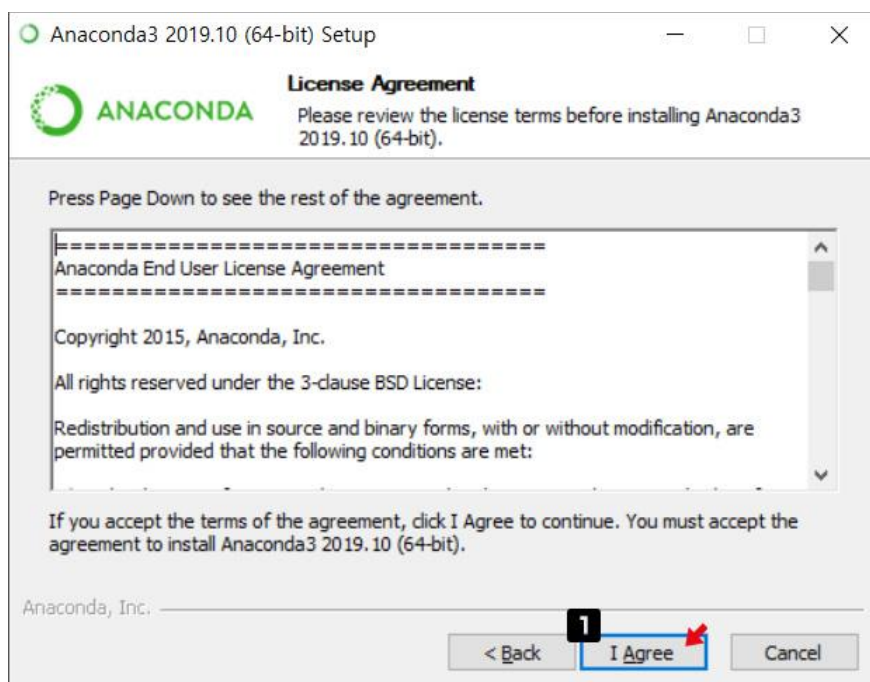
1. Python (v3.7.2) & Anaconda3 (v2019.10) 설치

- URL : https://repo.anaconda.com/archive/Anaconda3-2019.10-Windows-x86_64.exe

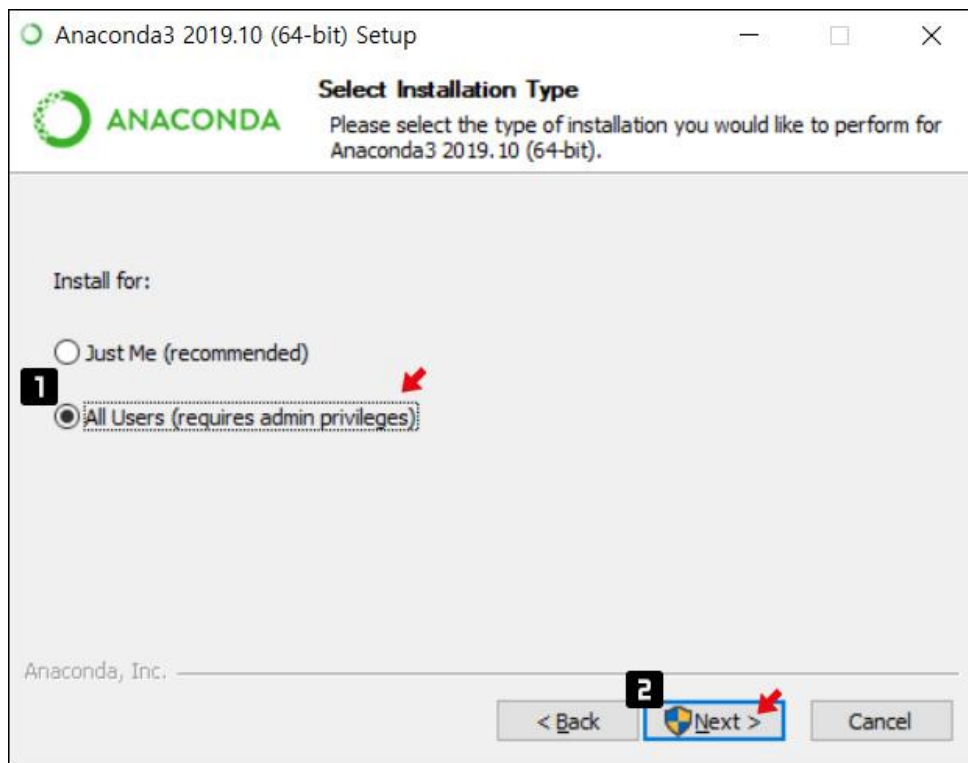
- 위 링크에서 설치파일 다운로드 후, 실행 -> [Next] 클릭



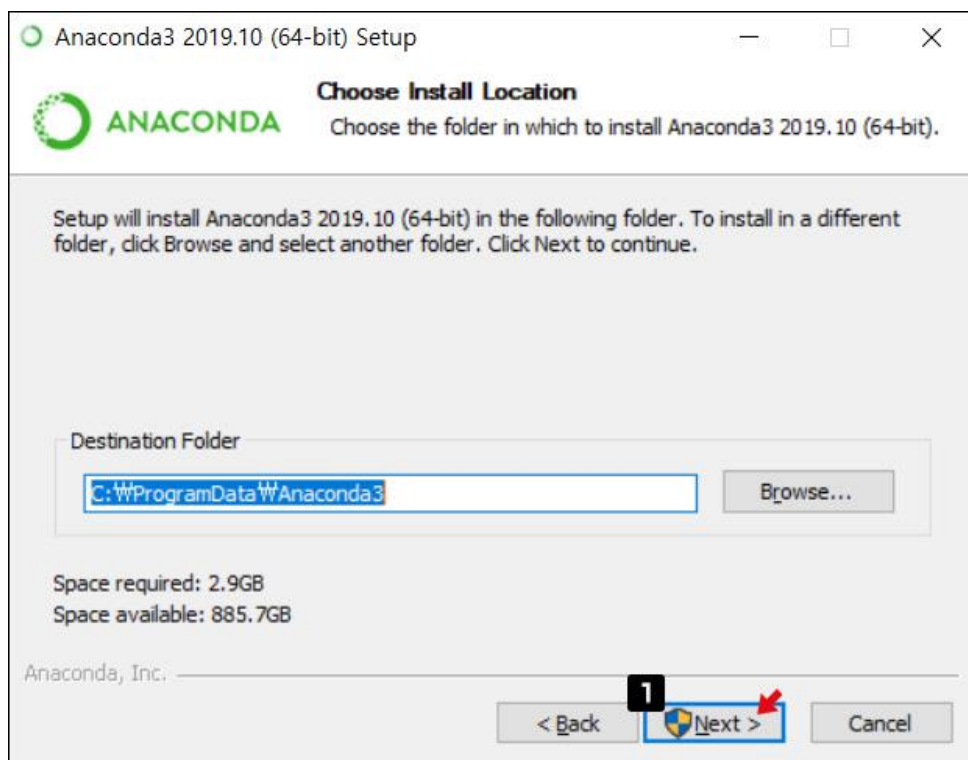
- [I Agree] 클릭



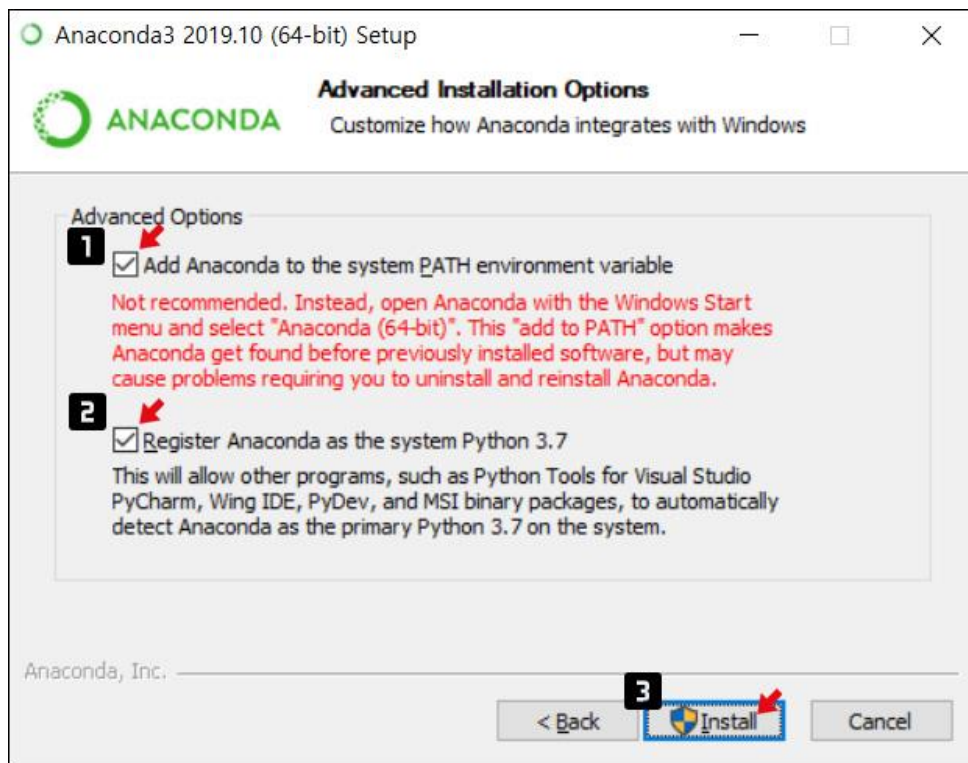
- All User (requires admin privileges) 선택
- [Next] 클릭



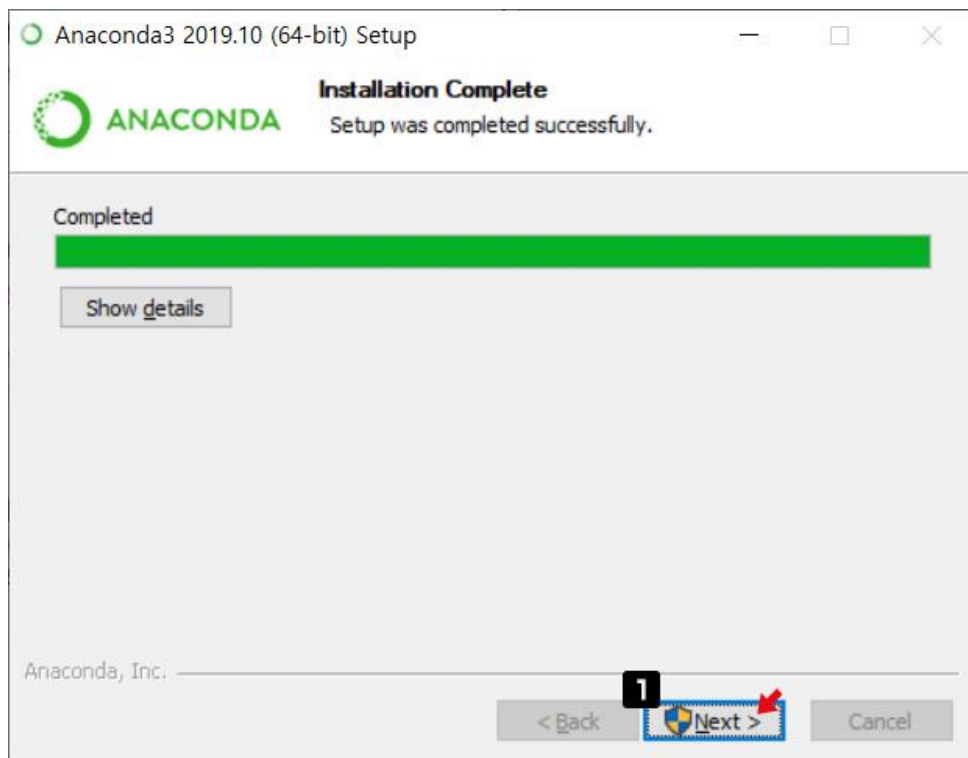
- 설치경로 (C:\ProgramData\Anaconda3) 확인 후, [Next] 클릭



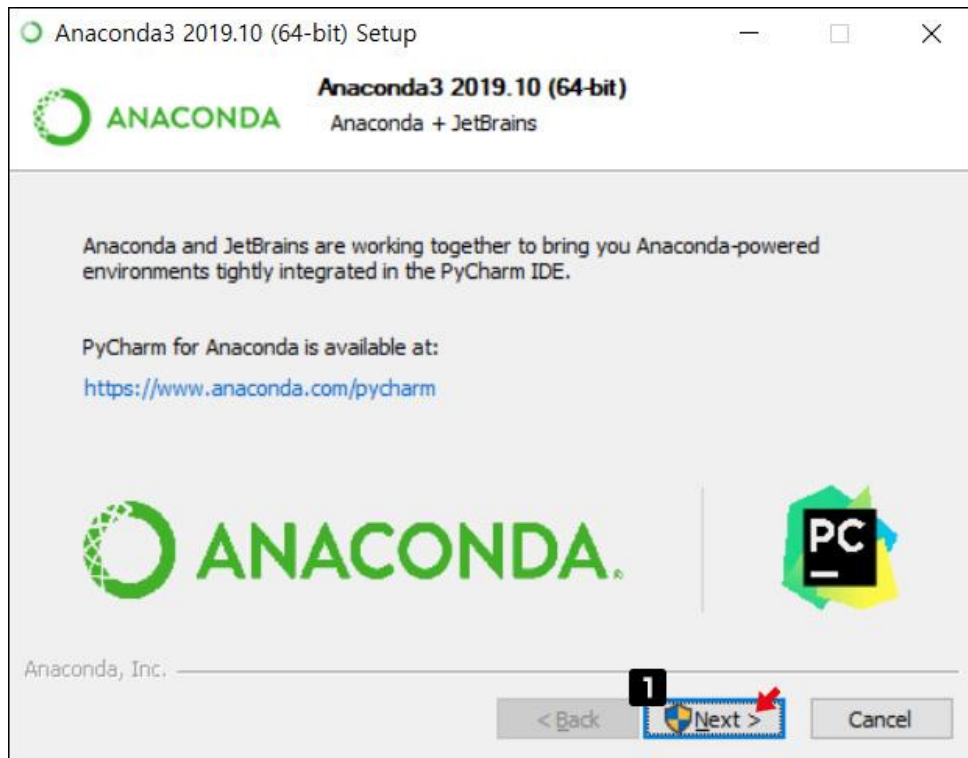
- Add Anaconda to the system PATH environment variable 선택
- Register Anaconda as the system Python 3.7 선택 후, [Install] 클릭



- [Next] 클릭

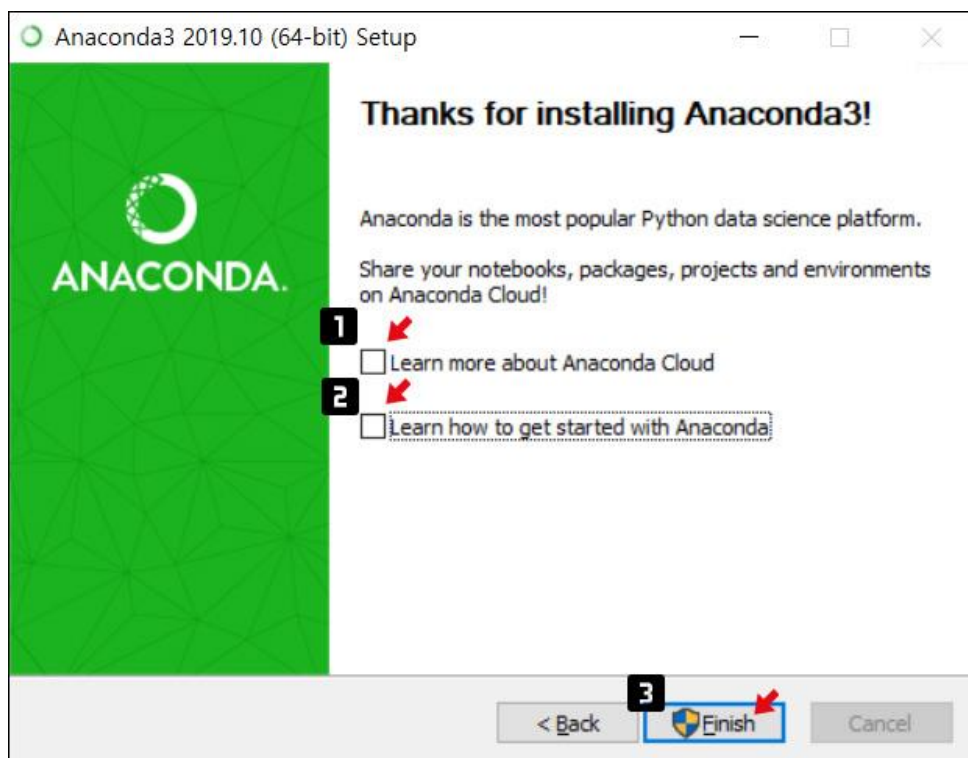


- [Next] 클릭



- Learn more about Anaconda Cloud 선택 해제

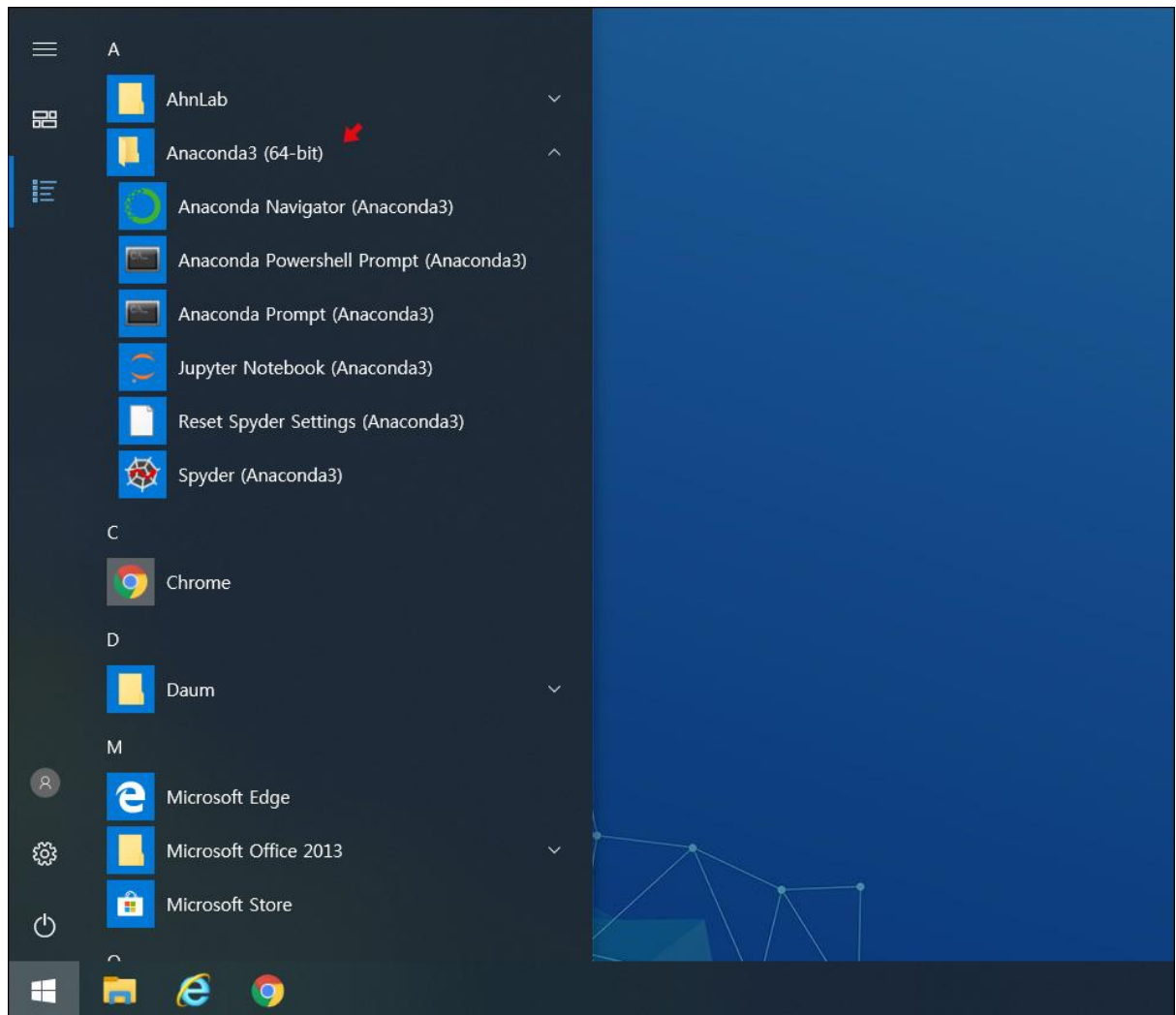
- Learn how get started with Anaconda 선택 해제 후, [Finish] 클릭



- Anaconda3 설치 완료

- 시작 버튼 클릭 후, Anaconda3 설치 확인

(Anaconda Navigator, Anaconda prompt, Jupyter Notebook, Spyder)



📖 pip 사용시 proxy 설정가이드

<http://devops.sdsdev.co.kr/confluence/pages/viewpage.action?pageId=97897668>

페이지 / 코딩 레퍼런스(CoCook) / Proxy 설정방법

pip (python)

전체훈님이 작성, 12월 06, 2017에 최종 변경

■ 인증서 설정

pip install --trusted-host pypi.python.org(혹은 리포지토리 경로)

■ pip install 프록시

아래와 같이 pythonPackageName에 원하는 모듈을 넣고 돌리면 인증서 문제없이 받아집니다.

pip install --index-url=<https://pypi.python.org/simple/> --trusted-host pypi.python.org pythonPackageName

■ Proxy 설정

cmd 관리자모드로 띄우고, 아래 내용 실행

set http_proxy=<http://70.10.15.10:8080>

set https_proxy=<https://70.10.15.10:8080>

■ Windows에서 설정 (PIP버전업 필요: 8.1.2)

<User Home>\pip\pip.ini 파일의 내용:

```
[global]
proxy = http://70.10.15.10:8080
cert = E:\SDS.cer
```

■ SDS 인증서를 추가하는 방식

1. C:\Users\sds\AppData\Local\Programs\Python\Python35-32\Lib\site-packages\pip_vendor\requests 폴더의 cacert.pem 파일을 notepad++로 Open
2. Sds Proxy 인증서를 notepad++로 열어서 값을 복사해서 cacert.pem 파일 제일 위에 붙여넣는다
[sds_base64.cer](#) (1.2 KB)
3. PIP 사용
pip install 패키지명 --proxy 70.10.15.10:8080

2. Anaconda 패키지 추가 및 변경

- Anaconda Prompt 실행 (아래 명령어 입력 전에 [pip proxy 가이드](#)로 proxy 설정필요)
- mlxtend 라이브러리 설치
- [pip install mlxtend==0.15.0] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install mlxtend==0.15.0
Collecting mlxtend==0.15.0
  Downloading https://files.pythonhosted.org/packages/16/e6/30e50ed9c053a1530c83149090e1f5fd9fccc8503dca2ecce1bb52f34de0
/mlxtend-0.15.0-py2.py3-none-any.whl (1.3MB)
    |#####| 1.3MB 504kB/s
Requirement already satisfied: scikit-learn>=0.18 in c:\programdata\anaconda3\lib\site-packages (from mlxtend==0.15.0) (0.21.3)
Requirement already satisfied: setuptools in c:\programdata\anaconda3\lib\site-packages (from mlxtend==0.15.0) (41.4.0)
Requirement already satisfied: numpy>=1.10.4 in c:\programdata\anaconda3\lib\site-packages (from mlxtend==0.15.0) (1.16.5)
Requirement already satisfied: scipy>=0.17 in c:\programdata\anaconda3\lib\site-packages (from mlxtend==0.15.0) (1.3.1)
Requirement already satisfied: matplotlib>=1.5.1 in c:\programdata\anaconda3\lib\site-packages (from mlxtend==0.15.0) (3.1.1)
Requirement already satisfied: pandas>=0.17.1 in c:\programdata\anaconda3\lib\site-packages (from mlxtend==0.15.0) (0.25.1)
Requirement already satisfied: joblib>=0.11 in c:\programdata\anaconda3\lib\site-packages (from scikit-learn>=0.18->mlxtend==0.15.0) (0.13.2)
Requirement already satisfied: cycler>=0.10 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.5.1->mlxtend==0.15.0) (0.10.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.5.1->mlxtend==0.15.0) (1.1.0)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.5.1->mlxtend==0.15.0) (2.4.2)
Requirement already satisfied: python-dateutil>=2.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=1.5.1->mlxtend==0.15.0) (2.8.0)
Requirement already satisfied: pytz>=2017.2 in c:\programdata\anaconda3\lib\site-packages (from pandas>=0.17.1->mlxtend==0.15.0) (2019.3)
Requirement already satisfied: six in c:\programdata\anaconda3\lib\site-packages (from cycler>=0.10->matplotlib>=1.5.1->mlxtend==0.15.0) (1.12.0)
Installing collected packages: mlxtend
Successfully installed mlxtend-0.15.0

(base) C:\Users\SDS>
```

- imbalanced-learn 라이브러리 설치
- [pip install imbalanced-learn==0.5.0] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install imbalanced-learn==0.5.0
Collecting imbalanced-learn==0.5.0
  Downloading https://files.pythonhosted.org/packages/e6/62/08c14224a7e242df2cef7b312d2ef821c3931ec9b015ff93bb52ec8a10a3
/imbalanced_learn-0.5.0-py3-none-any.whl (173kB)
    |#####| 174kB 726kB/s
Requirement already satisfied: numpy>=1.11 in c:\programdata\anaconda3\lib\site-packages (from imbalanced-learn==0.5.0) (1.16.5)
Requirement already satisfied: scipy>=0.17 in c:\programdata\anaconda3\lib\site-packages (from imbalanced-learn==0.5.0) (1.3.1)
Requirement already satisfied: scikit-learn>=0.21 in c:\programdata\anaconda3\lib\site-packages (from imbalanced-learn==0.5.0) (0.21.3)
Requirement already satisfied: joblib>=0.11 in c:\programdata\anaconda3\lib\site-packages (from imbalanced-learn==0.5.0) (0.13.2)
Installing collected packages: imbalanced-learn
Successfully installed imbalanced-learn-0.5.0

(base) C:\Users\SDS>
```


- numpy 라이브러리 설치

- [pip install numpy==1.18.5 --upgrade] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install numpy==1.18.5 --upgrade
Collecting numpy==1.18.5
  Downloading https://files.pythonhosted.org/packages/e4/01/7a26148f7de9eb6c27f95b29eba16b7e820827cb9ebaae182d7483e44711/numpy-1.18.5-cp37-cp37m-win_amd64.whl (12.7MB)
    | 12.7MB 3.2MB/s
Installing collected packages: numpy
  Found existing installation: numpy 1.16.5
    Uninstalling numpy-1.16.5:
      Successfully uninstalled numpy-1.16.5
Successfully installed numpy-1.18.5

(base) C:\Users\SDS>
```

- scipy 라이브러리 설치

- [pip install scipy==1.5.2 --upgrade] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install scipy==1.5.2 --upgrade
Collecting scipy==1.5.2
  Downloading https://files.pythonhosted.org/packages/66/80/d8a5050df5b4d8229e018f3222fe603ce7f92c026b78f4e05d69c3a6c43b/scipy-1.5.2-cp37-cp37m-win_amd64.whl (31.2MB)
    | 31.2MB 6.4MB/s
Requirement already satisfied, skipping upgrade: numpy>=1.14.5 in c:\programdata\anaconda3\lib\site-packages (from scipy==1.5.2) (1.18.5)
Installing collected packages: scipy
  Found existing installation: scipy 1.3.1
    Uninstalling scipy-1.3.1:
      Successfully uninstalled scipy-1.3.1
Successfully installed scipy-1.5.2

(base) C:\Users\SDS>
```


- statsmodels 라이브러리 설치

- [pip install statsmodels==0.11.1 --upgrade] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install statsmodels==0.11.1 --upgrade
Collecting statsmodels==0.11.1
  Downloading https://files.pythonhosted.org/packages/86/3c/d118973b8d85eeba14b3a306a5a06f920dd92878fa57c264dbe70b83a197
/statsmodels-0.11.1-cp37-none-win_amd64.whl (8.2MB)
    | 8.2MB 547kB/s
Requirement already satisfied, skipping upgrade: pandas>=0.21 in c:\programdata\anaconda3\lib\site-packages (from statsmodels==0.11.1) (0.25.1)
Requirement already satisfied, skipping upgrade: scipy>=1.0 in c:\programdata\anaconda3\lib\site-packages (from statsmodels==0.11.1) (1.5.2)
Requirement already satisfied, skipping upgrade: patsy>=0.5 in c:\programdata\anaconda3\lib\site-packages (from statsmodels==0.11.1) (0.5.1)
Requirement already satisfied, skipping upgrade: numpy>=1.14 in c:\programdata\anaconda3\lib\site-packages (from statsmodels==0.11.1) (1.18.5)
Requirement already satisfied, skipping upgrade: python-dateutil>=2.6.1 in c:\programdata\anaconda3\lib\site-packages (from pandas>=0.21->statsmodels==0.11.1) (2.8.0)
Requirement already satisfied, skipping upgrade: pytz>=2017.2 in c:\programdata\anaconda3\lib\site-packages (from pandas>=0.21->statsmodels==0.11.1) (2019.3)
Requirement already satisfied, skipping upgrade: six in c:\programdata\anaconda3\lib\site-packages (from patsy>=0.5->statsmodels==0.11.1) (1.12.0)
Installing collected packages: statsmodels
  Found existing installation: statsmodels 0.10.1
    Uninstalling statsmodels-0.10.1:
      Successfully uninstalled statsmodels-0.10.1
Successfully installed statsmodels-0.11.1

(base) C:\Users\SDS>
```

- seaborn 라이브러리 설치

- [pip install seaborn==0.11.0 --upgrade] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install seaborn==0.11.0 --upgrade
Collecting seaborn==0.11.0
  Downloading https://files.pythonhosted.org/packages/bc/45/5118a05b0d61173e6b12bc5804f0fbb6f196adb0a20e0b16efc2b8e98be
/seaborn-0.11.0-py3-none-any.whl (283kB)
    | 286kB 819kB/s
Requirement already satisfied, skipping upgrade: scipy>=1.0 in c:\programdata\anaconda3\lib\site-packages (from seaborn==0.11.0) (1.5.2)
Requirement already satisfied, skipping upgrade: matplotlib>=2.2 in c:\programdata\anaconda3\lib\site-packages (from seaborn==0.11.0) (3.1.1)
Requirement already satisfied, skipping upgrade: pandas>=0.23 in c:\programdata\anaconda3\lib\site-packages (from seaborn==0.11.0) (0.25.1)
Requirement already satisfied, skipping upgrade: numpy>=1.15 in c:\programdata\anaconda3\lib\site-packages (from seaborn==0.11.0) (1.18.5)
Requirement already satisfied, skipping upgrade: cycler>=0.10 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn==0.11.0) (0.10.0)
Requirement already satisfied, skipping upgrade: kiwisolver>=1.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn==0.11.0) (1.1.0)
Requirement already satisfied, skipping upgrade: pyparsing!=2.0.4,!<2.1.2,!<2.1.6,>=2.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn==0.11.0) (2.4.2)
Requirement already satisfied, skipping upgrade: python-dateutil>=2.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn==0.11.0) (2.8.0)
Requirement already satisfied, skipping upgrade: pytz>=2017.2 in c:\programdata\anaconda3\lib\site-packages (from pandas>=0.23->seaborn==0.11.0) (2019.3)
Requirement already satisfied, skipping upgrade: six in c:\programdata\anaconda3\lib\site-packages (from cycler>=0.10->matplotlib>=2.2->seaborn==0.11.0) (1.12.0)
Requirement already satisfied, skipping upgrade: setuptools in c:\programdata\anaconda3\lib\site-packages (from kiwisolver>=1.0.1->matplotlib>=2.2->seaborn==0.11.0) (41.4.0)
Installing collected packages: seaborn
  Found existing installation: seaborn 0.9.0
    Uninstalling seaborn-0.9.0:
      Successfully uninstalled seaborn-0.9.0
Successfully installed seaborn-0.11.0

(base) C:\Users\SDS>
```

- sklearn 라이브러리 설치

[pip install sklearn] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install sklearn
Collecting sklearn
  Downloading https://files.pythonhosted.org/packages/1e/7a/dbb3be0ce9bd5c8b7e3d87328e79063f8b263b2b1bfa4774cb1147bfdcd3f/sklearn-0.0.tar.gz
Requirement already satisfied: scikit-learn in c:\programdata\anaconda3\lib\site-packages (from sklearn) (0.21.3)
Requirement already satisfied: scipy>=0.17.0 in c:\programdata\anaconda3\lib\site-packages (from scikit-learn->sklearn) (1.5.2)
Requirement already satisfied: numpy>=1.11.0 in c:\programdata\anaconda3\lib\site-packages (from scikit-learn->sklearn) (1.18.5)
Requirement already satisfied: joblib>=0.11 in c:\programdata\anaconda3\lib\site-packages (from scikit-learn->sklearn) (0.13.2)
Building wheels for collected packages: sklearn
  Building wheel for sklearn (setup.py) ... done
  Created wheel for sklearn: filename=sklearn-0.0-py2.py3-none-any.whl size=1321 sha256=e1660a49c925188d3589a6e20cc9695bb9ff1d2a3b6ab7f37b9a7d1f4957bdf6
  Stored in directory: C:\Users\SDS\AppData\Local\pip\Cache\wheels\76\03\bb\589d421d27431bcd2c6da284d5f2286c8e3b2ea3cf1594c074
Successfully built sklearn
Installing collected packages: sklearn
Successfully installed sklearn-0.0

(base) C:\Users\SDS>
```

- matplotlib 라이브러리 설치

[pip install matplotlib] 입력

```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install matplotlib
Requirement already satisfied: matplotlib in c:\programdata\anaconda3\lib\site-packages (3.1.1)
Requirement already satisfied: cycler>=0.10 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (0.10.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.1.0)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (2.4.2)
Requirement already satisfied: python-dateutil>=2.1 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (2.8.0)
Requirement already satisfied: numpy>=1.11 in c:\programdata\anaconda3\lib\site-packages (from matplotlib) (1.18.5)
Requirement already satisfied: six in c:\programdata\anaconda3\lib\site-packages (from cycler>=0.10->matplotlib) (1.12.0)
Requirement already satisfied: setuptools in c:\programdata\anaconda3\lib\site-packages (from kiwisolver>=1.0.1->matplotlib) (41.4.0)

(base) C:\Users\SDS>
```

- pillow 라이브러리 설치

[pip install pillow] 입력



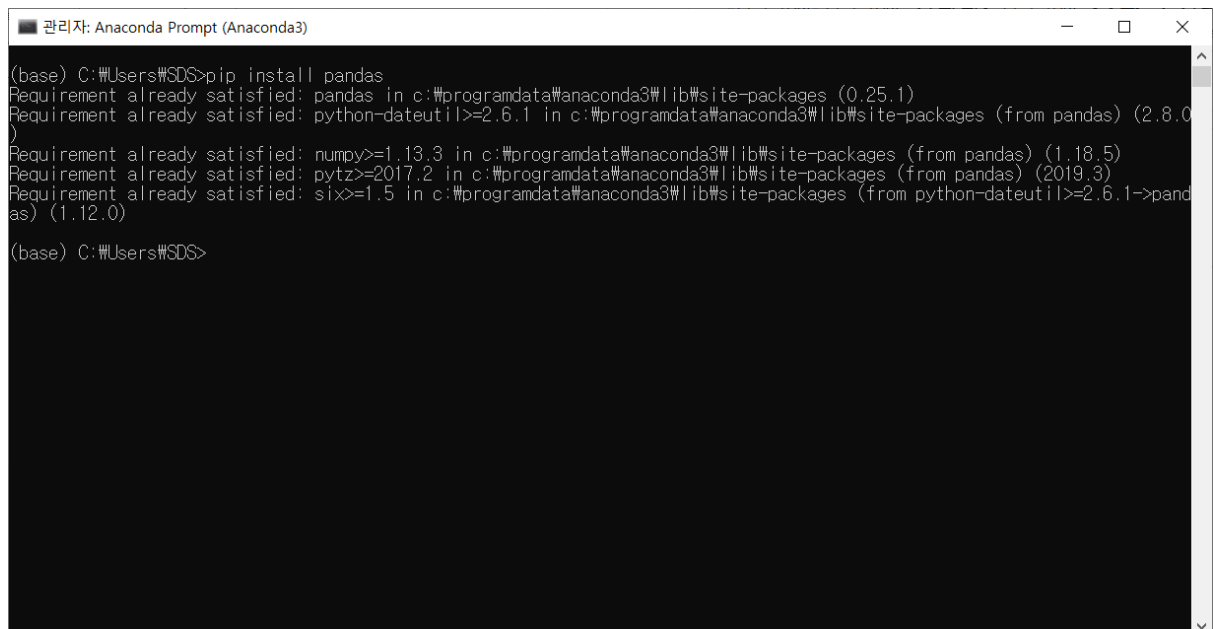
```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install pillow
Requirement already satisfied: pillow in c:\programdata\anaconda3\lib\site-packages (6.2.0)

(base) C:\Users\SDS>
```

- pandas 라이브러리 설치

[pip install pandas] 입력



```
관리자: Anaconda Prompt (Anaconda3)

(base) C:\Users\SDS>pip install pandas
Requirement already satisfied: pandas in c:\programdata\anaconda3\lib\site-packages (0.25.1)
Requirement already satisfied: python-dateutil>=2.6.1 in c:\programdata\anaconda3\lib\site-packages (from pandas) (2.8.0)
Requirement already satisfied: numpy>=1.13.3 in c:\programdata\anaconda3\lib\site-packages (from pandas) (1.18.5)
Requirement already satisfied: pytz>=2017.2 in c:\programdata\anaconda3\lib\site-packages (from pandas) (2019.3)
Requirement already satisfied: six>=1.5 in c:\programdata\anaconda3\lib\site-packages (from python-dateutil>=2.6.1->pandas) (1.12.0)



(base) C:\Users\SDS>
```

3. colab 접속 테스트

- 링크 클릭

<https://colab.research.google.com/notebooks/intro.ipynb#recent=true>

- 구글 로그인 -> 링크 들어가기
- 환영합니다 클릭


메 최근 사용 Google 드라이브 GitHub 업로드				
노트 필터링				
제목	처음 연 시간	마지막 연 시간		
 Colaboratory에 오신 것을 환영합니다	0분 전	0분 전		

- 시작하기 밑에 코드를 실행하고, 잘 동작하면 성공!

▼ 시작하기

지금 읽고 계신 문서는 정적 웹페이지가 아니라 코드를 작성하고 실행할 수 있는 대화형 환경인 **Colab 메모장**입니다.

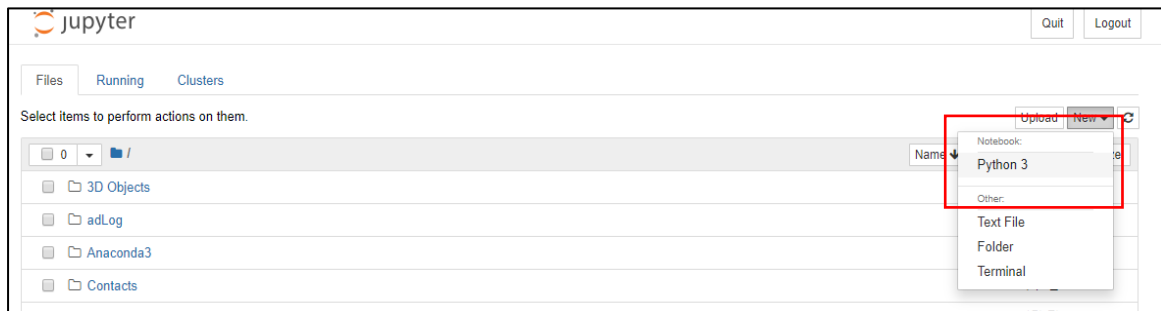
예를 들어 다음은 값을 계산하여 변수로 저장하고 결과를 출력하는 간단한 Python 스크립트가 포함된 코드 셀입니다.

```
 seconds_in_a_day = 24 * 60 * 60  
seconds_in_a_day  
86400
```

[Senior DS(Level 2) 이론] 프로그램 테스트 가이드(Test)

1. Anaconda3(python3)

- Anaconda 설치 후 jupyter Notebook 실행
- New 버튼으로 python 파일 생성



- Ctrl + c

```
import pandas as pd
import numpy as np
print('hello world')
print('pandas test: ', pd.DataFrame([1,2,3]))
print('numpy test: ', np.sum([1,2,3]))
```

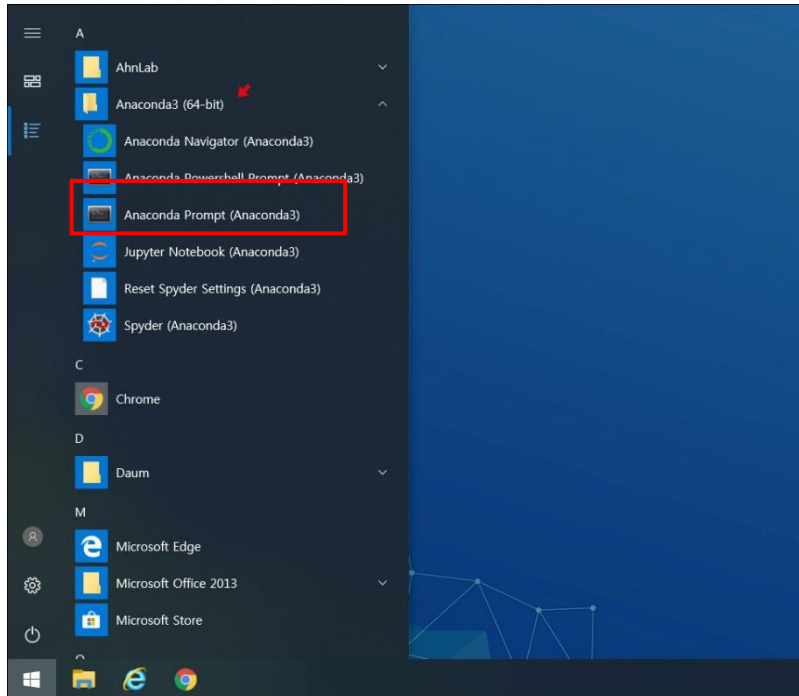
```
In [2]: import pandas as pd
import numpy as np

print('hello world')
print('pandas test: ', pd.DataFrame([1,2,3]))
print('numpy test: ', np.sum([1,2,3]))

hello world
pandas test:    0
0  1
1  2
2  3
numpy test:  6
```

2. 추가/변경 패키지 설치여부 확인

- Anaconda Prompt 실행



- 라이브러리 버전확인

- [pip list | findstr "mlxtend imbalanced-learn numpy scipy statsmodels seaborn"] 입력

```
관리자: Anaconda Prompt (Anaconda3)
(base) C:\Users\#SDS>pip list | findstr "mlxtend imbalanced-learn numpy scipy statsmodels seaborn"
imbalanced-learn      0.5.0
mlxtend               0.15.0.0
numpy                 1.18.5
numpydoc              0.9.1
scipy                 1.5.2
seaborn               0.11.0
statsmodels           0.11.1
(base) C:\Users\#SDS>
```