

## What is Google Colab?

- Google Colab is a free cloud service.
- Is a laboratory and **online Jupyter** notebook .
- creating a local environment with anaconda and installing packages and resolving installation issues are a hassle.
- With Colab, you can develop deep learning applications on the GPU and TPU for free.

**GPU :** Graphics processing units

**TPU :** Tensor processing unit

## Google Colab on the free Tesla K80 GPU :

- 4992 NVIDIA CUDA cores with a dual-GPU design.
- Up to 2.91 teraflops double-precision performance with NVIDIA CUDA Boost.
- Up to 8.73 teraflops single-precision performance with NVIDIA CUDA Boost.
- 24 GB of GDDR5 memory.
- 480 GB/s aggregate memory bandwidth.
- ECC protection for increased reliability.
- Server-optimized to deliver the best throughput in the data center.





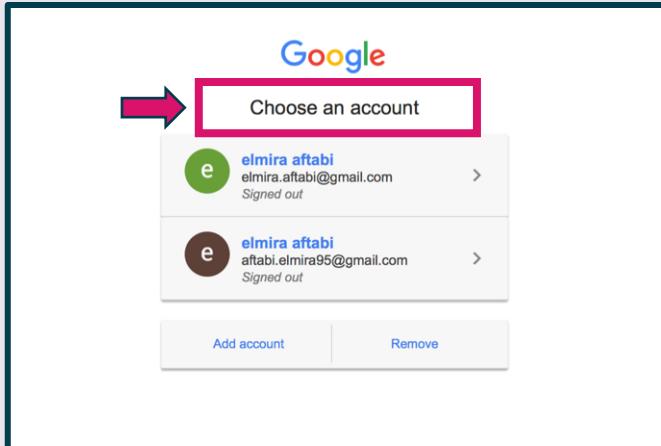
02

## Google colab

### How to use Google Colab ?

- 1 Log in to your google account.

<https://drive.google.com/>



- 2 Create new Notebook

Go to this link :

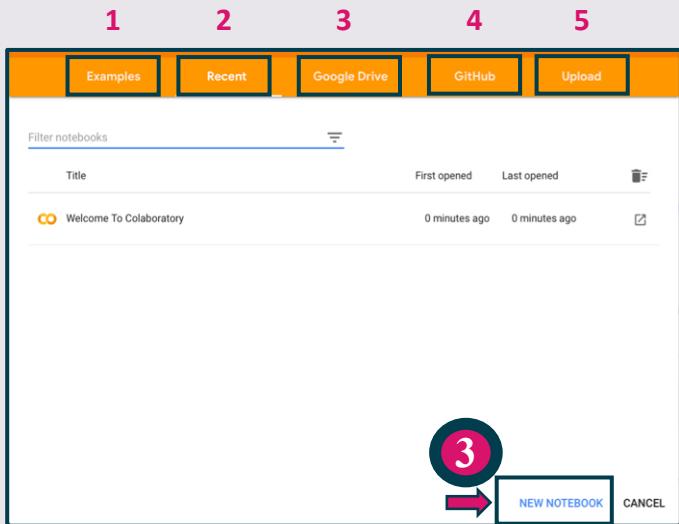
<https://colab.research.google.com./>



02

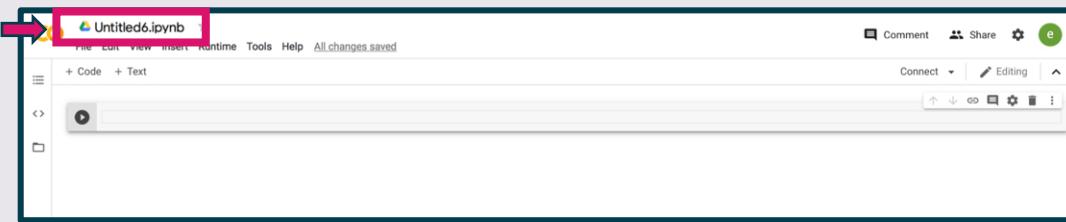
# Google colab

1. **Examples** : Contain a number of Jupyter notebooks of various examples.
2. **Recent** : Jupyter notebook you have recently worked with.
3. **Google Drive** : Jupyter notebook in your google drive.
4. **GitHub** : you can add Jupyter notebook from your GitHub but you first need to connect Colab with GitHub.
5. **Upload** : Upload from your local directory.



3

It will create a Jupyter notebook with **Untitled.ipynb** and save it to your **google drive** in a folder named **Colab Notebooks**.





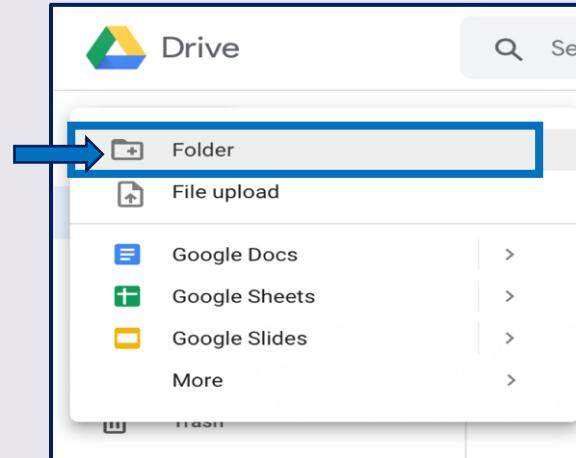
02

# Google colab

## Second way (New notebook):

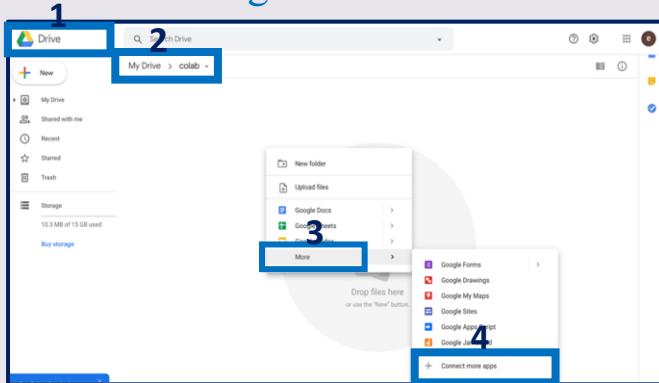
### 2 Creating Folder on Google Drive

(Since Colab is working on your own Google Drive, we first need to specify the folder we'll work. I created a folder named “colab” on my Google Drive.)



### 3 Creating New Colab Notebook

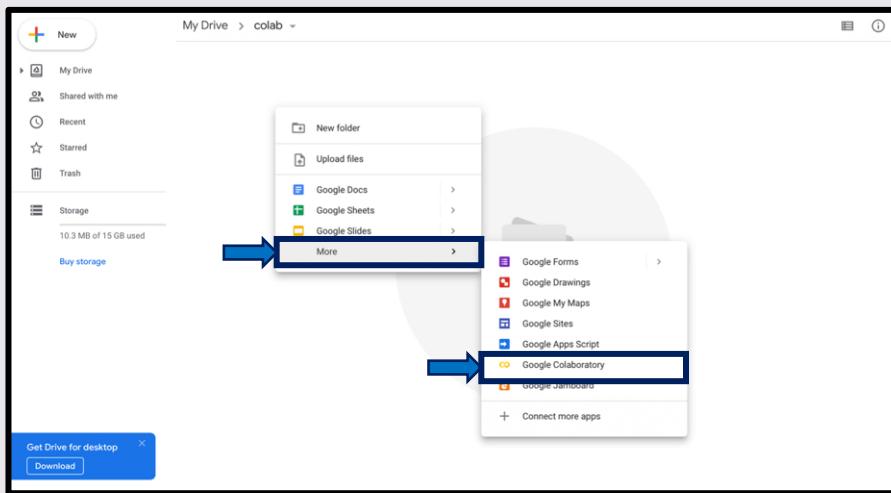
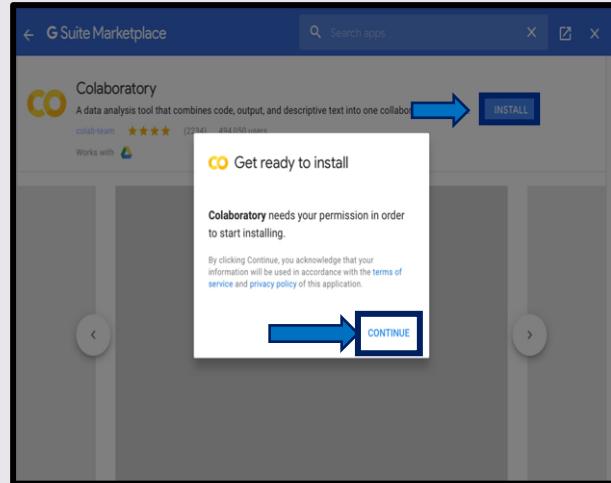
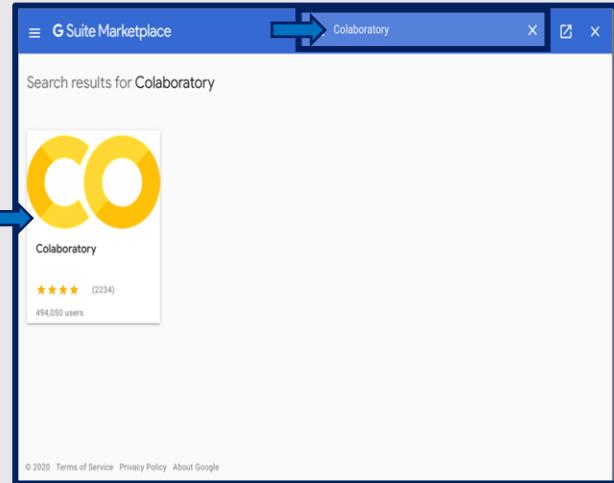
Create a new notebook via Right click > More > Colaboratory



02

## Google colab

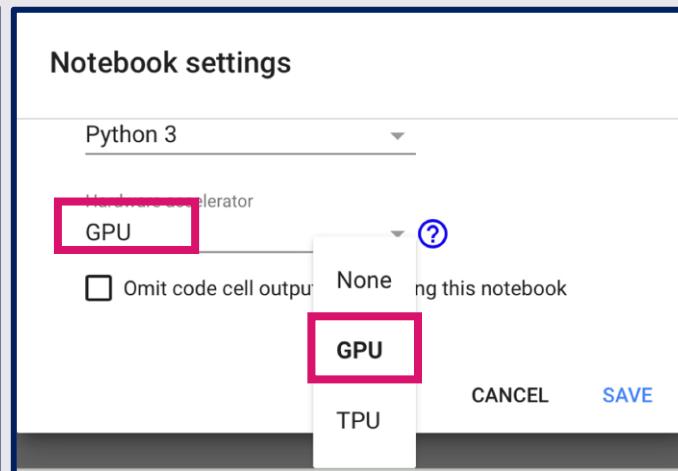
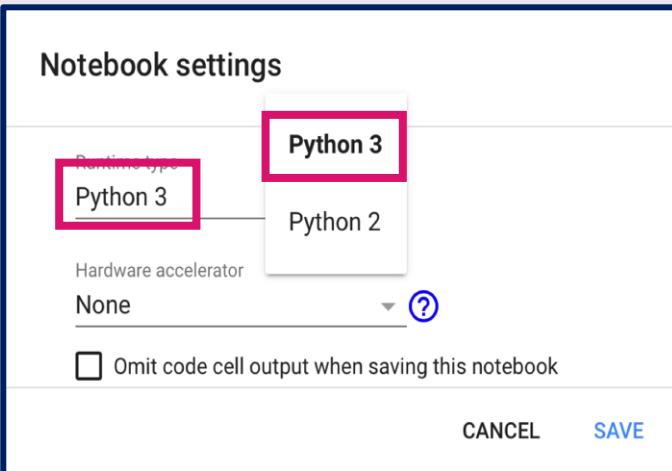
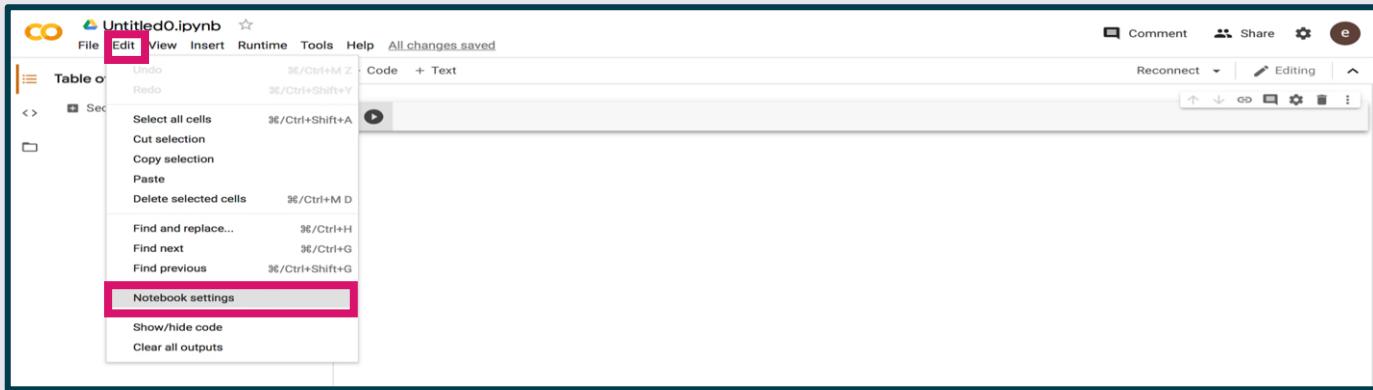
3



4

## Setting Free GPU

Edit > Notebook settings or Runtime>Change runtime type  
and select GPU as Hardware accelerator.



5

### What is meant by mounting a drive?

- Before your computer can use any kind of storage device (such as a hard drive, CD-ROM, or network share), you or your operating system must make it accessible through the computer's file system. This process is called mounting.

### Mount Google Drive

Use:

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



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

Then you'll see a link, click on that, allow access, copy the code that pops up, paste it in the box, hit enter.

Help All changes saved

+ Code + Text

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

... Go to this URL in a browser: [https://accounts.google.com/o/oauth2/auth?client\\_id=947318989803-6bn6qk8qdqf4n4g3pfee6491hc0](https://accounts.google.com/o/oauth2/auth?client_id=947318989803-6bn6qk8qdqf4n4g3pfee6491hc0)

Enter your authorization code:

Sign in with Google

Choose an account to continue to Google Drive File Stream

elmira aftabi elmira.aftabi@gmail.com

elmira aftabi aftabi.elmira95@gmail.com

Use another account

To continue, Google will share your name, email address, language preference, and profile picture with Google Drive File Stream. Before using this app, you can review Google Drive Stream's [privacy policy](#) and [terms of service](#).

Comment Share e

RAM Disk Editing

Sign in with Google

Google Drive File Stream wants to access your Google Account

elmira.aftabi@gmail.com

This will allow Google Drive File Stream to:

- See, edit, create, and delete all of your Google Drive files
- View the photos, videos and albums in your Google Photos
- View Google people information such as profiles and contacts
- See, edit, create, and delete any of your Google Drive documents

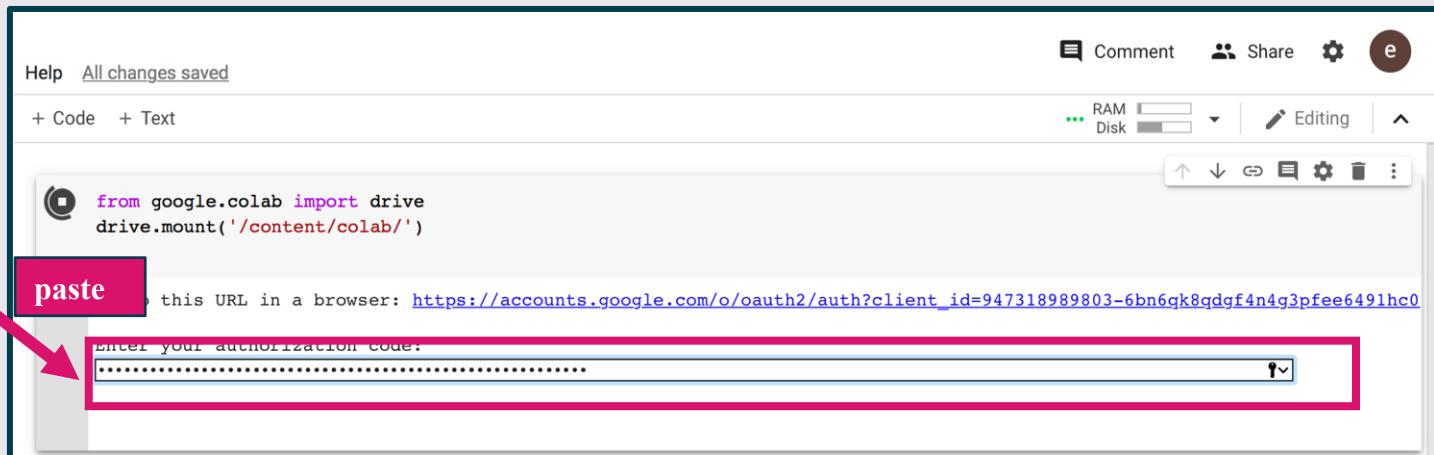
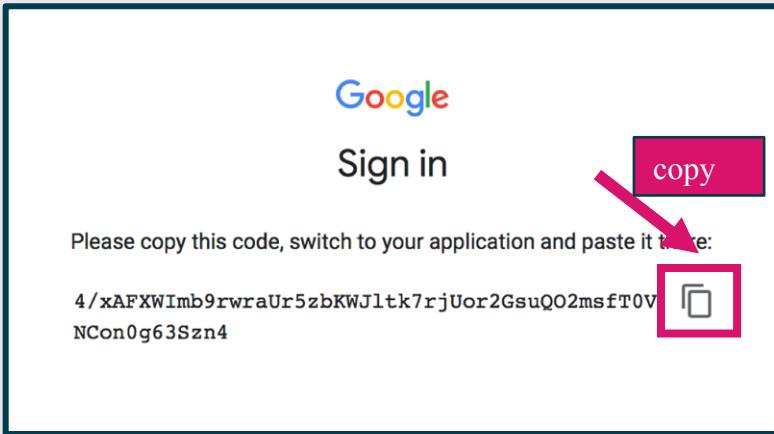
Make sure you trust Google Drive File Stream

You may be sharing sensitive info with this site or app. Learn about how Google Drive File Stream will handle your data by reviewing its [terms of service](#) and [privacy policies](#). You can always see or remove access in your Google Account.

Learn about the risks

Cancel Allow





A screenshot of a Google Colab notebook interface. At the top, there are tabs for "Help" and "All changes saved". Below the tabs are buttons for "+ Code" and "+ Text". On the right side, there are controls for "Comment", "Share", "Settings", and a user profile icon. There are also sliders for "RAM" and "Disk" usage, and a "Editing" mode switch. The main workspace shows a cell with the following Python code:

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

Below the code, a "paste" button is highlighted with a red box and a red arrow pointing to it from the left. A message next to the button says: "Copy this URL in a browser: [https://accounts.google.com/o/oauth2/auth?client\\_id=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0](https://accounts.google.com/o/oauth2/auth?client_id=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0)". A second red arrow points to a text input field where the user is prompted to "Enter your authorization code:" followed by a redacted text area.

6

## Always be saving

“command-s” or drop the “File” menu down to save. You can create a copy of your notebook by dropping “File” -> “Save a Copy in Drive.” You can also download your workbook by going from “File” -> “download .ipyb” or “download .py.”

What location I am right now:

```
!pwd
```

List down directories in current location:

```
!ls
```

Change directory to My Drive:

```
!cd 'My Drive'
```

To install missing python packages:

```
!pip install PACKAGE NAME
```

To download files:

```
!wget DATASET URL
```

Unzip:

```
!unzip file_location
```

## Reference:

- <https://www.geeksforgeeks.org/how-to-use-google-colab/>
- <https://medium.com/deep-learning-turkey/google-colab-free-gpu-tutorial-e113627b9f5d>
- <https://towardsdatascience.com/google-drive-google-colab-github-dont-just-read-do-it-5554d5824228>