

⋮ 문제해결을 위한 데이터 분석 및 시각화

Jupyter Notebook 기본 사용법

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“미래로 향하는 새로운 이정표”



오늘의 학습

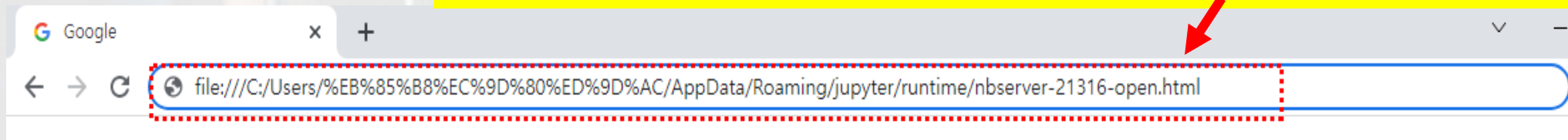
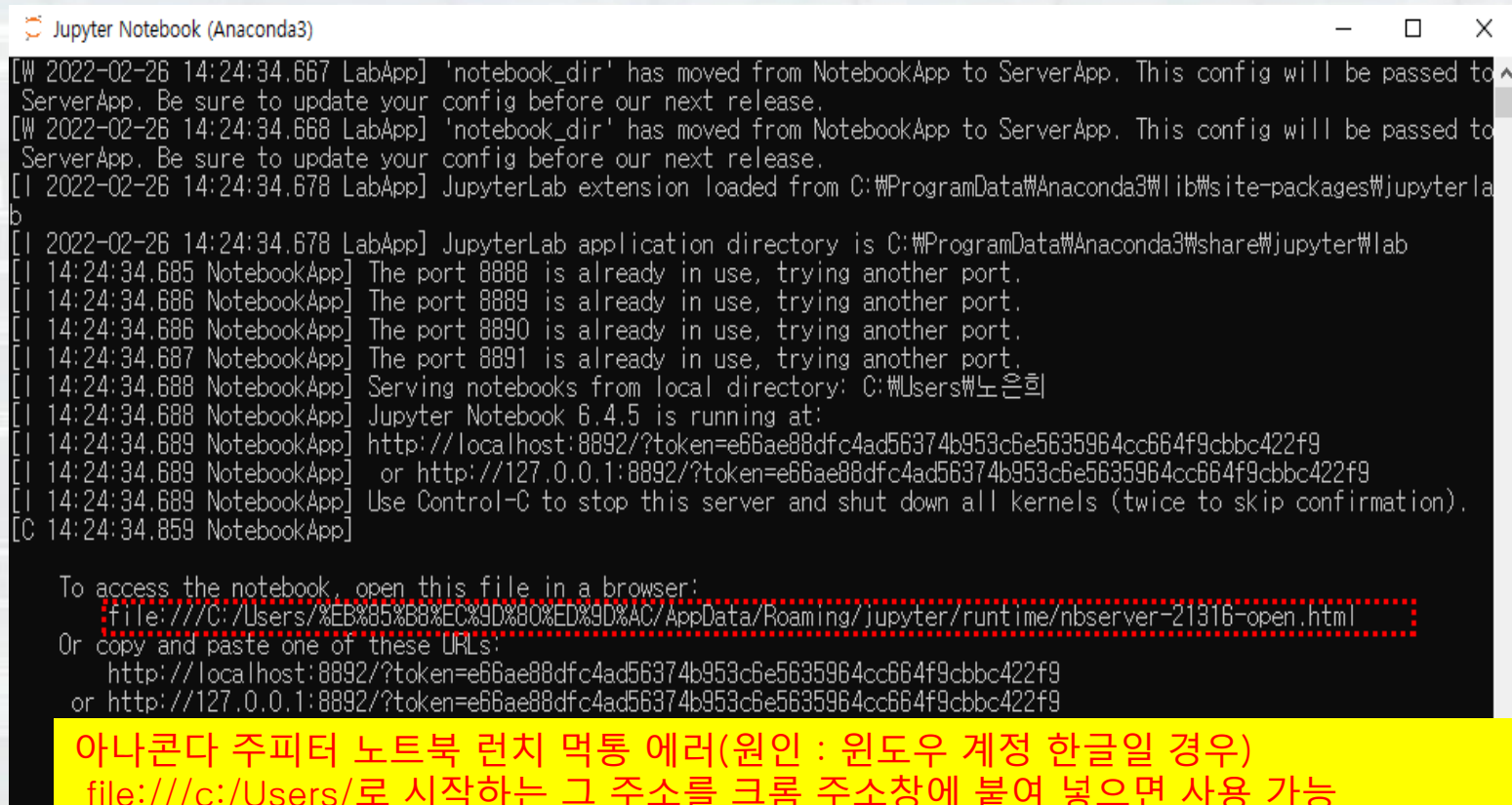
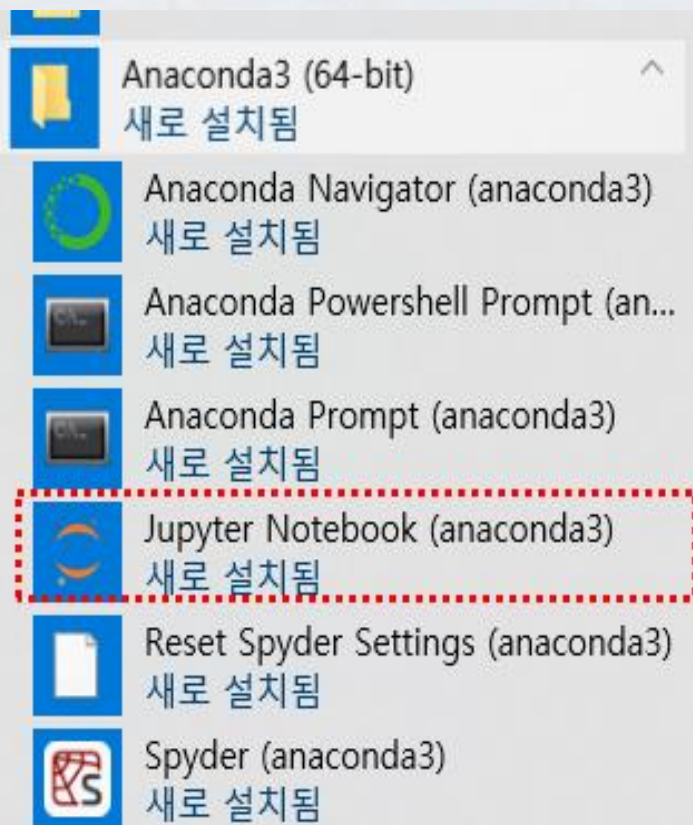
학습내용

- Jupyter Notebook 기본 사용법 익히기

Jupyter Notebook

■ Jupyter Notebook.

웹브라우저 상에서 파이썬 코드를 단계적으로 실행해볼 수 있는 프로그램



Jupyter Notebook

- "Python 3"을 눌러주면 아래와 같은 코드 창이 열리게 됩니다.

The image shows two overlapping browser windows of the Jupyter Notebook interface. The top window is at the 'Home Page' (localhost:8889/tree) and shows the 'New' button in the top right corner, which has been clicked to reveal a dropdown menu. The menu lists 'Python 3 (ipykernel)' as the first option, with 'Other:' followed by 'Text File', 'Folder', and 'Terminal'. A red box highlights the 'New' button and the 'Python 3 (ipykernel)' option. The bottom window is titled 'Untitled2 - Jupyter Notebook' (localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3) and shows the notebook interface. A red box highlights the 'In []:' prompt in the first code cell, with a red arrow pointing to it. A text label '코드와 문서가 위치하는 곳을 셀(Cell)' is placed next to the prompt.

Home Page - Select or create a x +

localhost:8889/tree

jupyter

Quit Logout

Files Running Clusters

Select items to perform actions on them.

Upload New

Notebook:

Python 3 (ipykernel)

Other:

Text File

Folder

Terminal

하루 전

5시간 전

Home Page - Select or create a x +

Untitled2 - Jupyter Notebook x +

localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3

jupyter Untitled2 (unsaved changes)

Logout

File Edit View Insert Cell Kernel Widgets Help

Trusted Python 3 (ipykernel)

In []:

코드와 문서가 위치하는 곳을 셀(Cell)

Jupyter Notebook

- print("Hello")를 입력 후 Shift + Enter 키를 누르면 해당 코드가 실행되고 결과값이 아래에 출력

The screenshot displays a web browser window with two tabs: 'Home Page - Select or create a...' and 'Untitled2 - Jupyter Notebook'. The address bar shows the URL 'localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3'. The Jupyter interface includes a top bar with the 'jupyter' logo, the notebook title 'Untitled2 (autosaved)', a Python logo, and a 'Logout' button. Below this is a menu bar with options: File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. A 'Trusted' status indicator and 'Python 3 (ipykernel)' are also visible. The main toolbar contains icons for saving, creating new cells, deleting cells, duplicating cells, moving cells up/down, running the current cell, interrupting the kernel, and restarting the kernel. The code area shows two input cells. The first cell contains the code 'In [1]: print("Hello")' and has the output 'Hello' displayed below it. The second cell is currently in 'Edit mode', indicated by a green border and a red callout box labeled '편집모드' (Edit mode). Below it, the third cell is in 'Command mode', indicated by a blue border and a red callout box labeled '명령모드' (Command mode).

Home Page - Select or create a x Untitled2 - Jupyter Notebook x +

localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3

jupyter Untitled2 (autosaved) Python 3 (ipykernel) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

Run Interrupt Restart Code

In [1]: `print("Hello")`
Hello

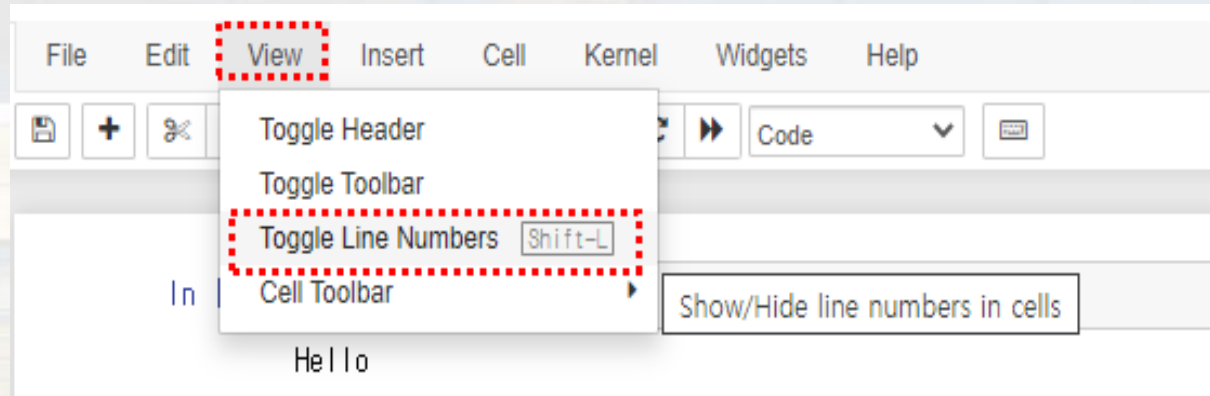
편집모드 In []:

명령모드 In []:

명령 모드에서 편집 모드로 들어가려면 Enter키를, 반대로는 Esc 키를 누르면 된다.

Jupyter Notebook

- 라인번호 보이기/숨기기



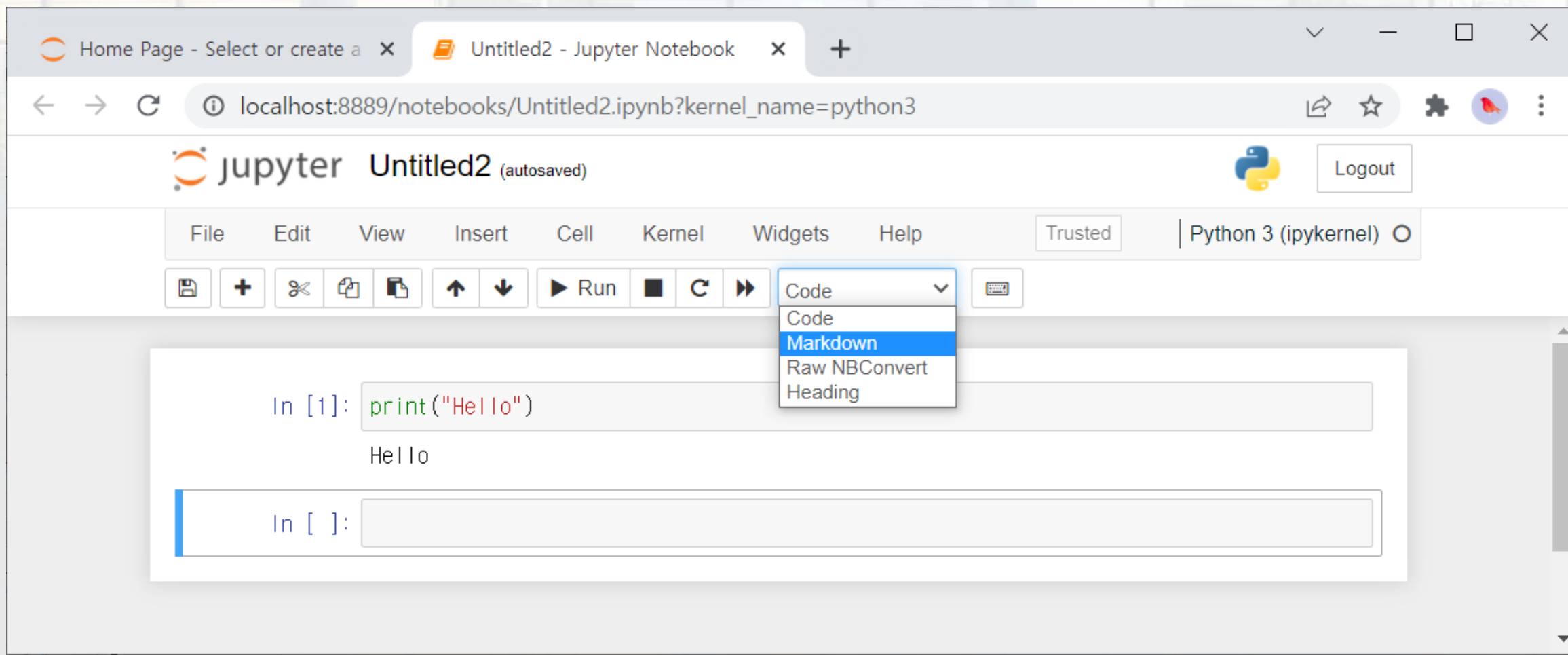
Jupyter Notebook

- Markdown : 일반 텍스트 문서의 양식을 편집하는 문법으로 HTML형태로 변환이 가능

Code Cell에서 Markdown Cell로 변경하기

변경방법 : esc + m, Cell-> Cell Type -> Markdown

#을 추가하면 글자색이 파란색으로 바뀌고 #의 개수가 늘수록 글자가 작아진다.



The screenshot shows a web browser window with a Jupyter Notebook. The browser tabs include 'Home Page - Select or create a' and 'Untitled2 - Jupyter Notebook'. The address bar shows 'localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3'. The Jupyter interface has a menu bar with 'File', 'Edit', 'View', 'Insert', 'Cell', 'Kernel', 'Widgets', and 'Help'. Below the menu bar is a toolbar with icons for saving, adding, deleting, and running cells. A dropdown menu is open over the 'Code' button, showing options: 'Code', 'Markdown' (highlighted), 'Raw NBConvert', and 'Heading'. The main area shows a code cell with the input 'In [1]: print("Hello")' and the output 'Hello'. Below it is an empty code cell with the input 'In []: '.

Jupyter Notebook

- Markdown : 일반 텍스트 문서의 양식을 편집하는 문법으로 HTML형태로 변환이 가능

Header : 제목 지정

- #을 활용, #의 개수로 header의 크기를 조절(1~6개까지 가능), 마지막 7개는 변환안됨
- 한 개가 가장 크고 개수가 늘어 날수록 작아짐

```
1 # Header 1
2 ## Header 2
3 ### Header 3
4 #### Header 4
5 ##### Header 5
6 ##### Header 6
7 ##### Header 7
```

Header 1

Header 2

Header 3

Header 4

Header 5

Header 6

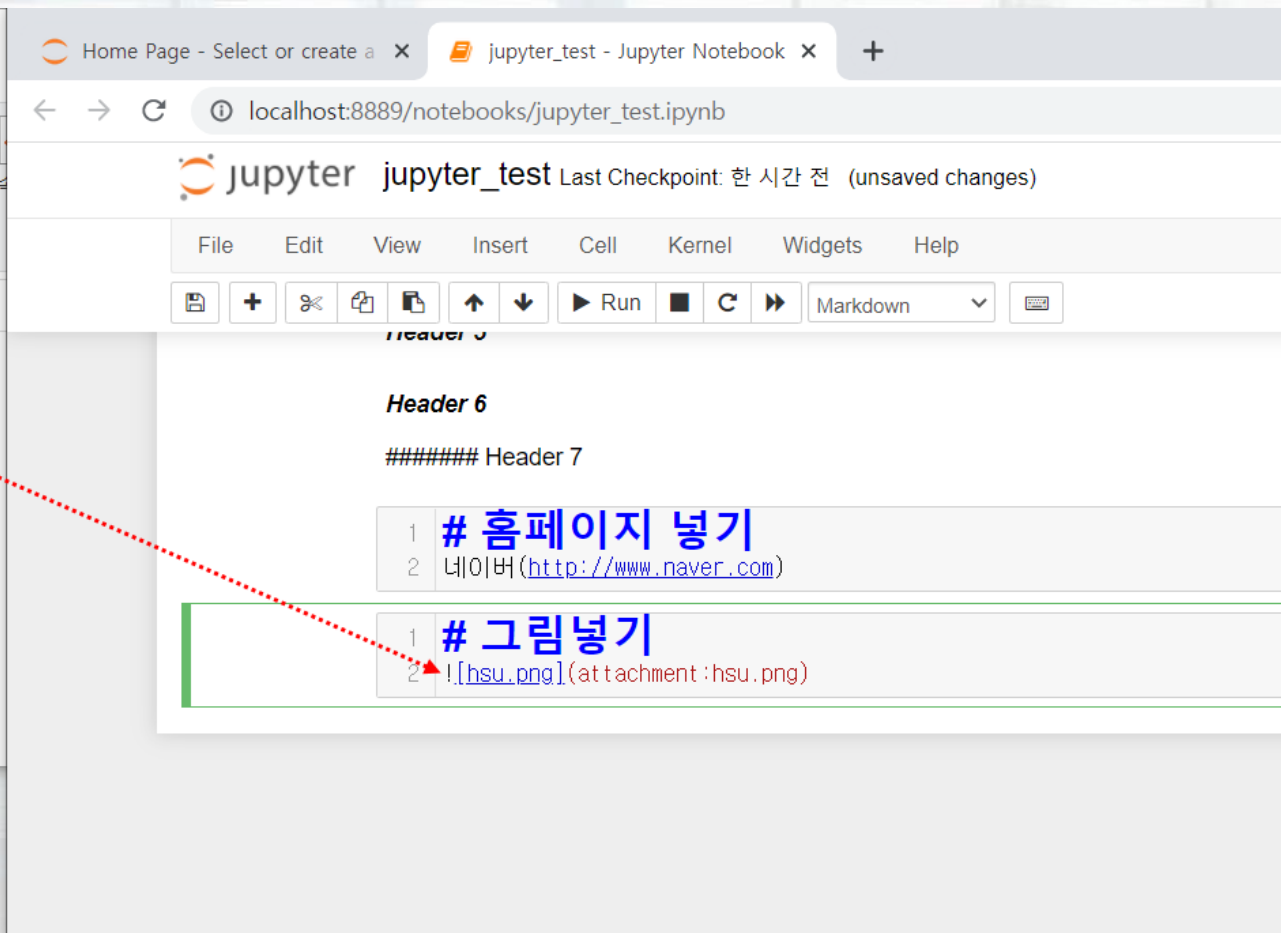
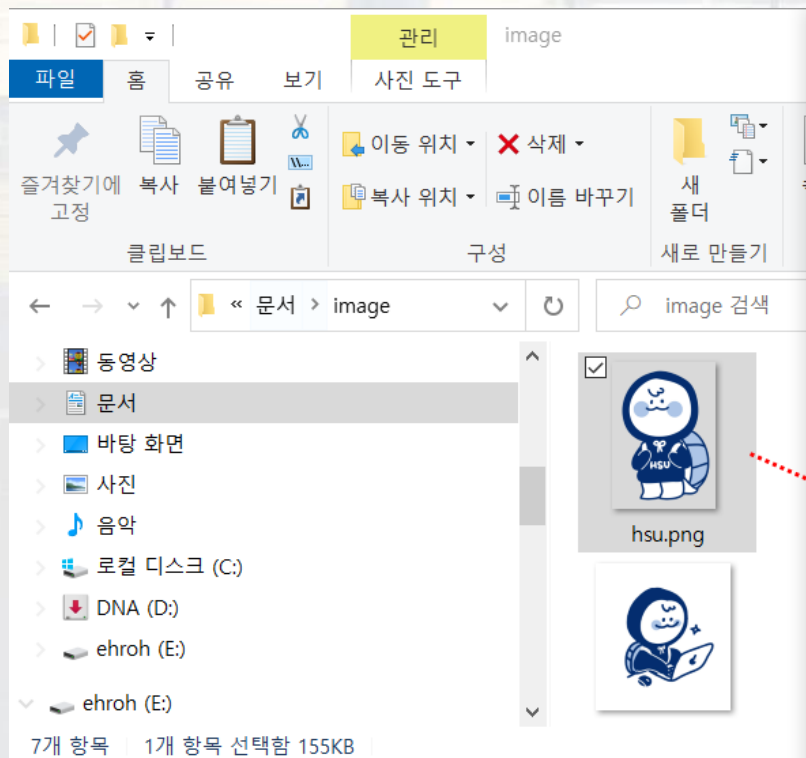
Header 7

Jupyter Notebook

- Markdown : 홈페이지 주소연결, 그림넣기

홈페이지 링크걸기 : 하이퍼링크 처럼 이름을 넣고 홈페이지 URL 주소 넣기

그림넣기 : 저장되어 있는 이미지를 셀에다가 끌어다 넣고 실행



Jupyter Notebook

- Run 순서 처음부터 지정하는 메뉴

The screenshot shows the Jupyter Notebook interface in a web browser. The browser's address bar displays `localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3`. The Jupyter interface includes a top bar with the Jupyter logo, the notebook name "Untitled2", and a "Last Checkpoint: 26분 전 (autosaved)" status. Below this is a menu bar with "File", "Edit", "View", "Insert", "Cell", "Kernel", "Widgets", and "Help". The "Kernel" menu is open, showing options: "Interrupt", "Restart", "Restart & Clear Output", "Restart & Run All", "Reconnect", "Shutdown", and "Change kernel". The "Restart & Run All" option is highlighted with a red dashed box, and a tooltip explains: "Restart the Kernel and re-run the notebook". The notebook content shows two code cells. The first cell, labeled "In [1]:", contains `print("Hello")` and has output "Hello". The second cell, labeled "In [2]:", contains a nested loop for printing a star pattern. The output of the second cell is a star pattern: `*`, `**`, `***`, `****`, and `*****`. The bottom status bar shows `localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3#`.

Jupyter Notebook

- 라인번호 넣기

View -> Toggle Line Numbers

The screenshot shows the Jupyter Notebook interface in a web browser. The browser's address bar displays `localhost:8889/notebooks/Untitled2.ipynb?kernel_name=python3`. The Jupyter interface includes a top bar with the Jupyter logo, the notebook title "Untitled2", and a "Last Checkpoint: 28분 전 (autosaved)" status. Below this is a menu bar with "File", "Edit", "View", "Insert", "Cell", "Kernel", "Widgets", and "Help". The "View" menu is open, showing options: "Toggle Header", "Toggle Toolbar", "Toggle Line Numbers" (highlighted with a red dashed box and labeled "Shift+L"), and "Cell Toolbar". A tooltip for "Toggle Line Numbers" shows the text "Show/Hide line numbers in cells". The notebook content area shows two code cells. The first cell, labeled "In [1]:", contains the text "Hello". The second cell, labeled "In [2]:", contains a Python loop:

```
for i in range(1,6):  
    for j in range(0,i):  
        print("*",end="")  
    print("")
```

. The output of this cell shows a pattern of asterisks:

```
*  
**  
***  
****  
*****
```

. At the bottom, there is an input field for a new code cell labeled "In []:" with the number "1" entered.

Jupyter Notebook

- 폴더생성과 이름 변경

Untitled클릭 -> 이름변경

The image consists of two side-by-side screenshots of a Jupyter Notebook interface, illustrating the process of renaming a notebook.

Left Screenshot: The browser window shows the Jupyter Notebook interface with the notebook titled "Untitled2". A red dashed box highlights the "Untitled2" title. A red arrow points from this box to the "Rename Notebook" dialog box that is open in the foreground. The dialog box has the text "Enter a new notebook name:" and a text input field containing "jupyter_test". A red dashed box also highlights the input field. Below the dialog box, the notebook content is visible, showing a code cell with a loop and the output "반복문".

Right Screenshot: The browser window shows the Jupyter Notebook interface with the notebook titled "jupyter_test". A red dashed box highlights the "jupyter_test" title. The notebook content is visible, showing a code cell with a loop and the output "반복문".



Jupyter Notebook

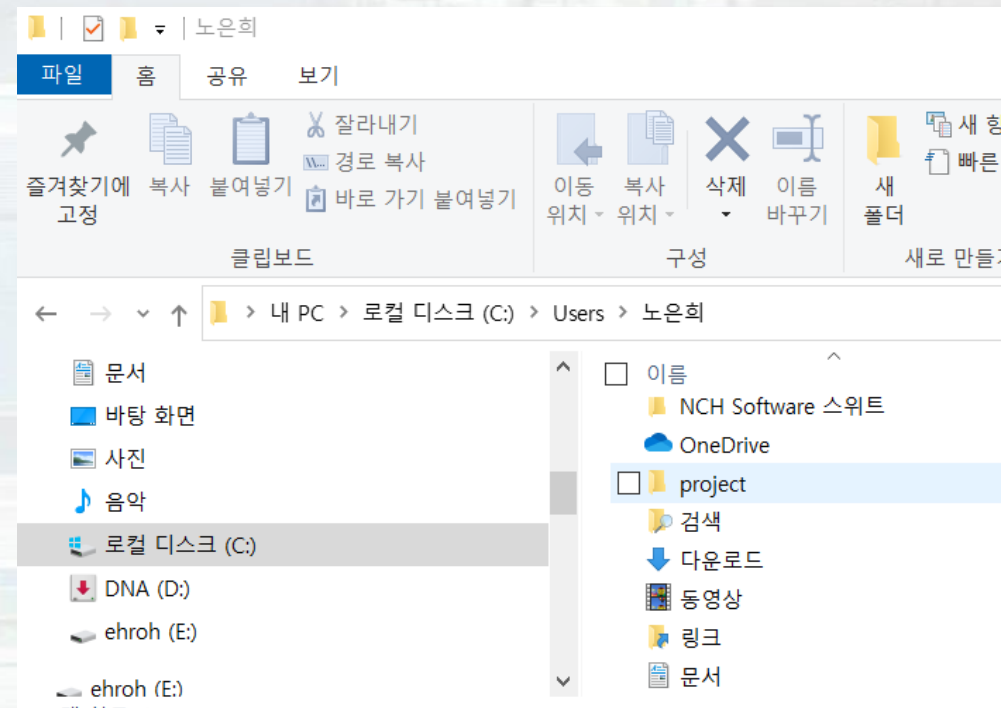
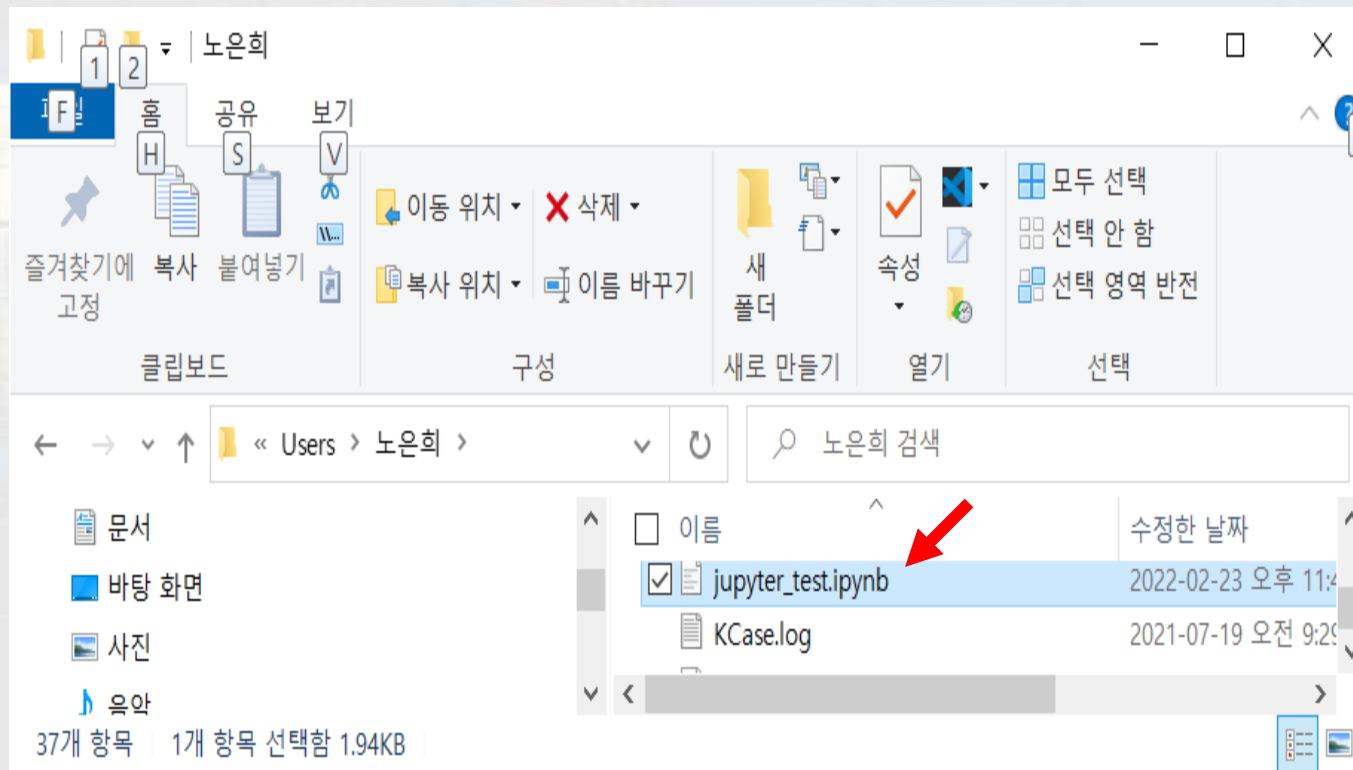
- 폴더생성과 이름 변경

New클릭 -> Folder

The screenshot shows the Jupyter Notebook web interface. At the top left is the Jupyter logo. On the top right are 'Quit' and 'Logout' buttons. Below the logo are tabs for 'Files', 'Running', and 'Clusters'. A message says 'Select items to perform actions on them.' In the top right of the file list area are 'Upload', 'New', and a refresh icon. A red arrow points to the 'New' button. A dropdown menu is open from 'New', showing options: 'Notebook: Python 3 (ipykernel)', 'Other: Text File', 'Folder' (highlighted with a red dashed box and a red arrow), and 'Terminal'. The file list below shows a root directory with subfolders: '3D Objects', 'Contacts', 'Desktop', 'Documents', and 'Downloads'. On the right side of the file list, there are timestamps: '하루 전' and '22분 전'.

Jupyter Notebook

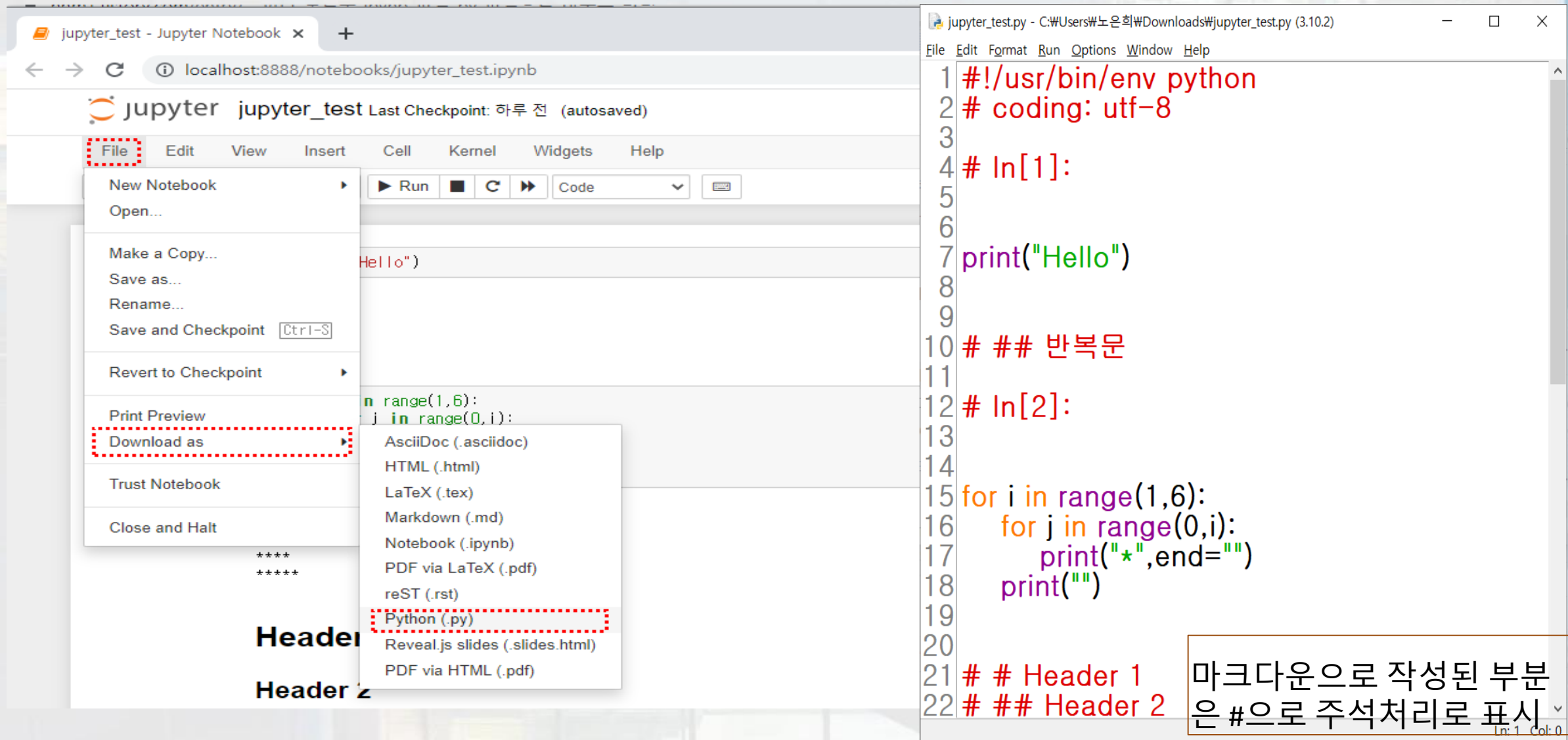
- 파일이 저장되는 곳 위치



- 주피터 노트북은 파이썬 코드와 문서로 구성된 파일로 확장자는 ipynb

Jupyter Notebook

- 주피터 노트북 ipynb(ipython notebook)파일 py파일로 바꾸는 방법



The screenshot displays the Jupyter Notebook interface in a web browser. The 'File' menu is open, and the 'Download as' option is selected, leading to a submenu where 'Python (.py)' is highlighted. The code editor shows a Python script with the following content:

```
1 #!/usr/bin/env python
2 # coding: utf-8
3
4 # In[1]:
5
6
7 print("Hello")
8
9
10 # ## 반복문
11
12 # In[2]:
13
14
15 for i in range(1,6):
16     for j in range(0,i):
17         print("*",end="")
18     print("")
19
20
21 # # Header 1
22 # ## Header 2
```

마크다운으로 작성된 부분은 #으로 주석처리로 표시



Jupyter Notebook

- 단축키

단축키	설명
Shift + Enter	액티브 셀을 실행하고 아래 셀을 선택
Ctrl + Enter	액티브 셀을 실행
Alt + Enter	액티브 셀을 실행하고 아래에 셀을 하나 생성

편집 모드 단축키	설명
Ctrl + Z	Undo 명령이다.
Ctrl + Shift + Z	Redo 명령이다.
Tab	자동완성 또는 Indent를 추가한다.
Shift + Tab	툴팁 또는 변수의 상태를 표시한다.
Ctrl + Shift + -	커서의 위치에서 셀을 잘라 두 개로 만든다.



Jupyter Notebook

■ 단축키

설명	
↑, ↓	셀 선택
A	액티브 코드 셀의 위(Above)에 셀을 하나 생성
B	액티브 코드 셀의 위(Below)에 셀을 하나 생성
Ctrl + S	Notebook 파일을 저장
Shift + L	줄 번호 표시를 토글
D, D	(D 두번 연속으로 타이핑)액티브 코드 셀을 삭제
Z	삭제한 셀을 하나 복원
Y	액티브 코드 셀을 Code 타입(코드를 기술하는 타입)으로 변경
M	액티브 코드 셀을 Markdown 타입 변경
O, O	커널을 재시작
P	명령 팔레트 열기
H	단축키 목록을 표시한다. Enter 키로 숨긴다.



마무리

- Jupyter Notebook 기본 사용법에 대해 학습하였습니다.