

Colaboratory 사용법

Information & Intelligence System Lab.
Sungkyunkwan University



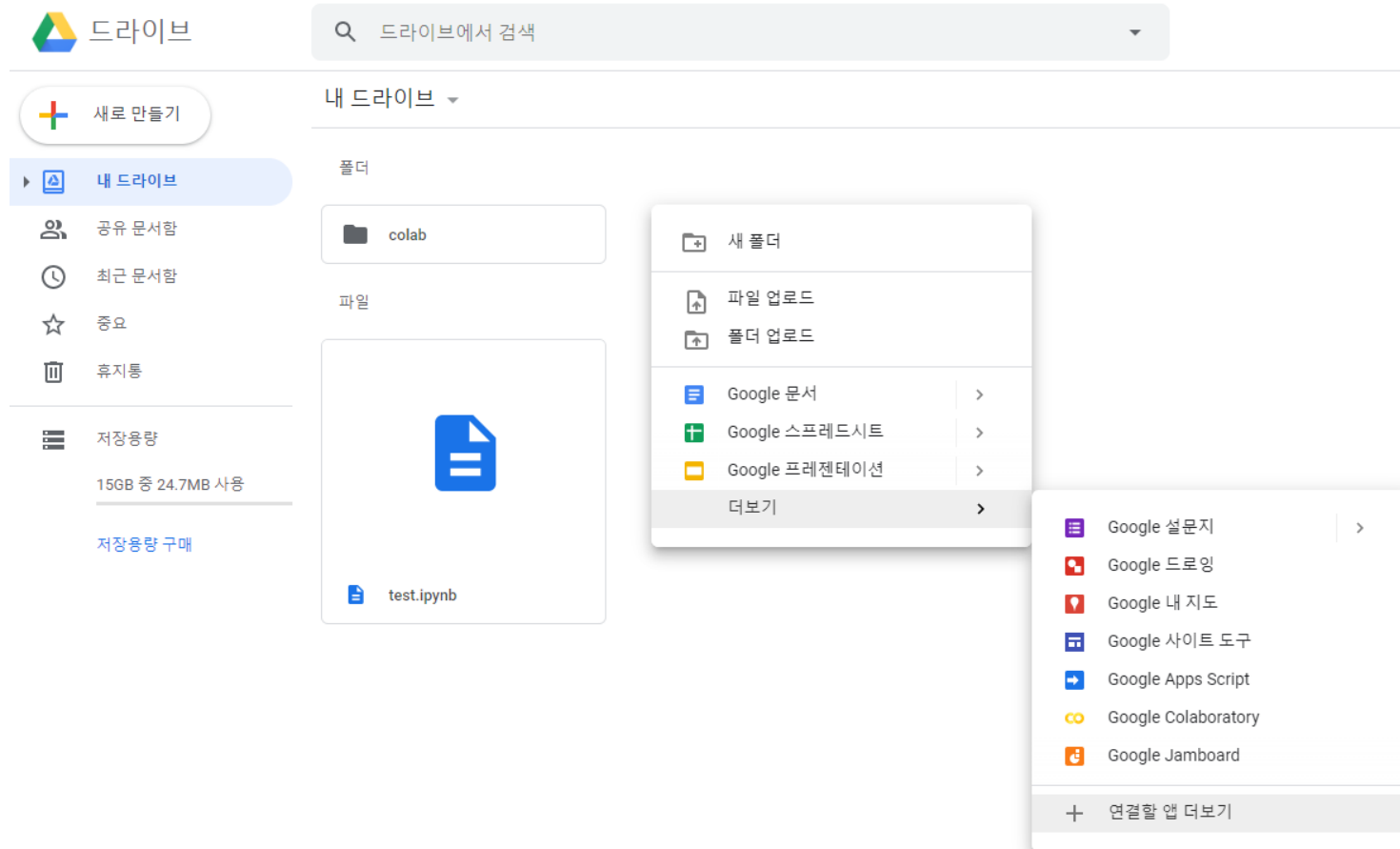
Information & Intelligence System Lab.,
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Colab 특징

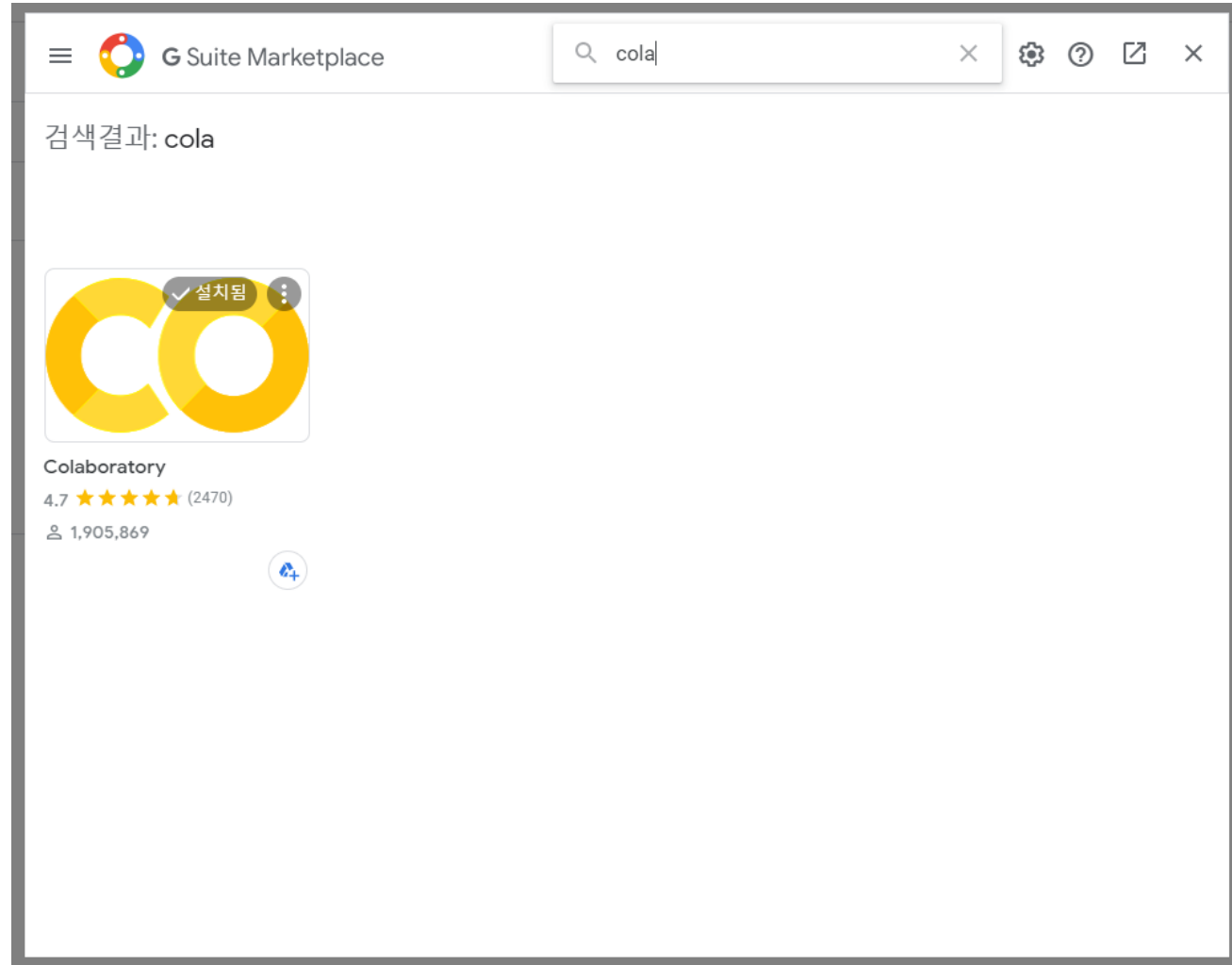
- 무료!
- 런타임 최대 12시간
 - 세션당 12시간
 - 하루에 12시간만 사용할 수 있다는 것이 아님
- 90분간 사용자의 조작이 없으면 연결 종료
- .ipynb 사용

Colab 사용법

- <https://drive.google.com/drive/u/0/my-drive>



Colab 사용법



Colab 사용법

The image shows the Google Drive interface with a settings overlay. In the background, the Google Drive sidebar is visible with options like '새로 만들기' (New), '내 드라이브' (My Drive), and '공유 문서함' (Shared with me). The main area shows '내 드라이브' (My Drive) with a folder named 'colab'. The settings overlay is titled '설정' (Settings) and has a sub-header '데스크톱용 드라이브 다운로드' (Download Drive for Desktop). On the left side of the settings overlay, there are tabs: '일반사항' (General), '알림' (Notifications), and '앱 관리' (App Management), with '앱 관리' being the active tab. The main content area lists several Google apps that are connected to the Drive. Each app has a checkbox for '기본값으로 사용' (Use as default) and a dropdown for '옵션' (Options). The apps listed are Google Apps Script, Google Colaboratory, Google Earth, Google Jamboard, and Google 내 지도 (Google My Maps). The '기본값으로 사용' checkbox for Google Colaboratory is highlighted with a red box. At the top right of the settings overlay, there is a '완료' (Done) button.

드라이브

드라이브에서 검색

내 드라이브

폴더

colab

설정

데스크톱용 드라이브 다운로드

완료

일반사항

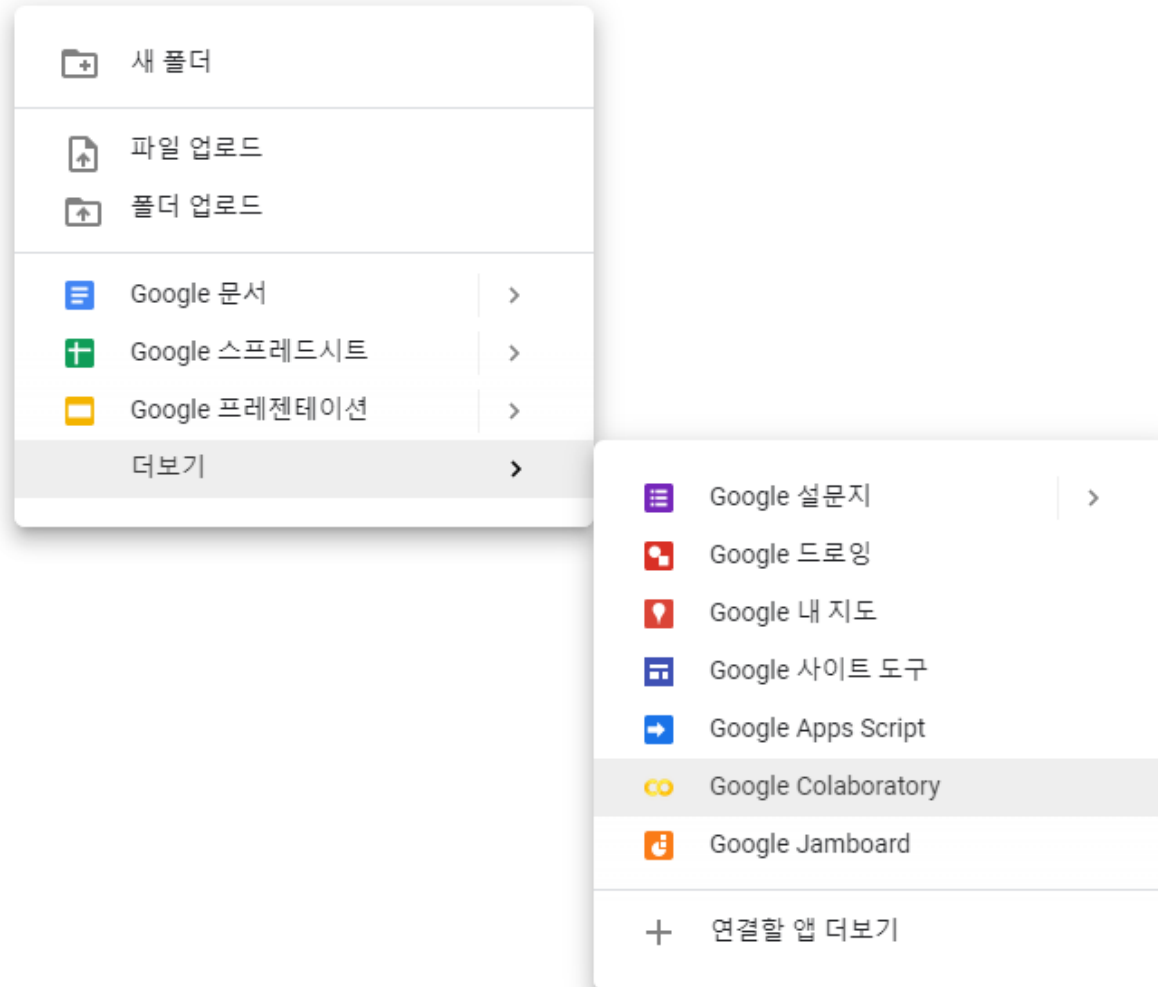
알림

앱 관리

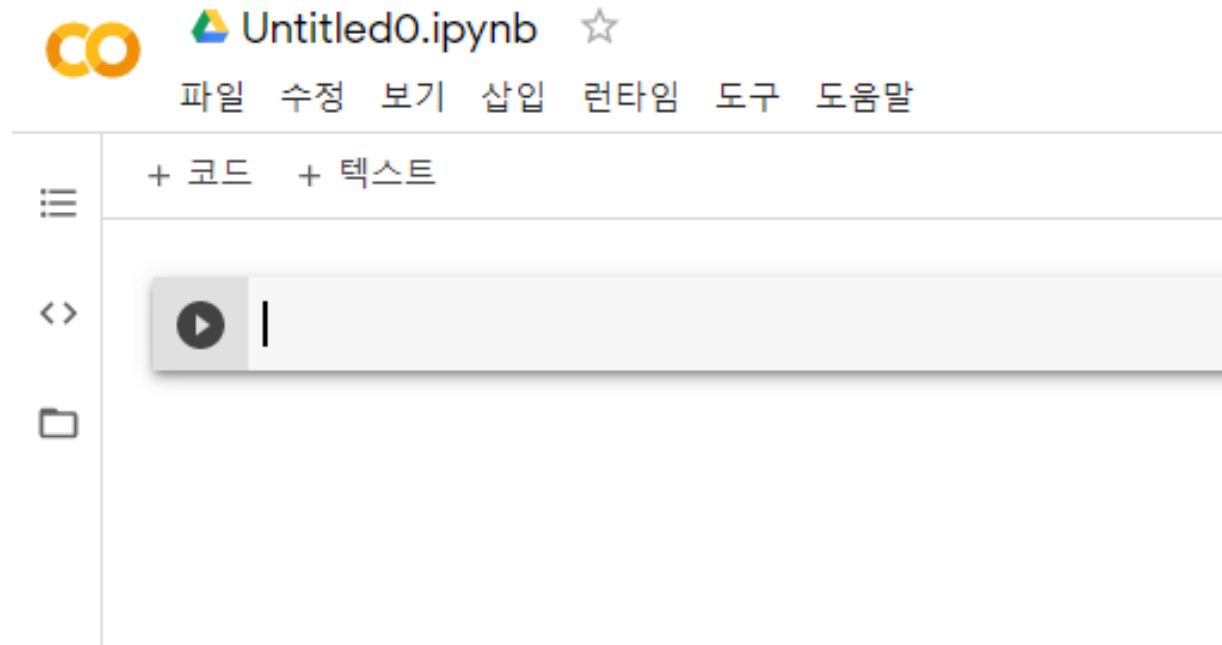
다음 앱이 드라이브에 연결되었습니다. [연결할 앱 더보기](#) [자세히 알아보기](#)

	Google Apps Script Create and edit scripts	<input checked="" type="checkbox"/> 기본값으로 사용	옵션
	Google Colaboratory Data analysis tool that combines code, output and descriptive text into one c... 숨겨진 앱 데이터: 1KB 미만	<input checked="" type="checkbox"/> 기본값으로 사용	옵션
	Google Earth Google Earth lets you explore and discover our planet.	<input checked="" type="checkbox"/> 기본값으로 사용	옵션
	Google Jamboard 아이디어를 화이트보드에 그려 어느 기기에서나 액세스할 수 있는 디지털 화이...	<input checked="" type="checkbox"/> 기본값으로 사용	옵션
	Google 내 지도 내 지도를 사용하면 온라인으로 쉽게 지도를 만들고 공유할 수 있습니다.	<input checked="" type="checkbox"/> 기본값으로 사용	옵션

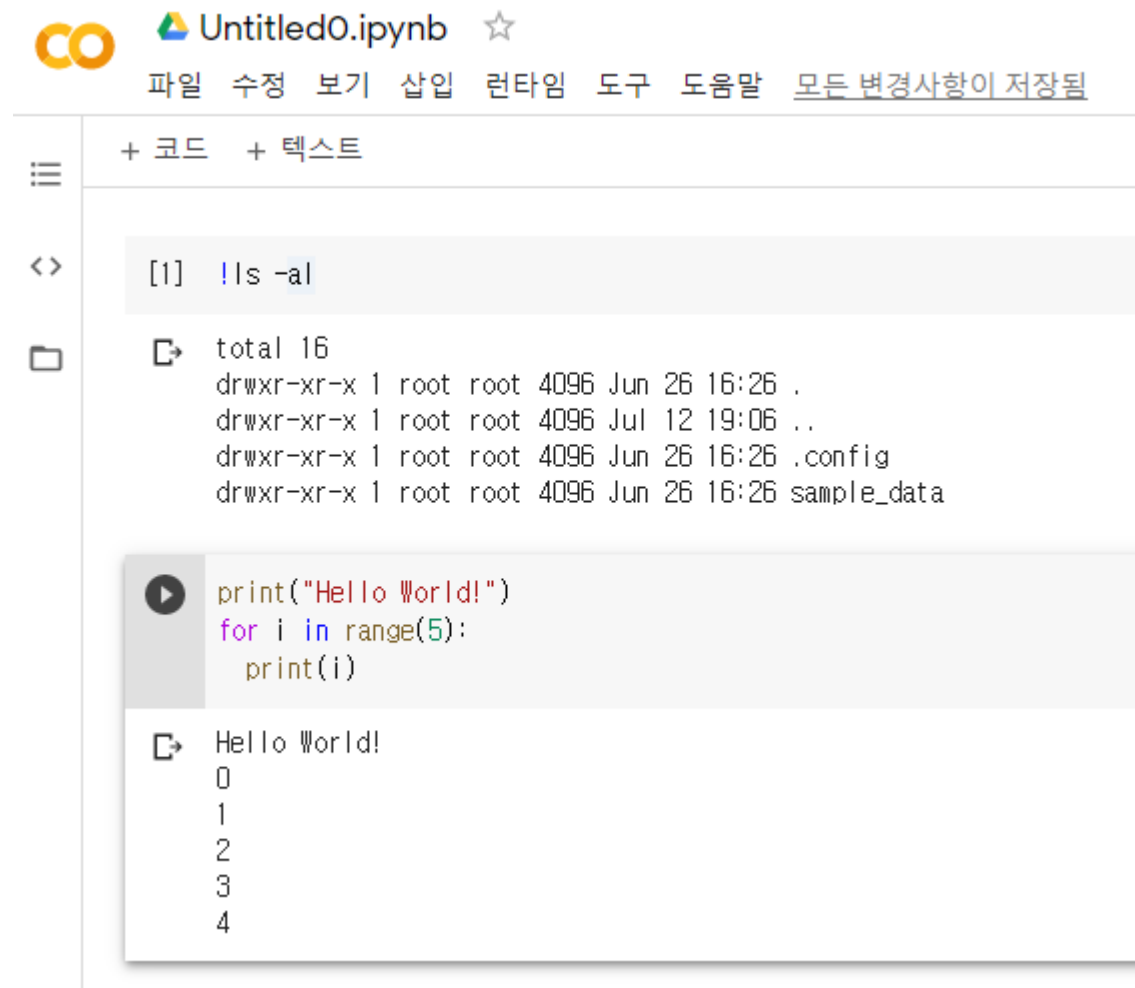
Colab 사용법



Colab 사용법



Colab 사용법



The image shows a Google Colab notebook titled "Untitled0.ipynb". The interface includes a top bar with the Colab logo, the file name, and a star icon. Below this is a menu bar with options: 파일 (File), 수정 (Edit), 보기 (View), 삽입 (Insert), 런타임 (Runtime), 도구 (Tools), 도움말 (Help), and 모든 변경사항이 저장됨 (All changes saved). The left sidebar contains icons for a menu, code input, and file explorer. The main area displays two code cells. The first cell contains the command `!ls -al`, and the second cell contains a Python loop: `print("Hello World!")`, `for i in range(5):`, and `print(i)`. The output of the first cell shows directory listings for the current directory and its parent, including files like `.config` and `sample_data`. The output of the second cell shows "Hello World!" followed by the numbers 0 through 4.

```
[1] !ls -al
```

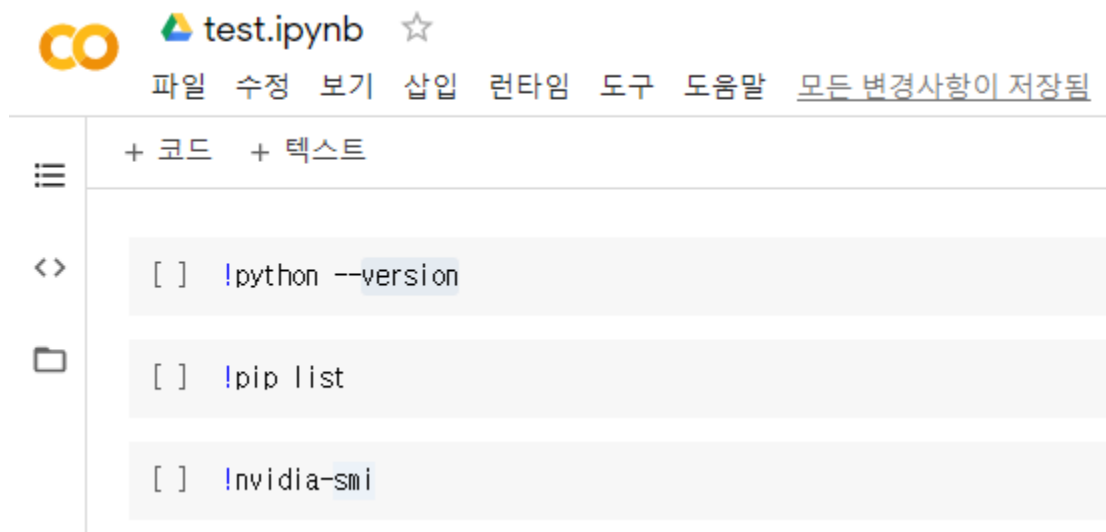
```
total 16
drwxr-xr-x 1 root root 4096 Jun 26 16:26 .
drwxr-xr-x 1 root root 4096 Jul 12 19:06 ..
drwxr-xr-x 1 root root 4096 Jun 26 16:26 .config
drwxr-xr-x 1 root root 4096 Jun 26 16:26 sample_data
```

```
print("Hello World!")
for i in range(5):
    print(i)
```

```
Hello World!
0
1
2
3
4
```


환경 확인

- 파이썬 버전
 - !python --version
- 패키지 버전
 - !pip list 또는 !pip freeze
- Gpu 정보(nvidia 드라이버, CUDA)
 - !nvidia-smi



test.ipynb ☆

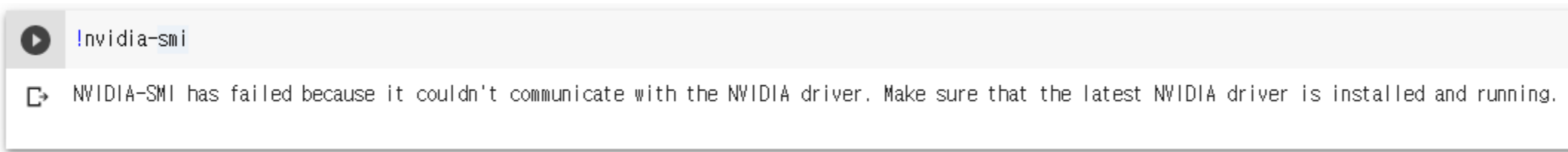
파일 수정 보기 삽입 런타임 도구 도움말 모든 변경사항이 저장됨

+ 코드 + 텍스트

```
[ ] !python --version
```

```
[ ] !pip list
```

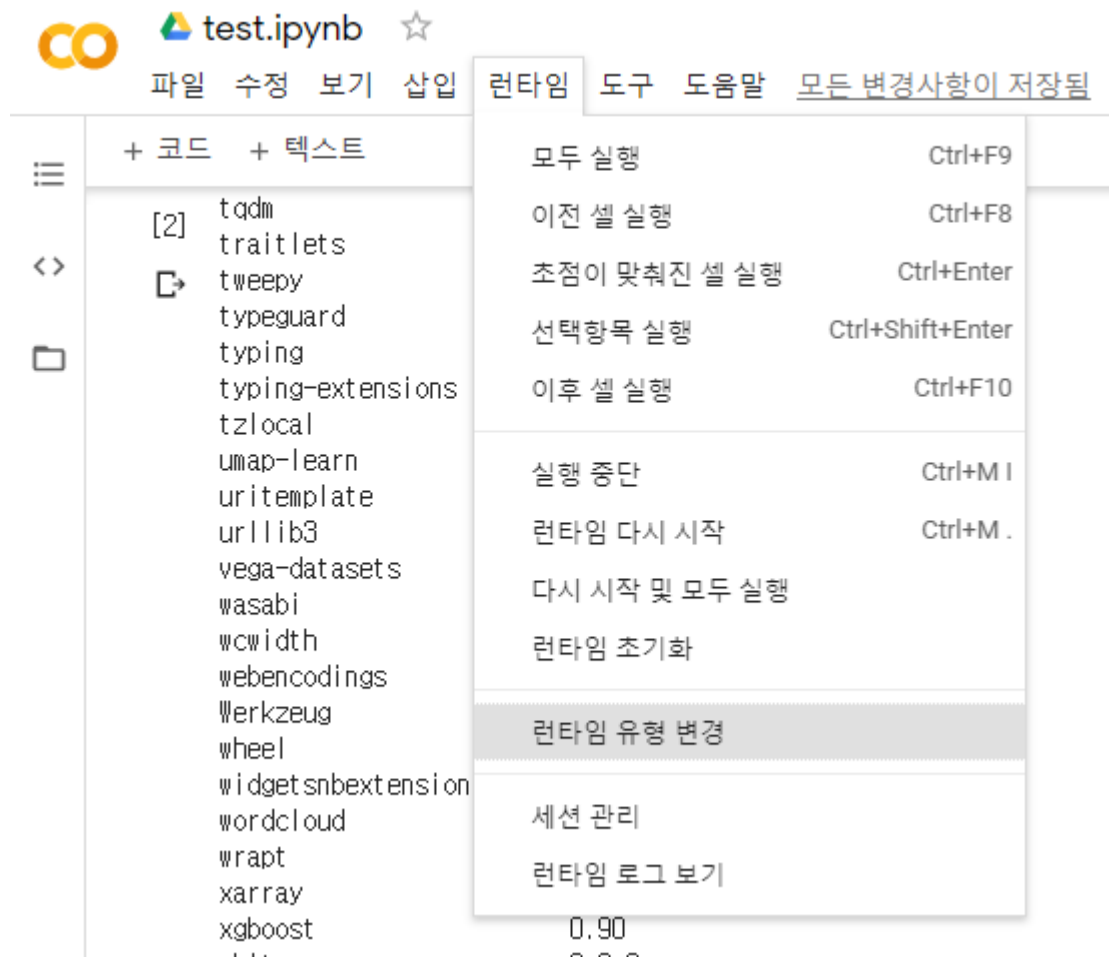
```
[ ] !nvidia-smi
```



```
!nvidia-smi
```

NVIDIA-SMI has failed because it couldn't communicate with the NVIDIA driver. Make sure that the latest NVIDIA driver is installed and running.

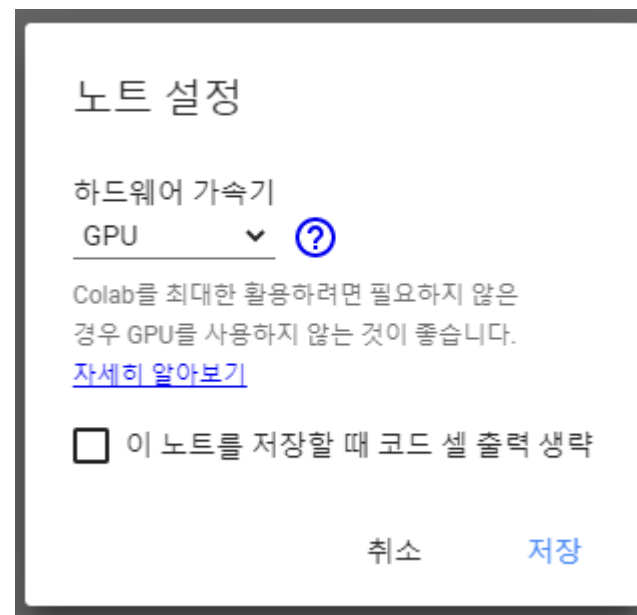
Colab 사용법



The screenshot shows the Google Colab interface for a notebook named 'test.ipynb'. The top bar includes the Colab logo, the notebook name, and a star icon. Below this is a menu bar with options: '파일' (File), '수정' (Edit), '보기' (View), '삽입' (Insert), '런타임' (Runtime), '도구' (Tools), '도움말' (Help), and '모든 변경사항이 저장됨' (All changes are saved). The '런타임' menu is open, displaying various execution options with their corresponding keyboard shortcuts:

- 모두 실행 (Ctrl+F9)
- 이전 셀 실행 (Ctrl+F8)
- 초점이 맞춰진 셀 실행 (Ctrl+Enter)
- 선택항목 실행 (Ctrl+Shift+Enter)
- 이후 셀 실행 (Ctrl+F10)
- 실행 중단 (Ctrl+M |)
- 런타임 다시 시작 (Ctrl+M .)
- 다시 시작 및 모두 실행
- 런타임 초기화
- 런타임 유형 변경 (highlighted)
- 세션 관리
- 런타임 로그 보기

The left sidebar shows a file explorer with a list of installed packages: tqdm, traitlets, tweepy, typeguard, typing, typing-extensions, tzlocal, umap-learn, uritemplate, urllib3, vega-datasets, wasabi, wcwidth, webencodings, Werkzeug, wheel, widgetsnbextension, wordcloud, wrapt, xarray, and xgboost.



The '노트 설정' (Note Settings) dialog box is shown. It has a title bar and a main content area. The first section is '하드웨어 가속기' (Hardware Accelerator) with a dropdown menu set to 'GPU' and a question mark icon. Below this, there is a text block: 'Colab를 최대한 활용하려면 필요하지 않은 경우 GPU를 사용하지 않는 것이 좋습니다.' (To maximize Colab, it is recommended not to use GPU if it is not needed.) followed by a link '자세히 알아보기' (Learn more). The second section is a checkbox labeled '이 노트를 저장할 때 코드 셀 출력 생략' (Omit code cell output when saving this notebook). At the bottom right, there are two buttons: '취소' (Cancel) and '저장' (Save).

Colab 사용법

```
!nvidia-smi
```

```
Sat Jul 11 11:32:18 2020
```

NVIDIA-SMI 450.36.06 Driver Version: 418.67 CUDA Version: 10.1									
GPU	Name	Persistence-M	Bus-Id	Disp.A	Volatile Uncorr. ECC				
Fan	Temp	Perf	Pwr:Usage/Cap	Memory-Usage	GPU-Util	Compute M.	MIG M.		
0	Tesla K80	Off	00000000:00:04.0	Off	0				
N/A	70C	P8	32W / 149W	0MiB / 11441MiB	0%	Default	ERR!		

Processes:							
GPU	GI	CI	PID	Type	Process name	GPU Memory	
ID	ID	ID				Usage	
No running processes found							