파이썬으로 배우는 AI 로봇

파이썬 응용실습

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주요 내용

- 남성, 여성 분류
- 고양이, 강아지 분류

파이썬 패키지 설치

```
$pip install jupyter notebook      # for jupyter
$pip install image                 # for PIL
$pip install matplotlib            # for show image
$pip install tensorflow            # for tensorflow cpu
$pip install --upgrade tensorflow
$pip install sklearn               # for data split
$pip install keras                 # for optimizer
```

파이썬 패키지

```
C:₩Users₩solro>pip install jupyter notebook
Collecting jupyter
  Using cached jupyter-1.0.0-py2.py3-none-any.whl (2.7 kB)
Collecting notebook
  Using cached notebook-6.4.6-py3-none-any.whl (9.9 MB)
Collecting jupyter-console
  Using cached jupyter_console-6.4.0-py3-none-any.whl (22 kB)
```

```
C:₩Users₩solro>pip install image
Collecting image
  Downloading image-1.5.33.tar.gz (15 kB)
  Preparing metadata (setup.py) ... done
Collecting pillow
  Downloading Pillow-8.4.0-cp310-cp310-win_amd64.whl (3.2 MB)
     |                                | 3.2 MB 6.4 MB/s
```

```
C:₩Users₩solro>pip install matplotlib
Collecting matplotlib
  Downloading matplotlib-3.5.1-cp310-cp310-win_amd64.whl (7.2 MB)
     |                                | 7.2 MB 6.4 MB/s
Requirement already satisfied: packaging>=20.0 in c:₩pythonpro₩python3₩lib₩site-packages (from matplotlib) (21.3)
Requirement already satisfied: numpy>=1.17 in c:₩pythonpro₩python3₩lib₩site-packages (from matplotlib) (1.21.4)
Requirement already satisfied: pillow>=6.2.0 in c:₩pythonpro₩python3₩lib₩site-packages (from matplotlib) (8.4.0)
Collecting fonttools>=4.22.0
  Downloading fonttools-4.28.5-py3-none-any.whl (890 kB)
     |                                | 890 kB 6.4 MB/s
```

파이썬 패키지

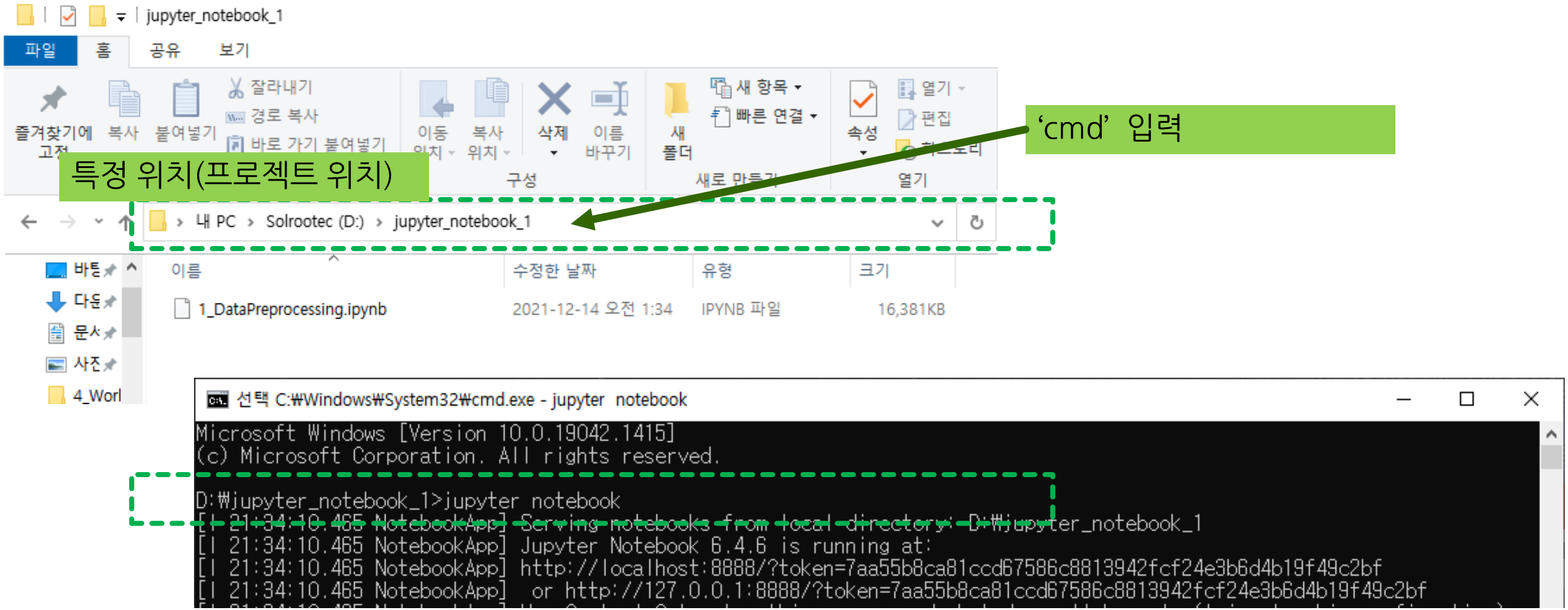
```
C:₩Users₩solro>pip install tensorflow
Collecting tensorflow
  Downloading tensorflow-2.7.0-cp39-cp39-win_amd64.whl (430.8 MB)
     |▌                               | 32.6 MB 6.4 MB/s eta 0:01:03
```

```
C:₩Users₩solro>pip install --upgrade tensorflow
Requirement already satisfied: tensorflow in c:₩pythonpro₩python39₩lib₩site-packages (
2.7.0)
Requirement already satisfied: keras<2.8,>=2.7.0rc0 in c:₩pythonpro₩python39₩lib₩site-
packages (from tensorflow) (2.7.0)
Requirement already satisfied: termcolor>=1.1.0 in c:₩pythonpro₩python39₩lib₩site-pack
```

```
C:₩Users₩solro>pip install sklearn
Collecting sklearn
  Downloading sklearn-0.0.tar.gz (1.1 kB)
  Preparing metadata (setup.py) ... done
Collecting scikit-learn
  Downloading scikit_learn-1.0.1-cp39-cp39-win_amd64.whl (7.2 MB)
     |████████████████████████████████| 7.2 MB 3.2 MB/s
```

```
C:₩Users₩solro>pip install keras
Requirement already satisfied: keras in c:₩pythonpro₩python39₩lib₩site-packages (2.7.0
)
```

주피터 특정 위치에서 실행



주피터 사용법

Command & Edit mode

Shift + Enter: 코드 실행 + 다음셀 이동
Ctrl + Enter: 코드 실행 + 현재셀

Command mode

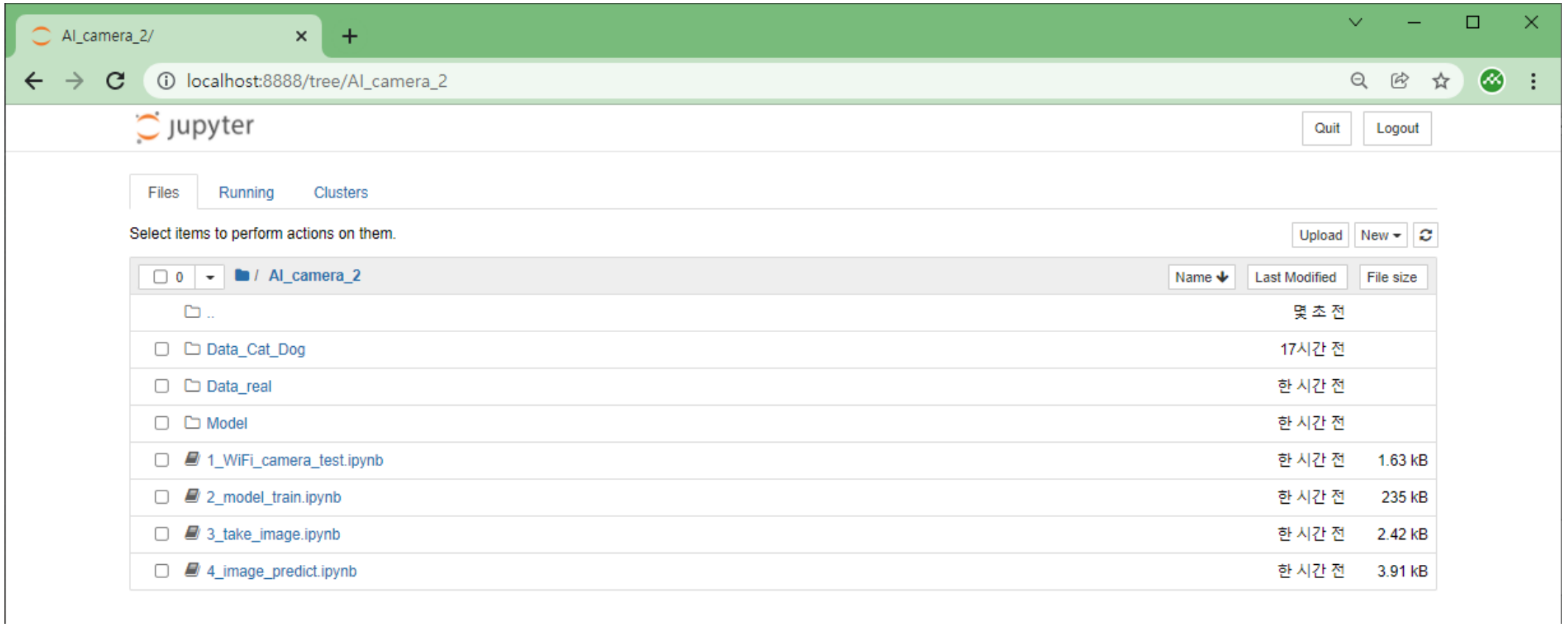
A: 위에 새 Cell 만들기
B: 아래에 새 Cell 만들기
X: 해당 Cell 삭제
Z: 바로 전 삭제 Cell 복원
Y: coding type 페이지
M: markdown type 페이지

https://hogni.tistory.com/29
https://greeksharifa.github.io/references/2019/01/26/Jupyter-usage/
https://pasus.tistory.com/134
Etc.

남성, 여성 분류

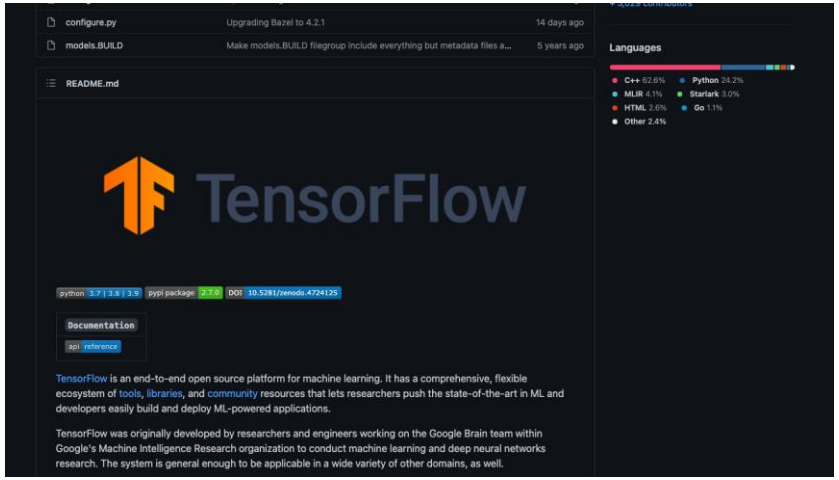

AI_camera_1/
localhost:8888/tree/AI_camera_1
jupyter
Quit
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
Notebook:
Python 3 (ipykernel)
Other:
Text File
Folder
Terminal
/ AI_camera_1
Name
..
Data_Man_Woman
Data_real
Model
1_WiFi_camera_test.ipynb 한 시간 전 1.63 kB
2_model_train.ipynb 한 시간 전 222 kB
3_take_image.ipynb 한 시간 전 2.42 kB
4_image_predict.ipynb 한 시간 전 3.91 kB

고양이, 강아지 분류


AI_camera_2/
localhost:8888/tree/AI_camera_2
jupyter
Quit
Logout
Files
Running
Clusters
Select items to perform actions on them.
Upload
New
0
/ AI_camera_2
Name
Last Modified
File size
..
몇 초 전
Data_Cat_Dog
17시간 전
Data_real
한 시간 전
Model
한 시간 전
1_WiFi_camera_test.ipynb
한 시간 전
1.63 kB
2_model_train.ipynb
한 시간 전
235 kB
3_take_image.ipynb
한 시간 전
2.42 kB
4_image_predict.ipynb
한 시간 전
3.91 kB

Thank you

텐서플로우 환경 설정



- 텐서플로우를 실행할 수 있게 만들기 위해,
- "Microsoft Visual C++ 2015-2019 Redistributable" 패키지를 설치
- https://support.microsoft.com/ko-kr/help/2977003/the-latest-supported-visual-c-downloads