



Colab Introduction

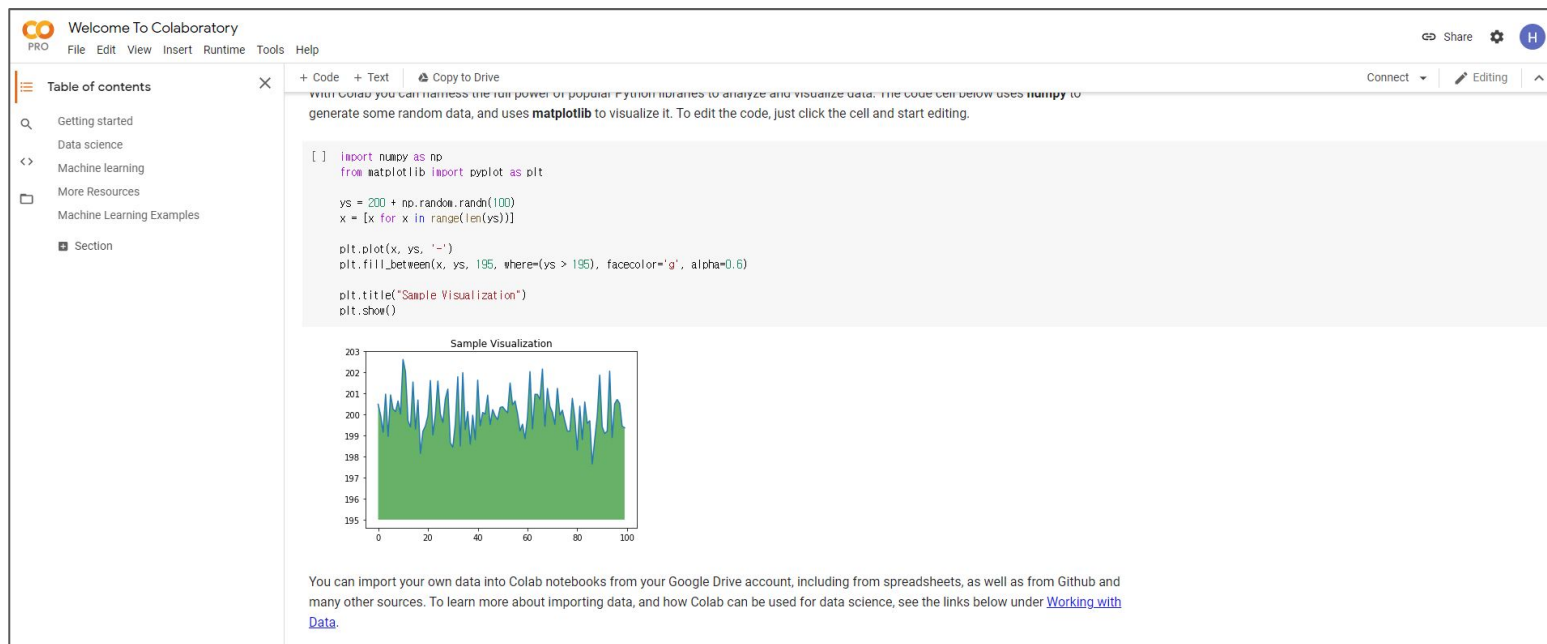
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Colab

- Colab (Colaboratory) allows you to write and execute Python in your browser.
- Zero configuration is required.
- Free access to GPUs is provided.
- Easy sharing is supported.



The screenshot displays the Google Colaboratory (Colab) web interface. At the top, there's a "Welcome To Colaboratory" header with a "PRO" badge and a menu bar (File, Edit, View, Insert, Runtime, Tools, Help). On the left, a "Table of contents" sidebar lists sections like "Getting started", "Data science", "Machine learning", "More Resources", and "Machine Learning Examples". The main area shows a code cell with the following Python code:

```
[ ] import numpy as np
from matplotlib import pyplot as plt

ys = 200 + np.random.randn(100)
x = [x for x in range(len(ys))]

plt.plot(x, ys, '-')
plt.fill_between(x, ys, 195, where=(ys > 195), facecolor='g', alpha=0.6)

plt.title("Sample Visualization")
plt.show()
```

Below the code, a plot titled "Sample Visualization" is shown. The x-axis ranges from 0 to 100, and the y-axis ranges from 195 to 203. The plot displays a blue line representing random noise, with the area above the line and below the value 195 filled with green. The interface also includes a "Share" button, a "Connect" dropdown, and an "Editing" mode indicator.

Below the plot, there is a text block: "You can import your own data into Colab notebooks from your Google Drive account, including from spreadsheets, as well as from Github and many other sources. To learn more about importing data, and how Colab can be used for data science, see the links below under [Working with Data](#)."

Prerequisites

- Google account
- Google Drive free space to store the codes (~100MB)
- Familiar with Python and Jupyter Notebook

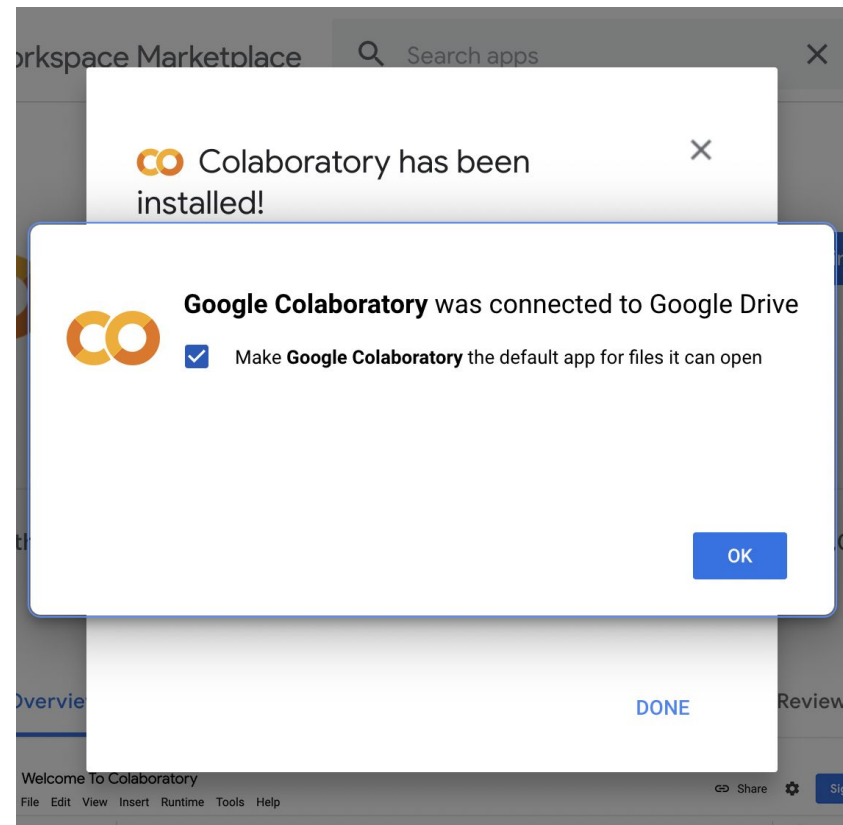
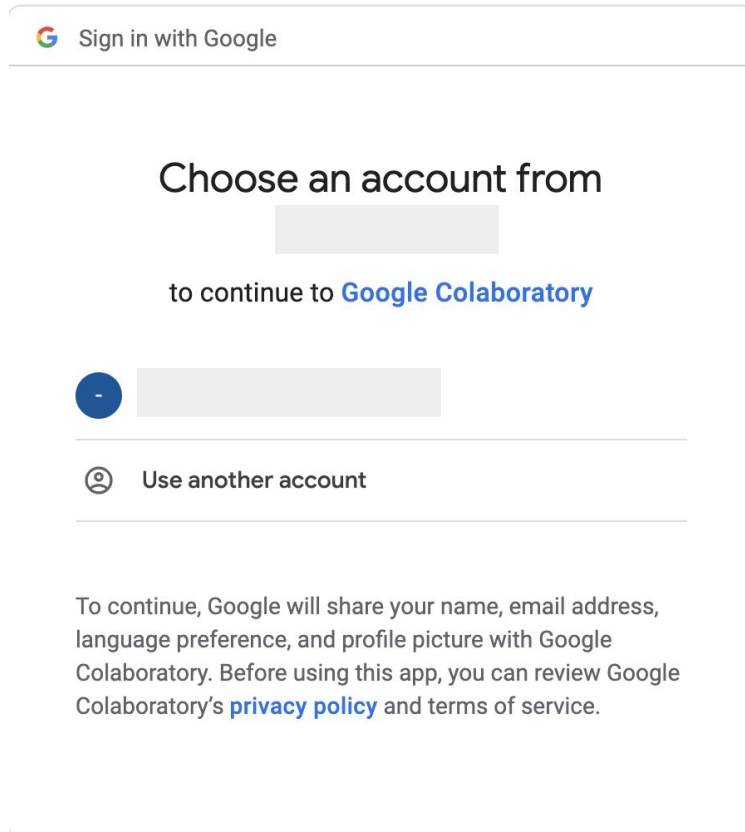
Connect to Google Collaboratory (1/2)

- Connect Google Collaboratory to Google Drive

The image is a composite of four screenshots illustrating the process of connecting Google Collaboratory to Google Drive:

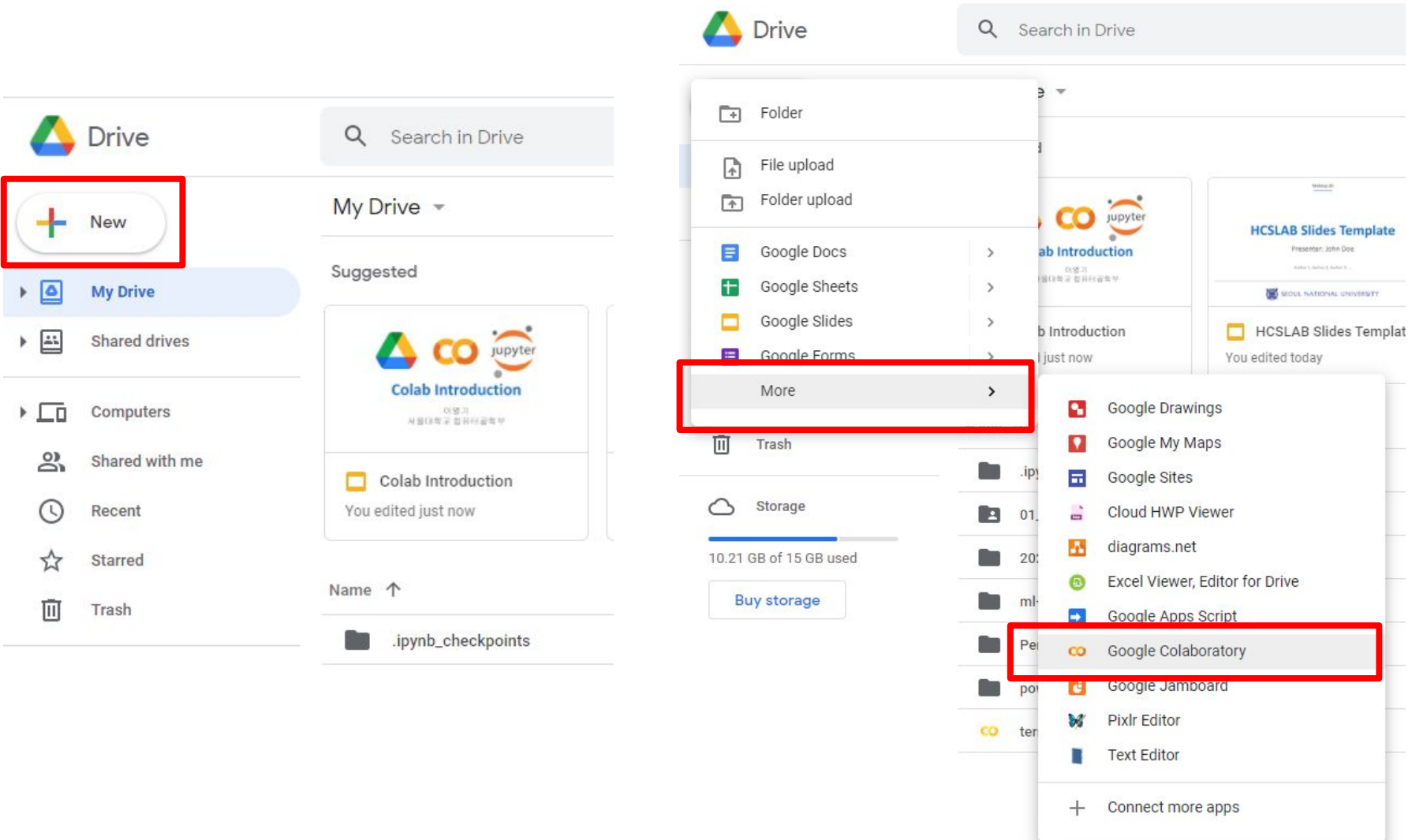
- Top Left:** A screenshot of the Google Drive interface. The 'New' button, represented by a plus sign icon, is highlighted with a red rectangle.
- Top Middle:** A screenshot of the Google Drive 'New' menu. The 'More' option at the bottom of the menu is highlighted with a red rectangle. A secondary menu is shown below it, listing various Google apps, with 'Google Apps Script' highlighted.
- Top Right:** A screenshot of the Google Workspace Marketplace search results for 'google collaboratory'. The search bar at the top is highlighted with a red rectangle. The 'Collaboratory' app listing, featuring the 'CO' logo, is also highlighted with a red rectangle.
- Bottom Right:** A screenshot of the 'Collaboratory' app page in the Google Workspace Marketplace. The 'Install' button is highlighted with a red rectangle.

Connect to Google Collaboratory (2/2)



Create a new Colab notebook

- Create a new Colab notebook



Import Git Repository into Colab (1/7)

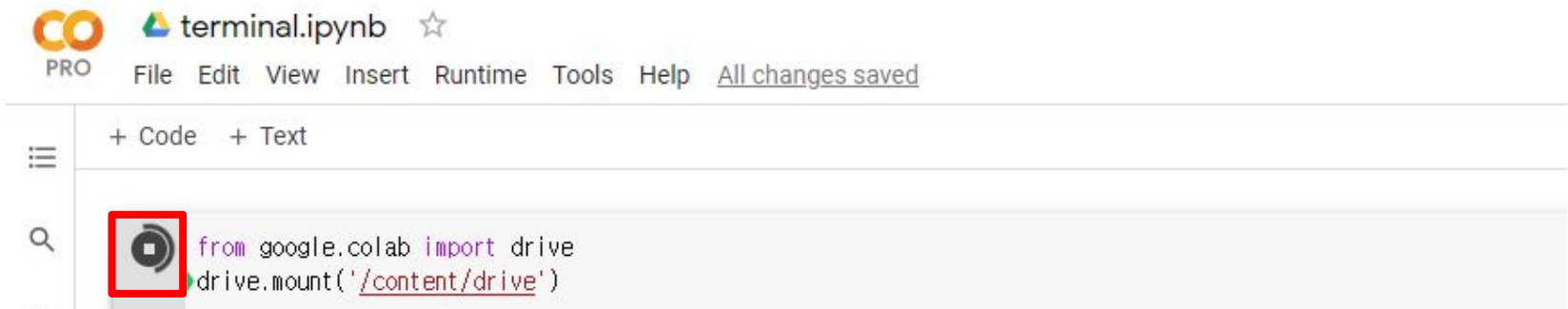
- Practice repository URL:

<https://github.com/snuhcs/time-series-2022>

Import Git Repository into Colab (2/7)

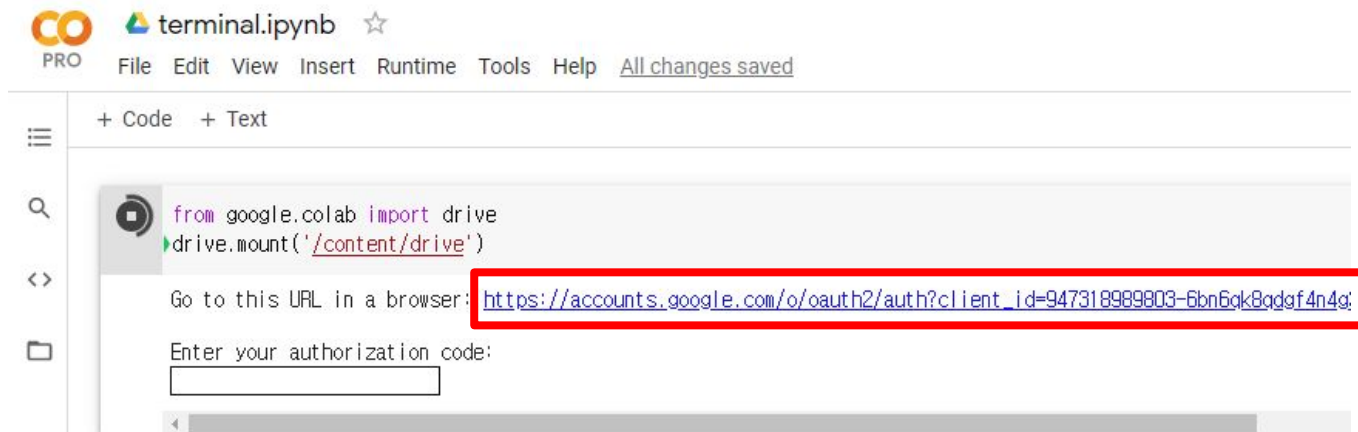
1. Create a new Colab notebook.
2. Rename the notebook as "terminal.ipynb".
3. Execute the following code:

```
from google.colab import drive  
drive.mount('/content/drive')
```



Import Git Repository into Colab (3/7)

4. You might see an URL or “Connect to Google Drive” button. Follow the appearing descriptions.
If you see “Drive already mounted” message, you can pass the next slide.



Permit this notebook to access your Google Drive files?

This notebook is requesting access to your Google Drive files. Granting access to Google Drive will permit code executed in the notebook to modify files in your Google Drive. Make sure to review notebook code prior to allowing this access.

No thanks

Connect to Google Drive

Import Git Repository into Colab (4/7)

5. Execute the following command:

```
!git clone https://github.com/snuhcs/time-series-2022.git  
/content/drive/MyDrive/time-series-2022
```

✓
16s

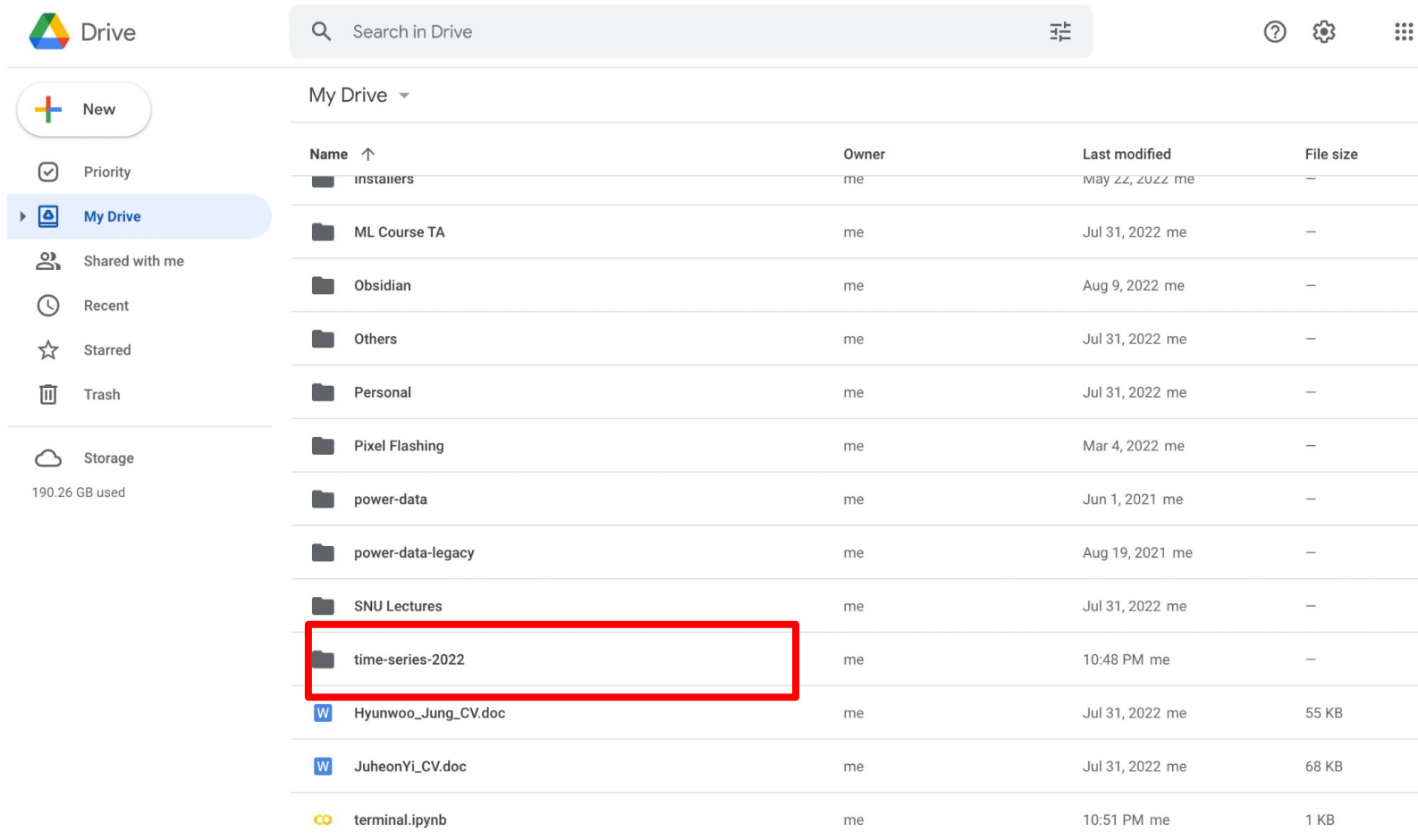


```
!git clone https://gitlab.com/machine-learning-course/ml-practice-samsung-2021-summer.git /content/drive/MyDrive/ml-practice-samsung-2021-summer
```

```
Cloning into '/content/drive/MyDrive/ml-practice-samsung-2021-summer'...  
remote: Enumerating objects: 91, done.  
remote: Counting objects: 100% (91/91), done.  
remote: Compressing objects: 100% (90/90), done.  
remote: Total 91 (delta 9), reused 0 (delta 0), pack-reused 0  
Unpacking objects: 100% (91/91), done.  
Checking out files: 100% (150/150), done.
```

Import Git Repository into Colab (5/7)

6. "time-series-2022" directory is imported into your Google Drive Storage.

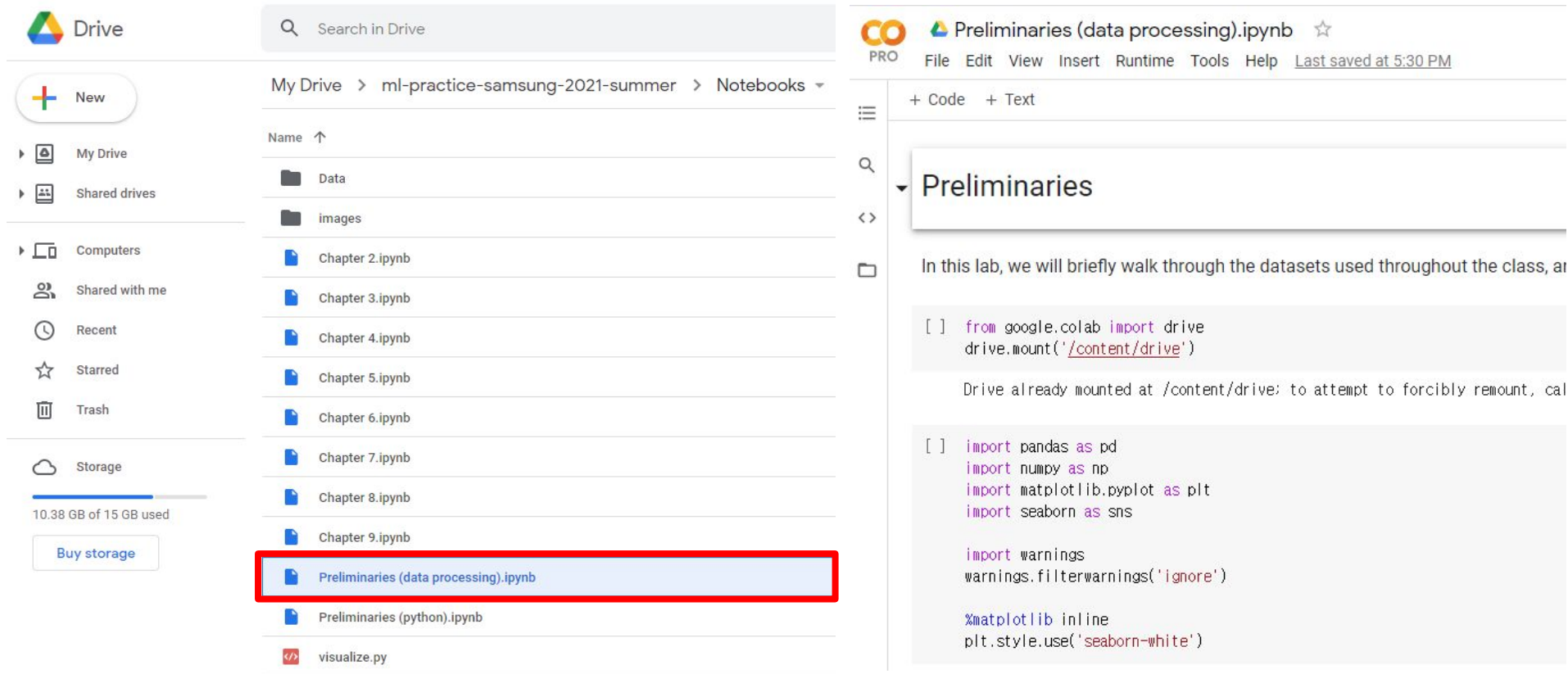


The screenshot shows the Google Drive web interface. On the left sidebar, the 'My Drive' option is selected. The main area displays a list of files and folders. The folder 'time-series-2022' is highlighted with a red rectangular box. Below it are files 'Hyunwoo_Jung_CV.doc', 'JuheonYi_CV.doc', and 'terminal.ipynb'.

Name	Owner	Last modified	File size
installers	me	May 22, 2022	—
ML Course TA	me	Jul 31, 2022	—
Obsidian	me	Aug 9, 2022	—
Others	me	Jul 31, 2022	—
Personal	me	Jul 31, 2022	—
Pixel Flashing	me	Mar 4, 2022	—
power-data	me	Jun 1, 2021	—
power-data-legacy	me	Aug 19, 2021	—
SNU Lectures	me	Jul 31, 2022	—
time-series-2022	me	10:48 PM	—
Hyunwoo_Jung_CV.doc	me	Jul 31, 2022	55 KB
JuheonYi_CV.doc	me	Jul 31, 2022	68 KB
terminal.ipynb	me	10:51 PM	1 KB

Import Git Repository into Colab (6/7)

7. Open "time-series-2022/Notebooks/Preliminaries (data processing).ipynb"



The image shows a split-screen view of Google Drive and Google Colab. On the left, the Google Drive interface displays a folder named 'ml-practice-samsung-2021-summer' containing a 'Notebooks' subfolder. Inside 'Notebooks', a list of files is shown, including 'Chapter 2.ipynb' through 'Chapter 9.ipynb', 'Preliminaries (data processing).ipynb' (highlighted with a red box), 'Preliminaries (python).ipynb', and 'visualize.py'. On the right, the Google Colab interface shows the notebook 'Preliminaries (data processing).ipynb' open. The notebook title bar indicates it was last saved at 5:30 PM. The main content area shows the notebook title 'Preliminaries' and a description: 'In this lab, we will briefly walk through the datasets used throughout the class, and...'. Below this, there are two code blocks. The first code block contains the following Python code:

```
[ ] from google.colab import drive
drive.mount('/content/drive')
```

Below the code, a message states: 'Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount() with force_remount=True.' The second code block contains the following Python code:



```
[ ] import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

import warnings
warnings.filterwarnings('ignore')

%matplotlib inline
plt.style.use('seaborn-white')
```

Update the Repository

- Execute the following command at the beginning of each class.

 **Warning** : This command resets all codes you have written in the previous classes. Backup your codes if you want before run the command.

```
!cd /content/drive/MyDrive/time-series-2022; git reset --hard master; git pull
```



```
!cd /content/drive/MyDrive/time-series-2022; git reset --hard master; git pull
```