# Project 2 Setup Guide

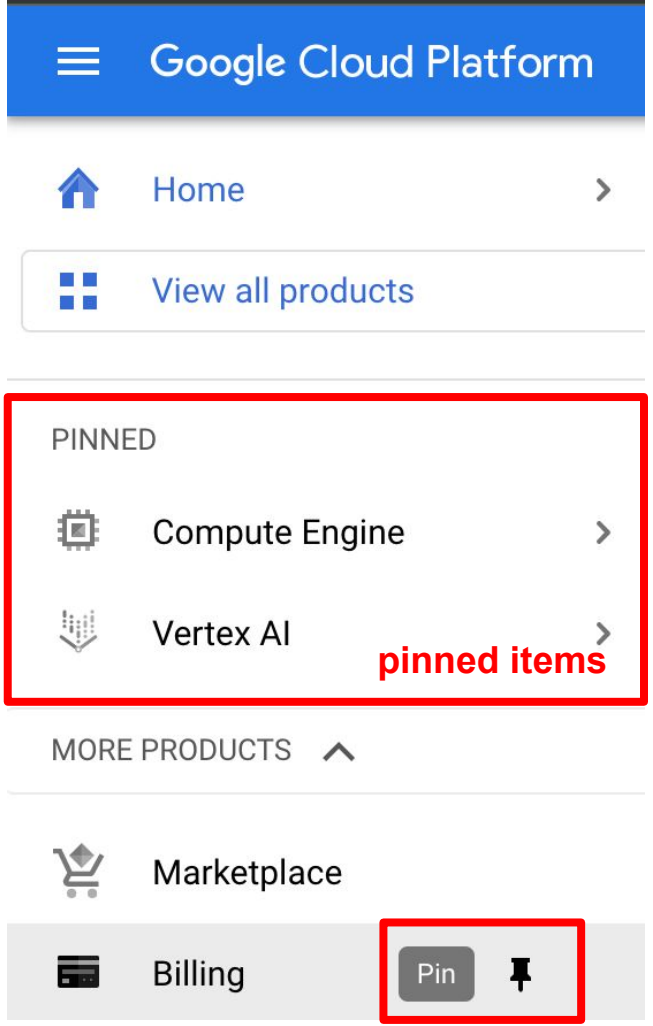
# Before you start

https://console.cloud.google.com/

Login using your **LionMail** account

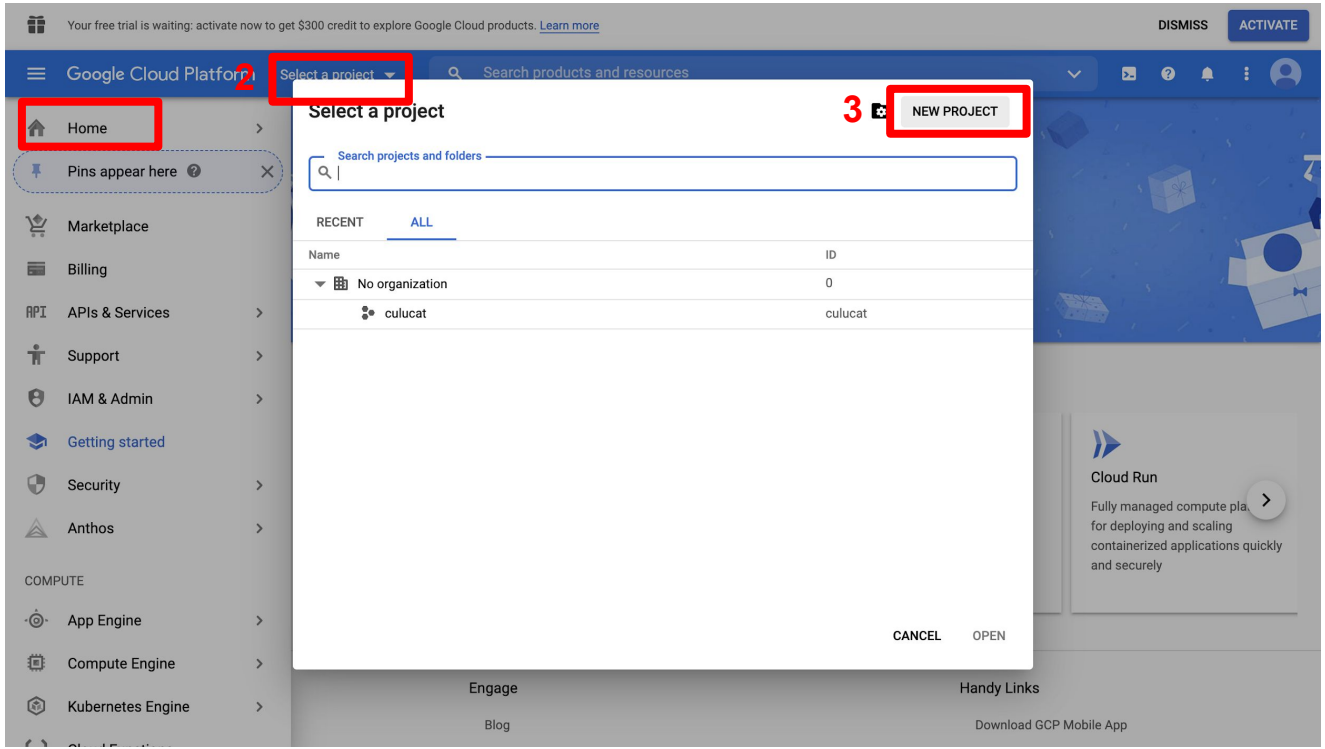
Pin these items on your navigation menu:

- ARTIFICIAL INTELLIGENCE -> Vertex AI
- Billing
- COMPUTE -> Compute Engine



# Create a project for this class

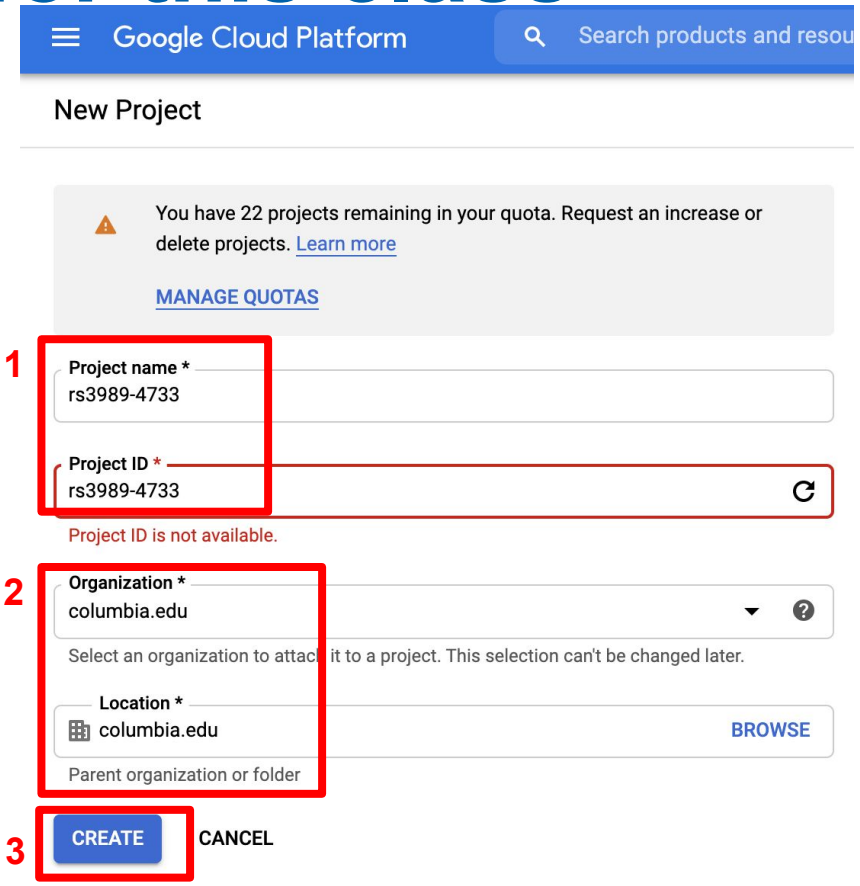
Home -> Select a Project -> New Project



# Create a project for this class

Project name and ID:
uni-4733

Organization and location:
columbia.edu



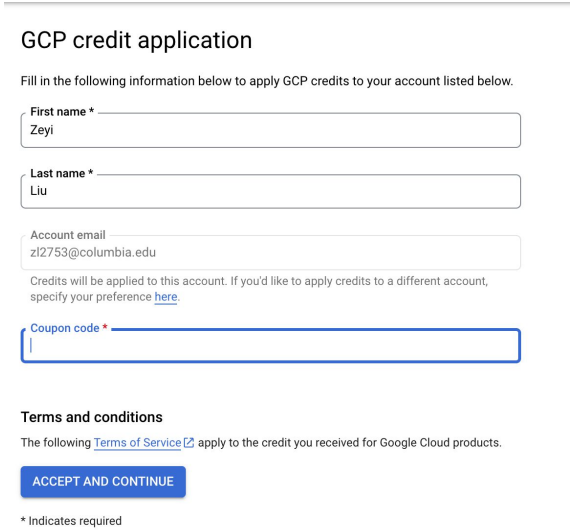
# Redeem your coupon

https://console.cloud.google.com/education

**Make sure you are logged in with your LionMail account**

Enter the code sent to your LionMail from cc4617@columbia.edu

(Please contact cc4617@columbia.edu if you haven't received it)



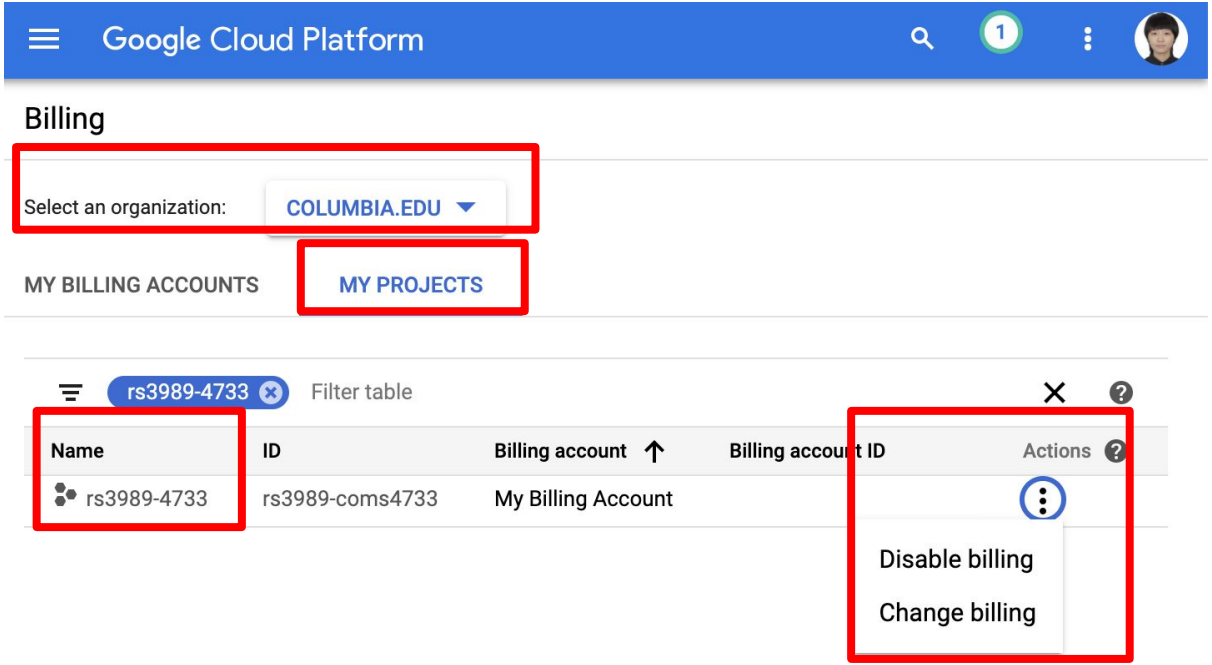
# Change billing account

https://console.cloud.google.com/billing
Billing -> Select an organization: COLUMBIA.EDU ->

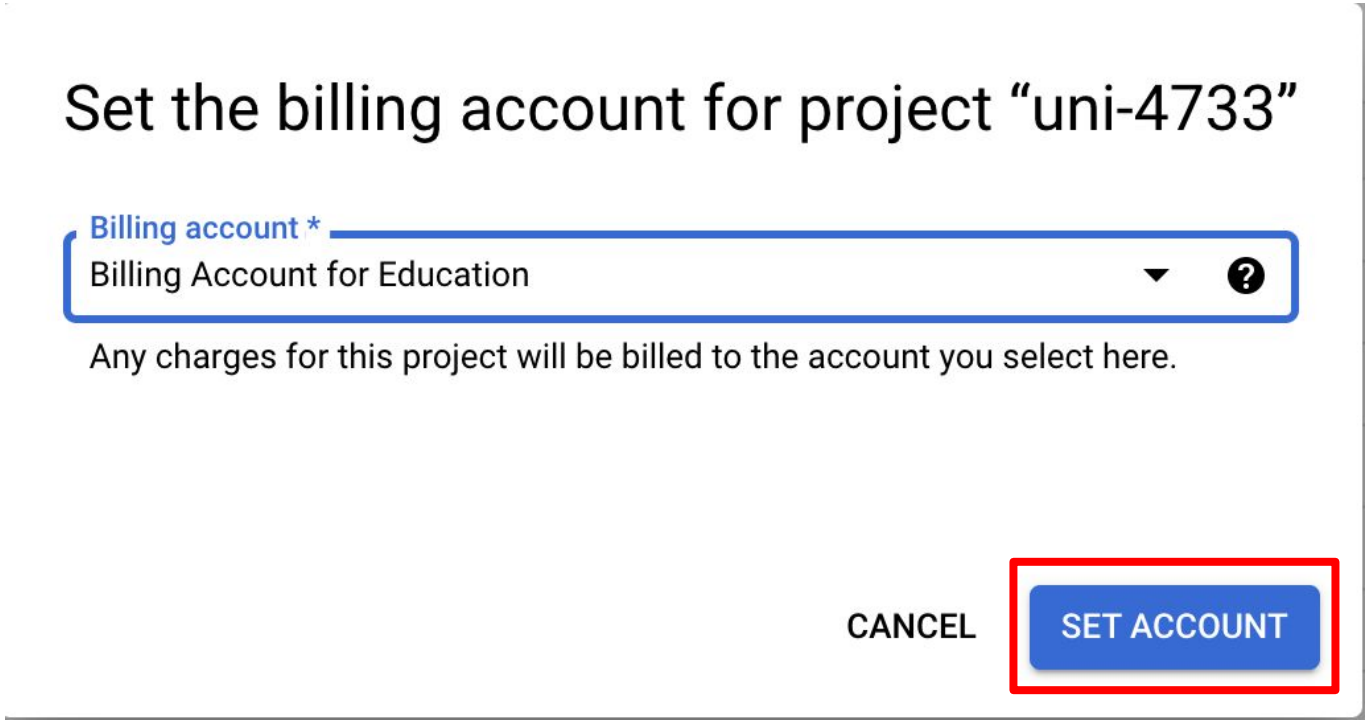
MY PROJECTS ->

uni-4733 ->

Actions -> Change billing



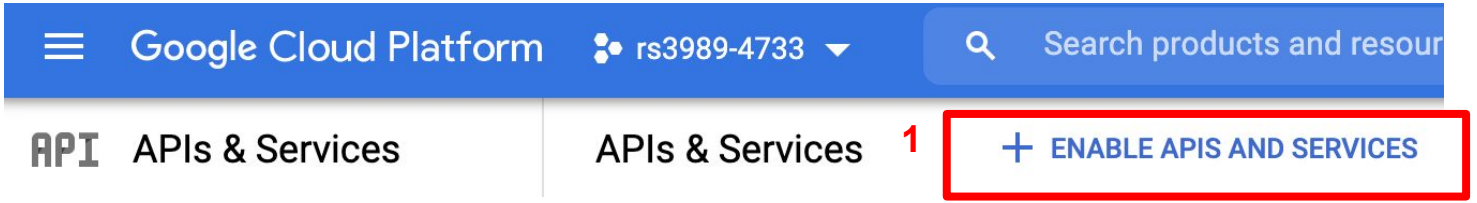
# Change billing account

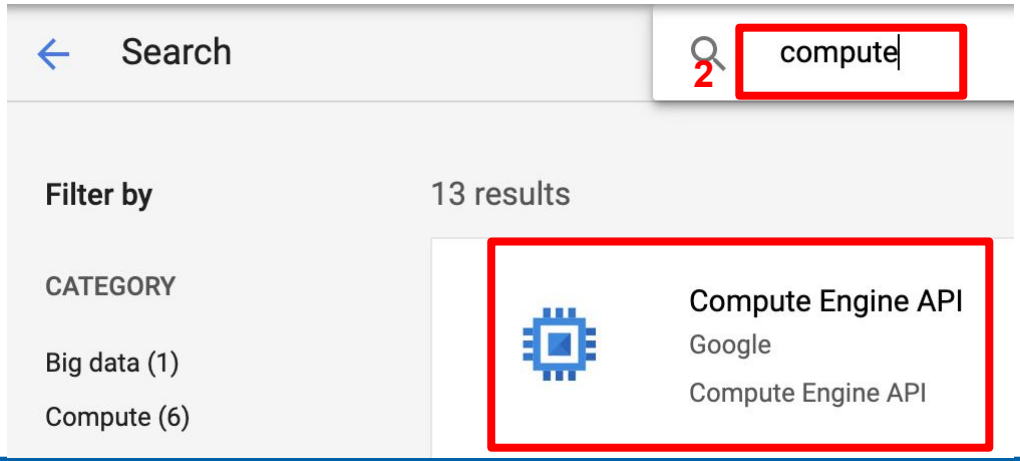


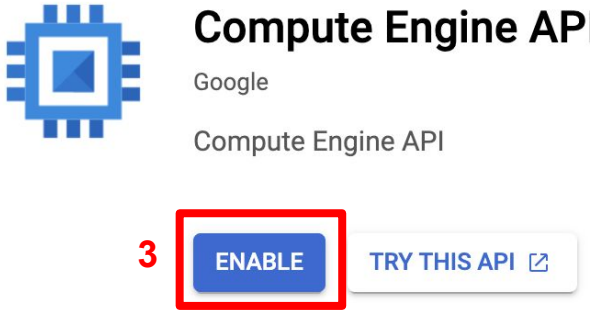
# Enable Compute Engine API

https://console.cloud.google.com/apis/dashboard

ENABLE APIS AND SERVICES->search “compute”->Compute Engine API->enable



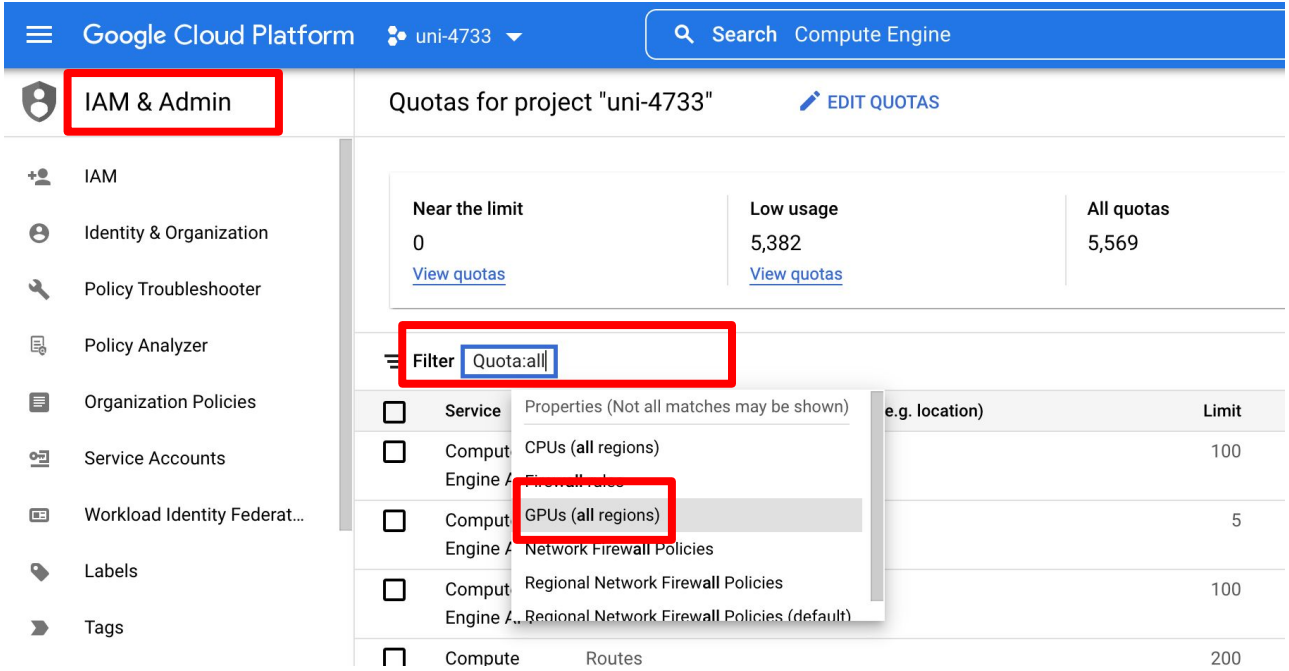



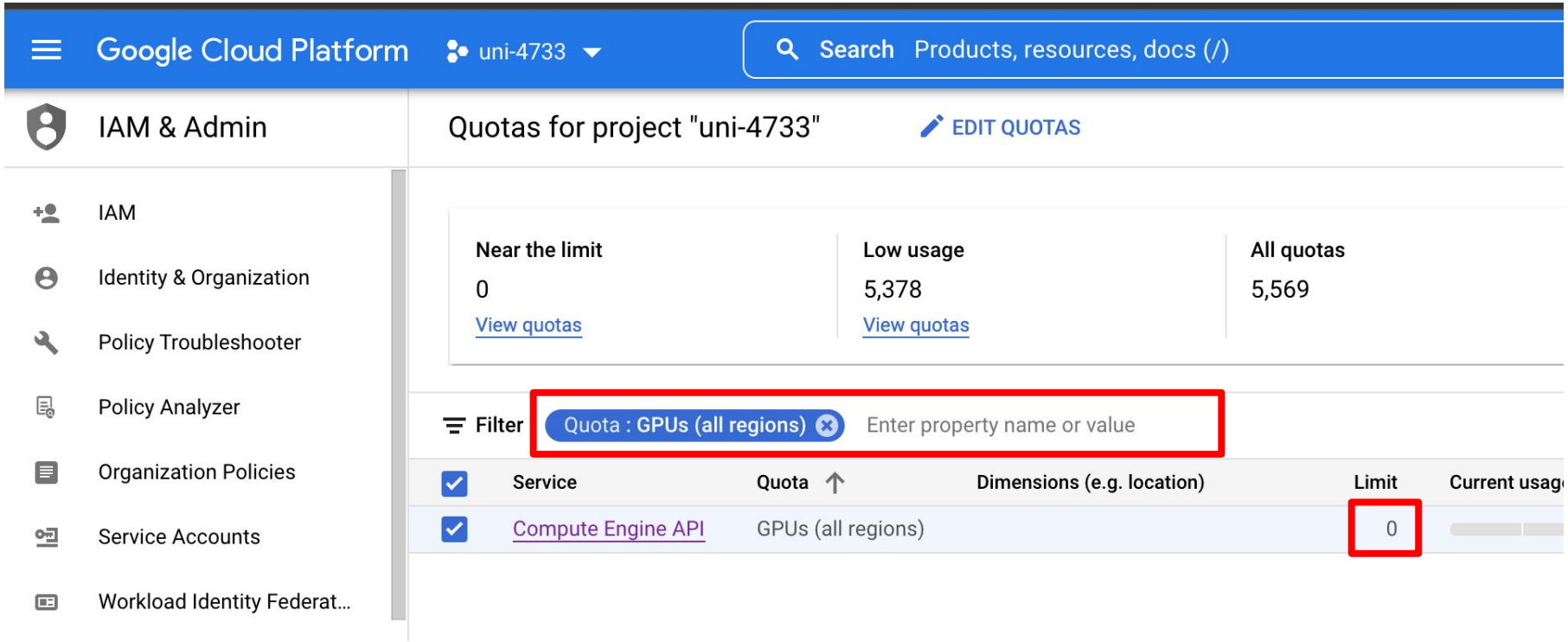
# Edit Quota for GPU

https://console.cloud.google.com/iam-admin/quotas

IAM & Admin -> Quotas -> **Filter -> type in “Quota:all”** -> GPUs (all regions)

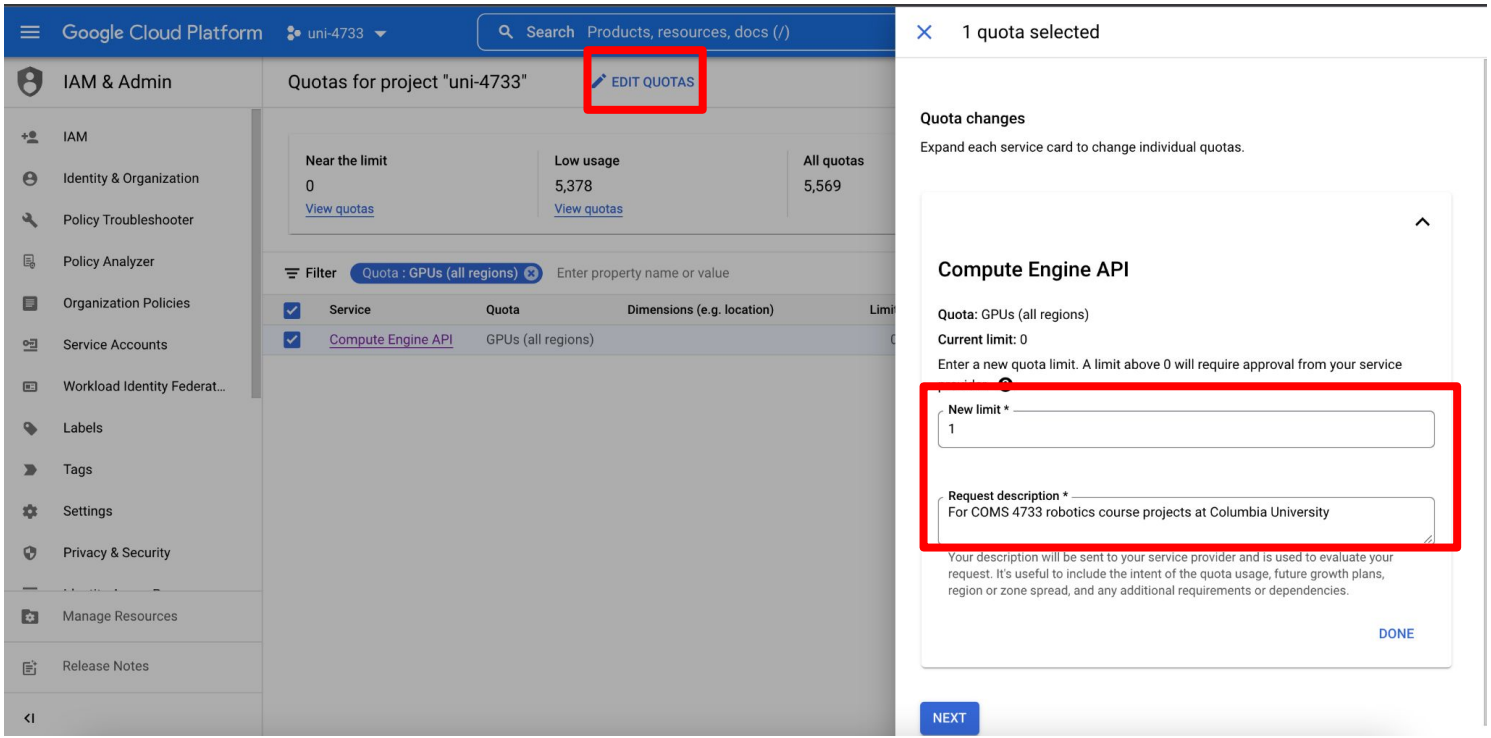


# Edit Quota for GPU



# Edit Quota for GPU

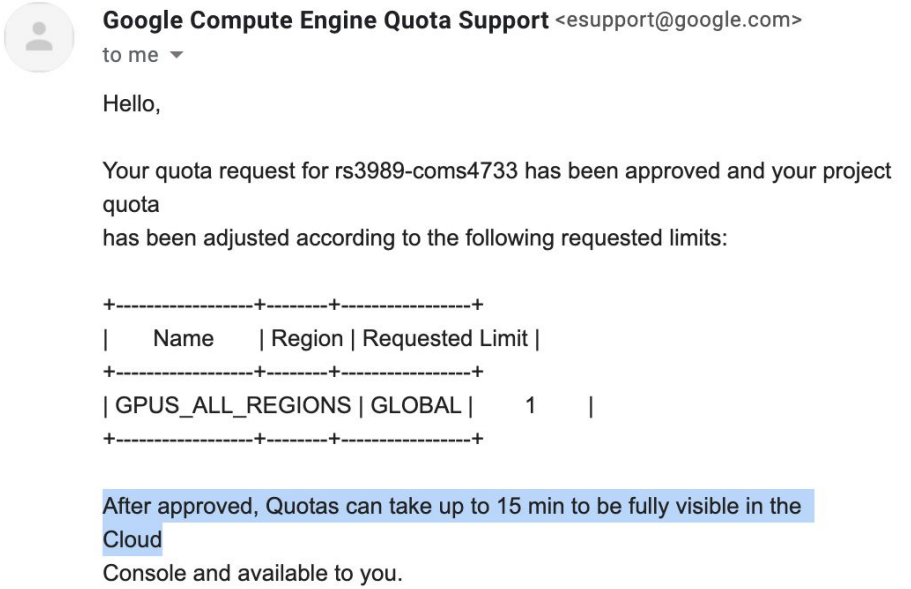
Click on EDIT QUOTAS -> New limit = 1



# Edit Quota for GPU

Usually available within 15 min (confirmation will be sent to your LionMail)

**That being said, better to APPLY EARLY!!!**



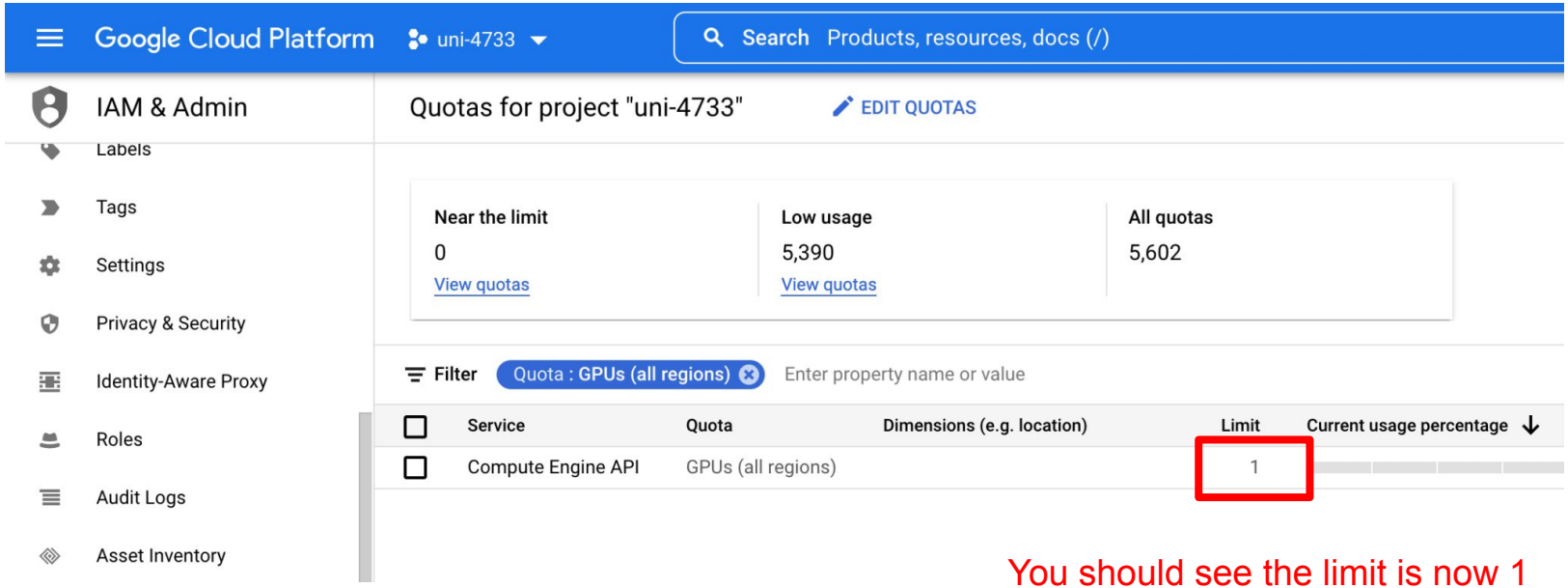
**Google Compute Engine Quota Support** <esupport@google.com>
to me

Hello,

Your quota request for rs3989-coms4733 has been approved and your project quota
has been adjusted according to the following requested limits:

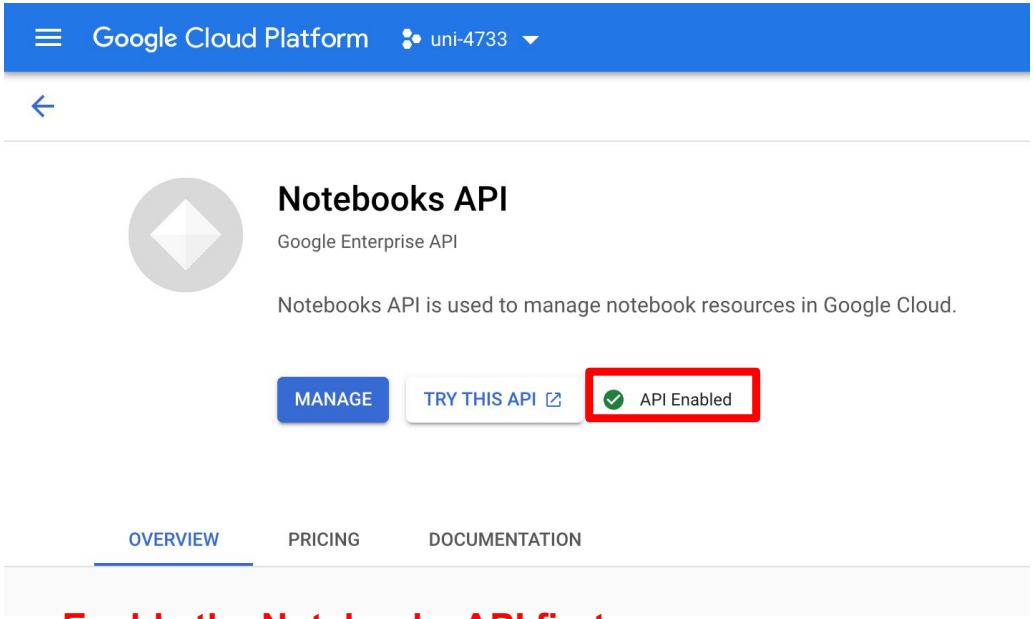
```
+-----------------+--------+-----------------+
|      Name       | Region | Requested Limit |
+-----------------+--------+-----------------+
| GPUS_ALL_REGIONS | GLOBAL |       1       |
+-----------------+--------+-----------------+
```

After approved, Quotas can take up to 15 min to be fully visible in the Cloud
Console and available to you.

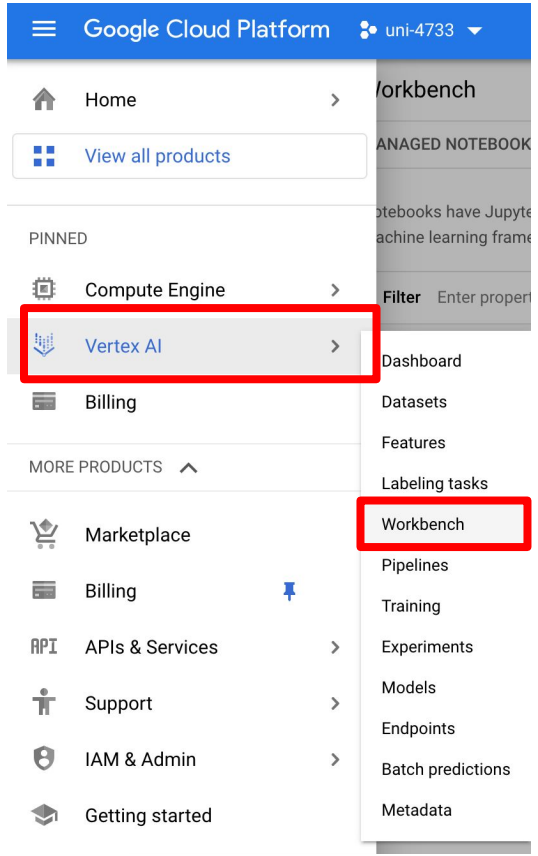



You should see the limit is now 1

# Create a Virtual Machine

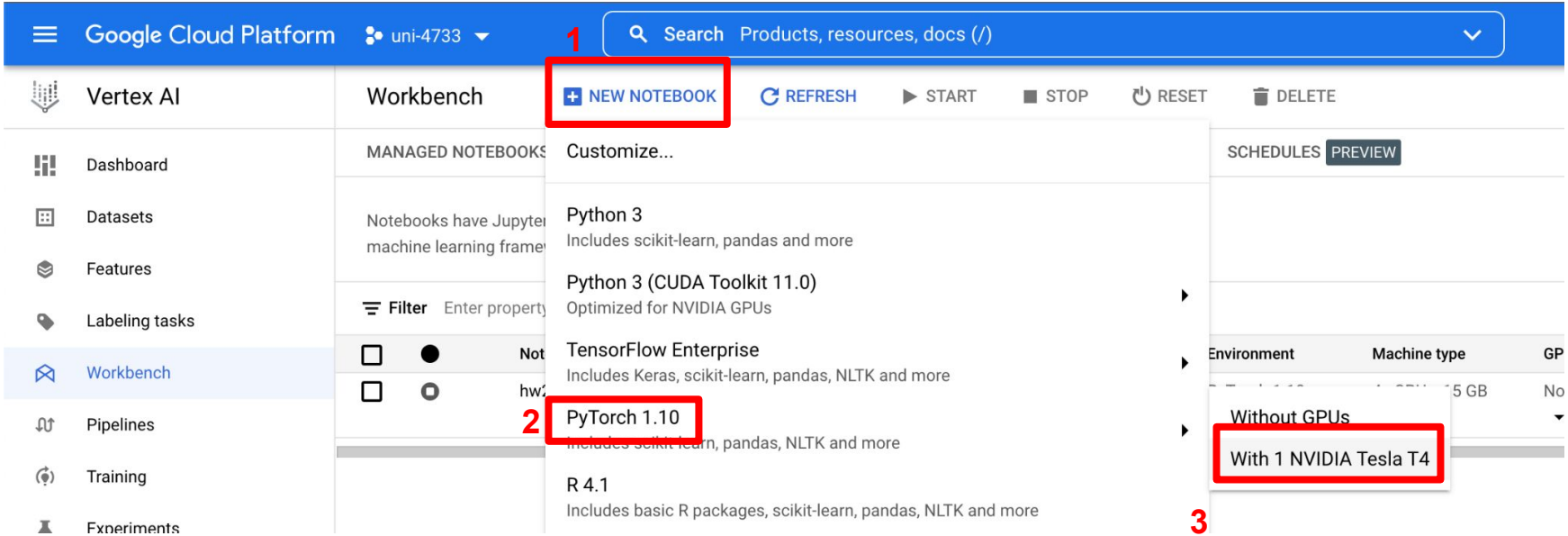



Enable the Notebooks API first



# Create a Virtual Machine

Vertex AI -> Workbench -> NEW INSTANCE -> PyTorch 1.10 -> With 1 NVIDIA Tesla T4

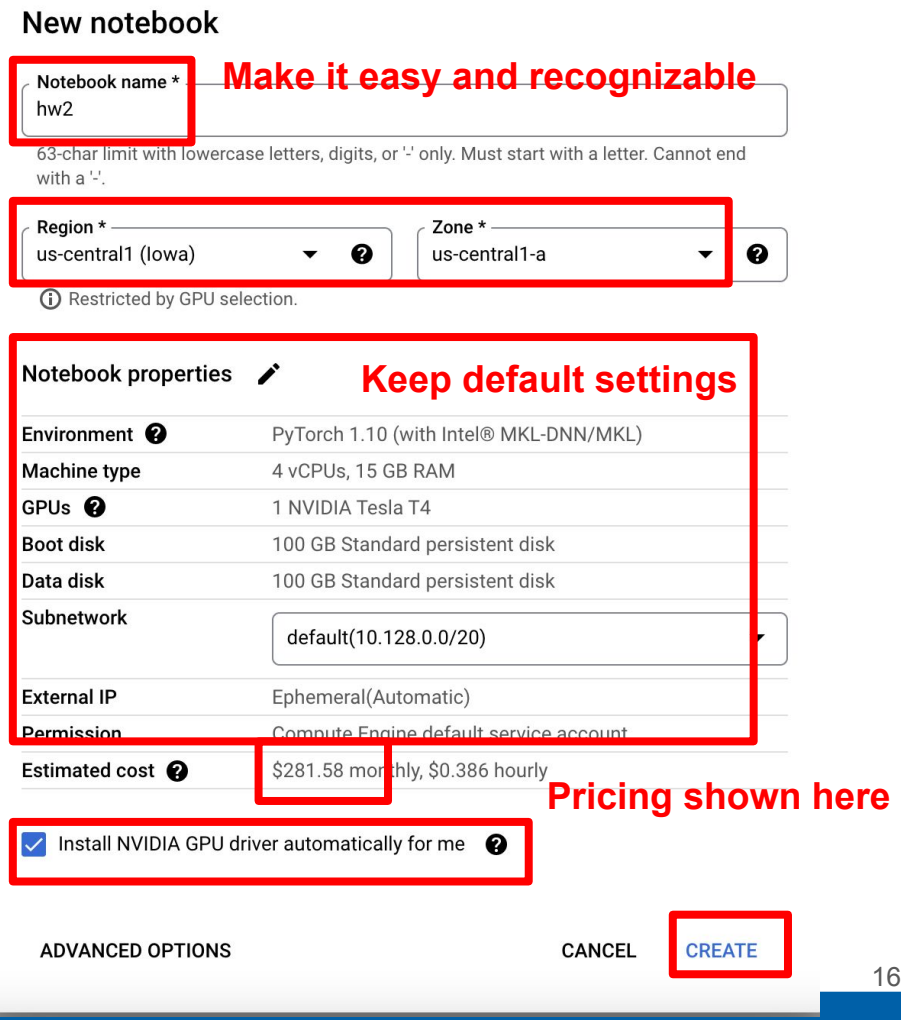


# Create a VM

DO
LOOK AT
THE NEXT PAGE!!!

Use us-central1

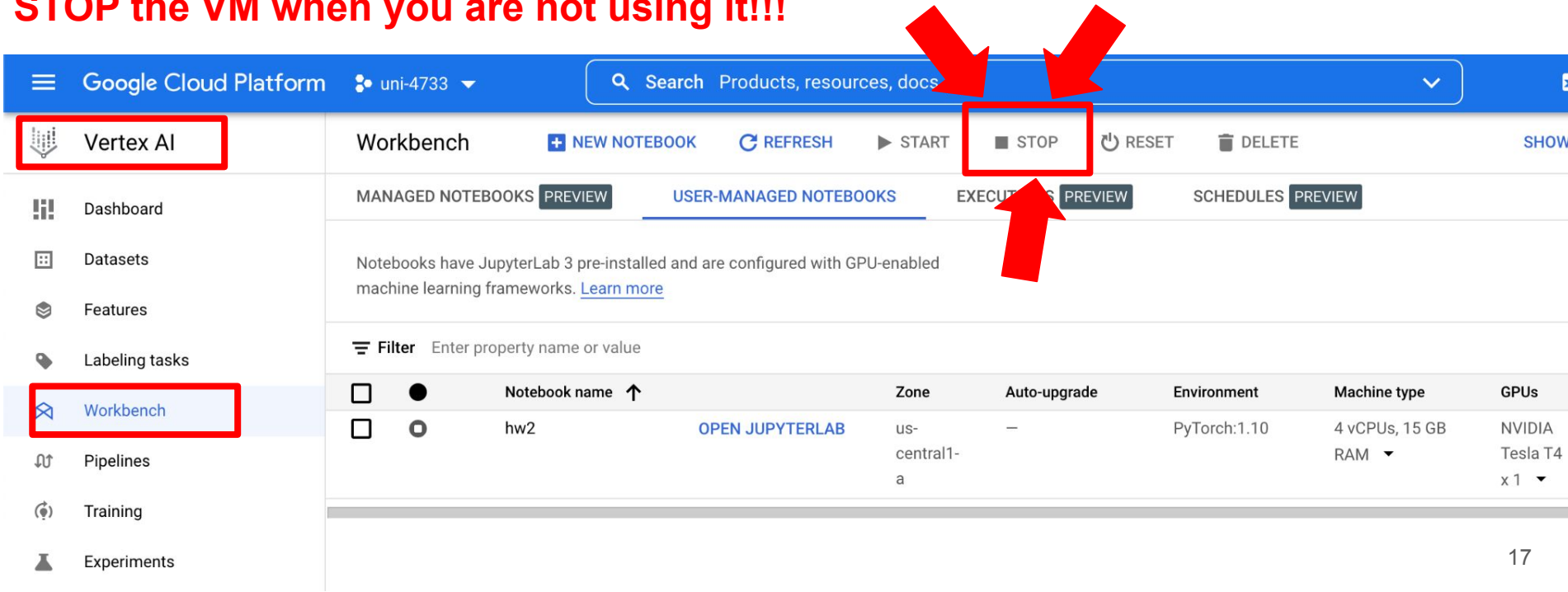
IMPORTANT: check this box



# IMPORTANT: STOP the VM!!!

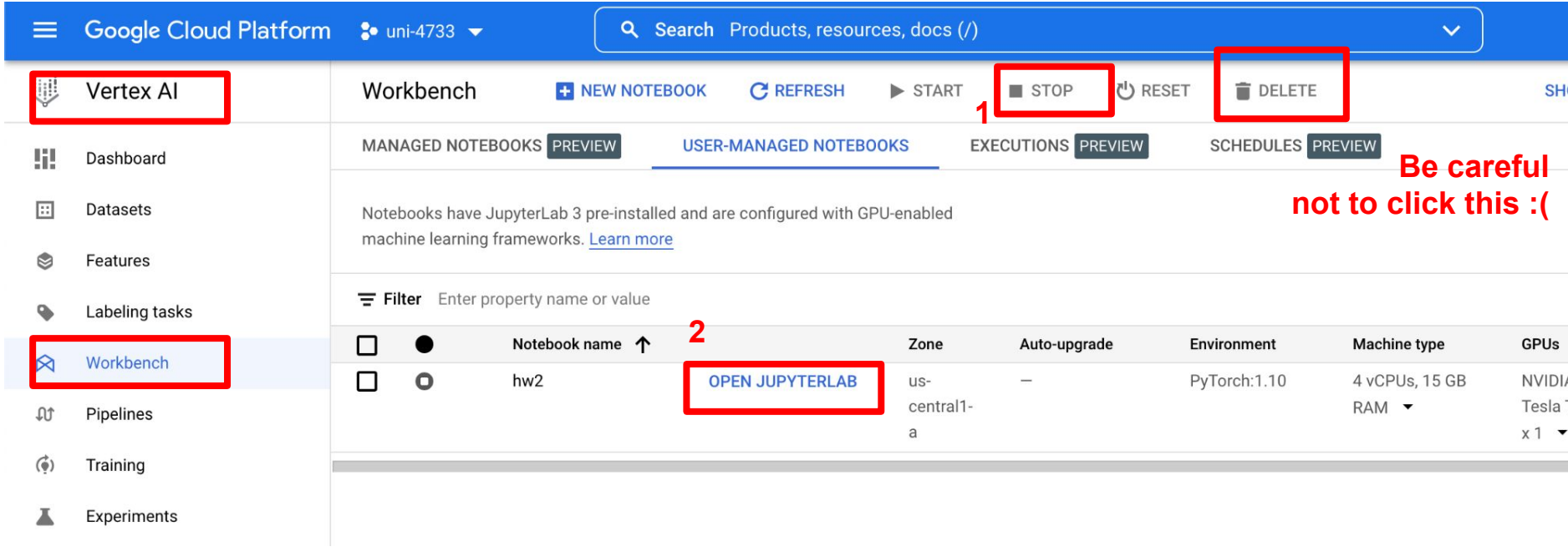
After you successfully create the VM, it will automatically START.

**STOP the VM when you are not using it!!!**



# Start the VM - jupyter notebook

https://console.cloud.google.com/vertex-ai/workbench/list/instances



# IMPORTANT: environment for hw2

We DON'T need a virtual environment on VM

Do not install the virtual environment on VM.

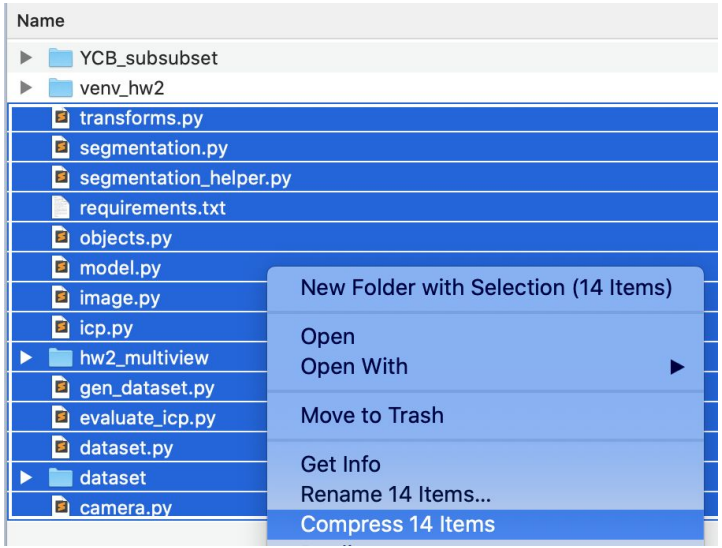
- run pip install opencv-python==4.4.0.42 in the terminal
- All other packages are pre-installed on the VM.

**STOP the VM when you are not using it!!!**

# Transfer files between PC and VM

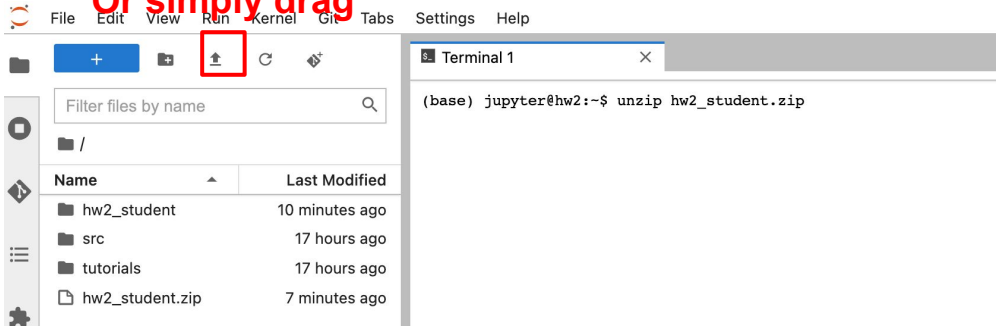
When you upload your homework2 from PC to VM:

- **DON'T include /venv_hw2 and /YCB_subsubset**
- Compress all files you want to upload in a zip file and upload to VM




PC

**To upload files**
**Click it**
**Or simply drag**



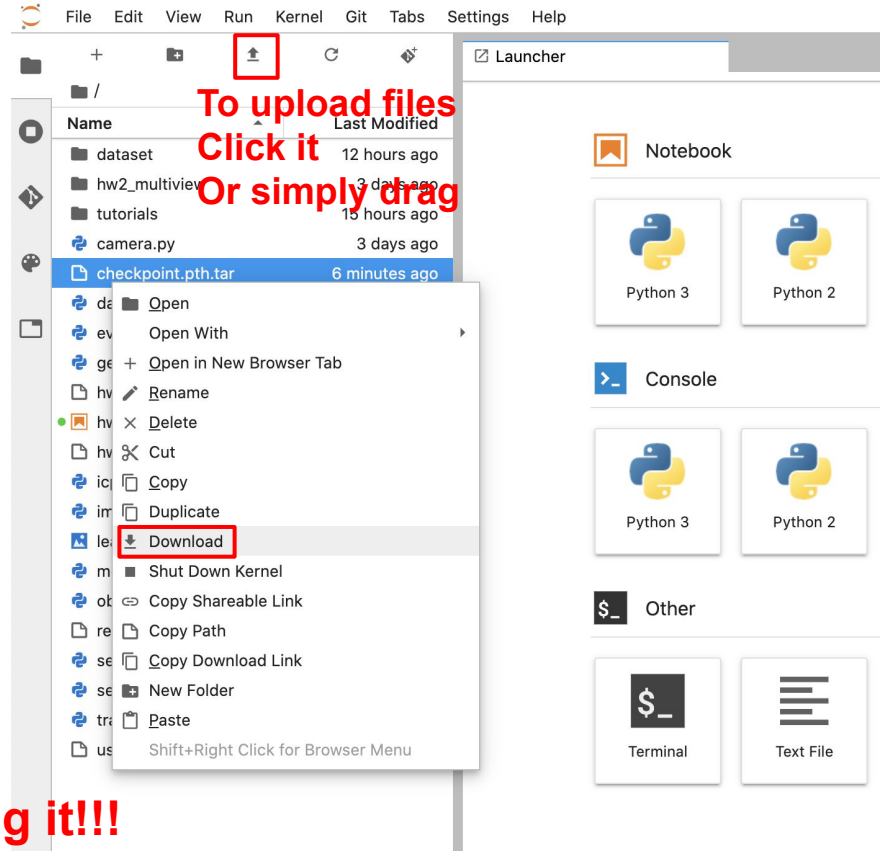

VM

# Transfer files between PC and VM

Start your VM to do this.

OPEN JUPYTERLAB
you will be able to

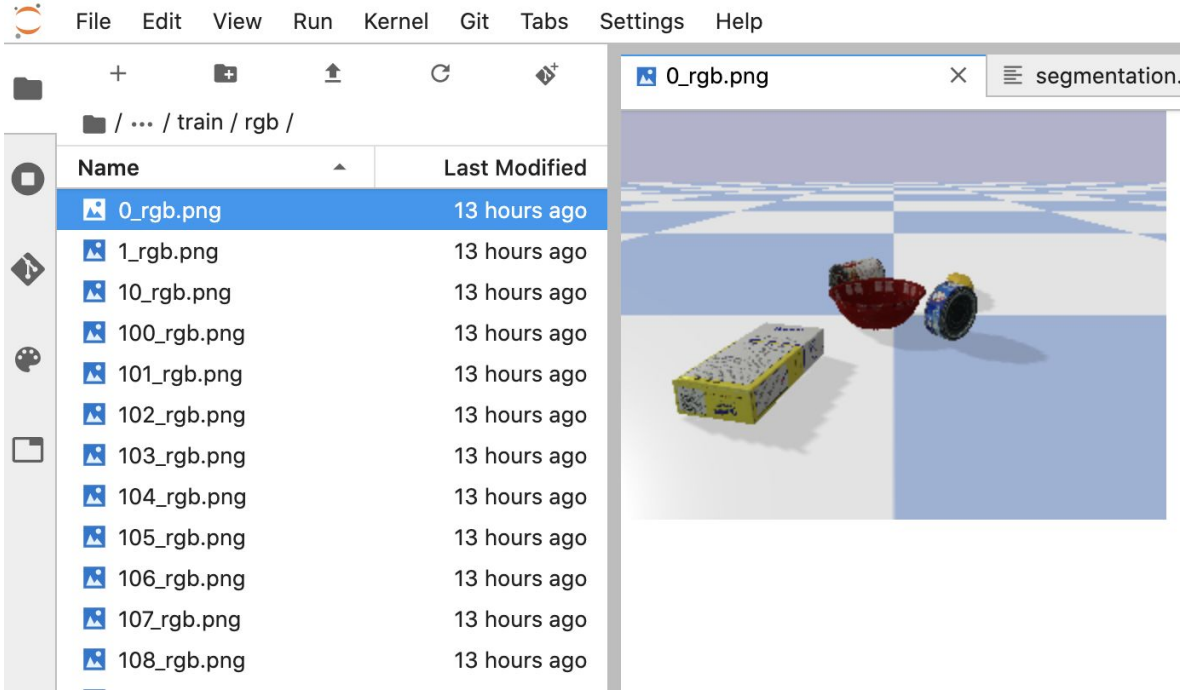
- Drag files to upload
- Right click on files to download




**STOP the VM when you are not using it!!!**

# Use JupyterLab in GCP

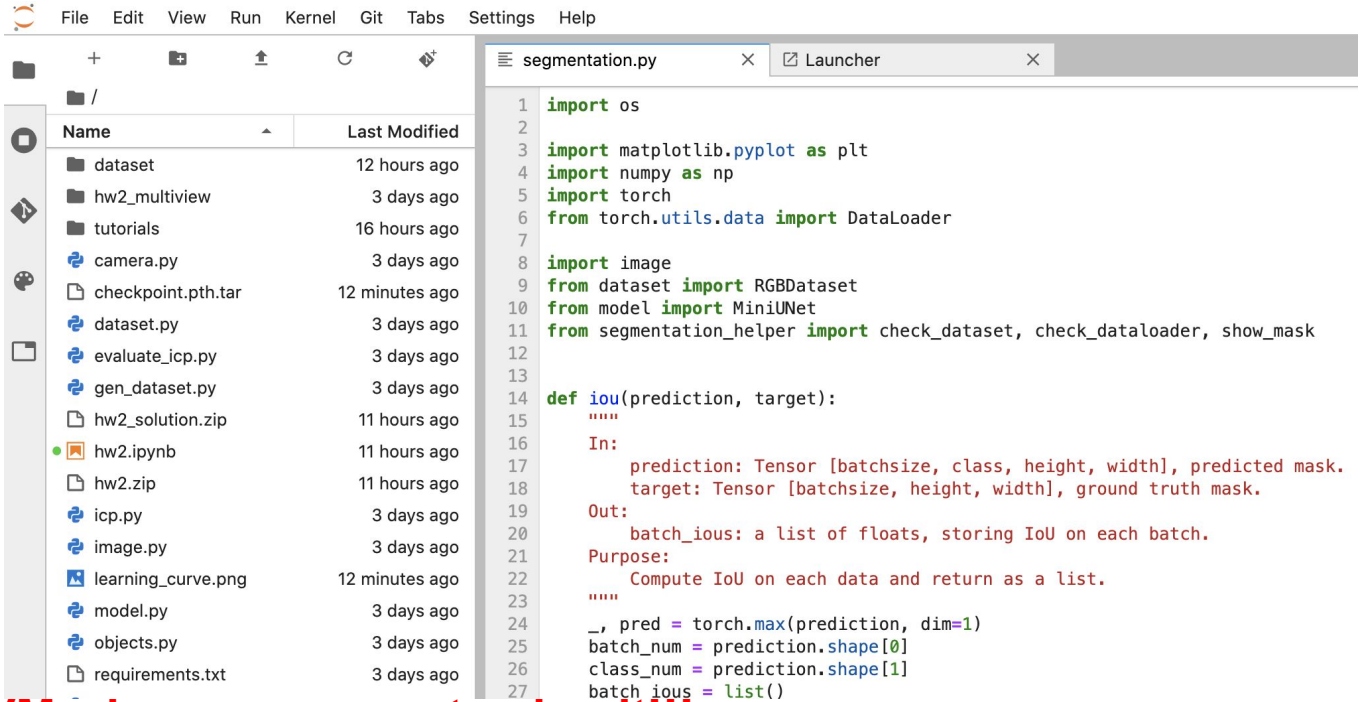
Double click to open files. For example, an image.




**STOP the VM when you are not using it!!!**

# Use JupyterLab in GCP

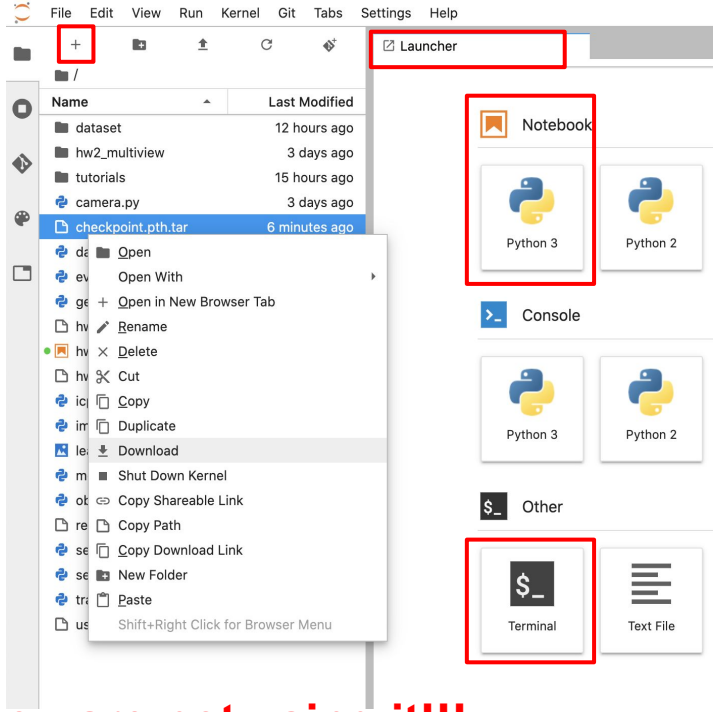
JupyterLab interface provides in-built code editor. Double click a code file to open.




**STOP the VM when you are not using it!!!**

# Use JupyterLab in GCP

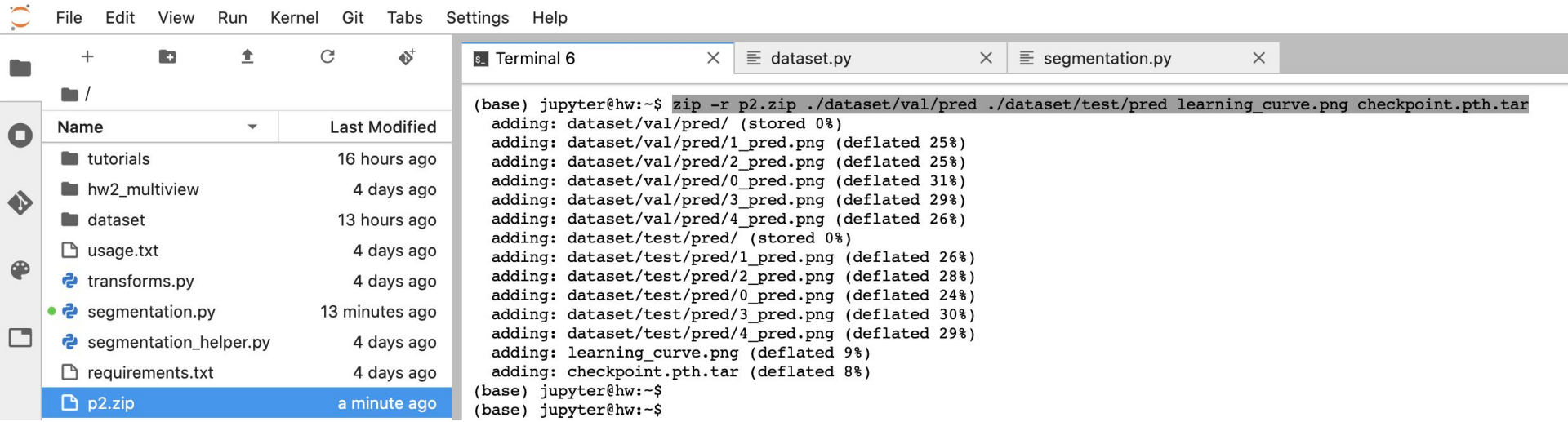
In the Launcher, you are able to open Notebook and Terminal




**STOP the VM when you are not using it!!!**

# Use JupyterLab in GCP

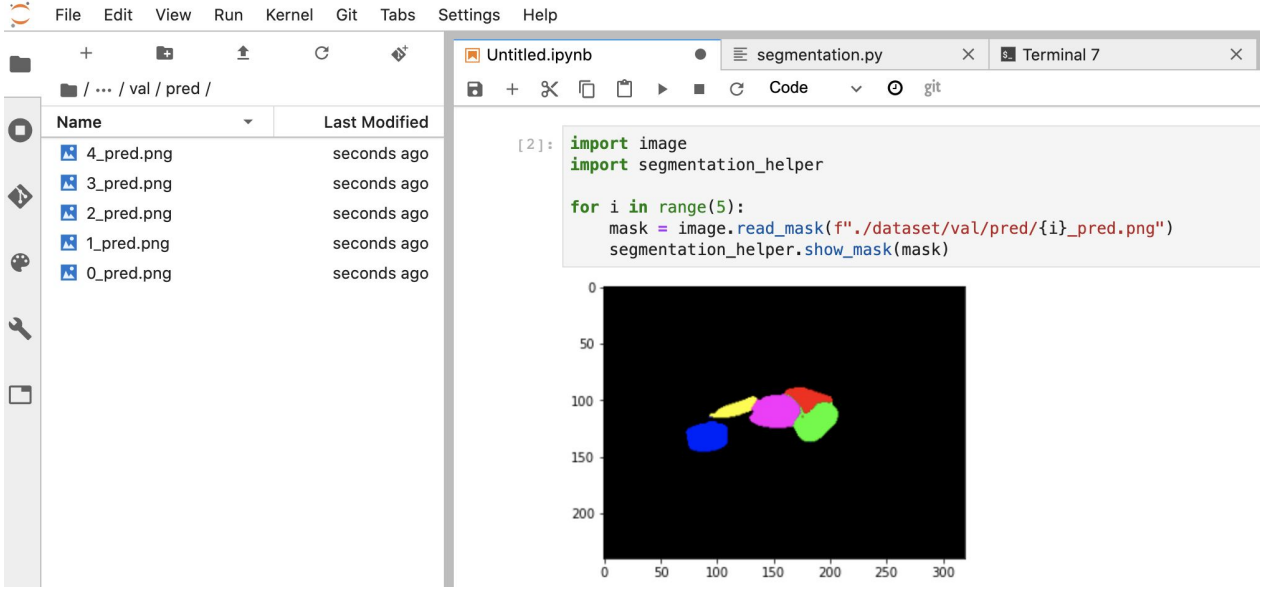
Use **Terminal** to run commands. (unzip uploaded file, run scripts, zip when you finish…)
You can zip your output files to download (**also don't forget to download your code**)
zip -r p2.zip ./dataset/val/pred ./dataset/test/pred learning_curve.png checkpoint.pth.tar




**STOP the VM when you are not using it!!!**

# Use JupyterLab in GCP

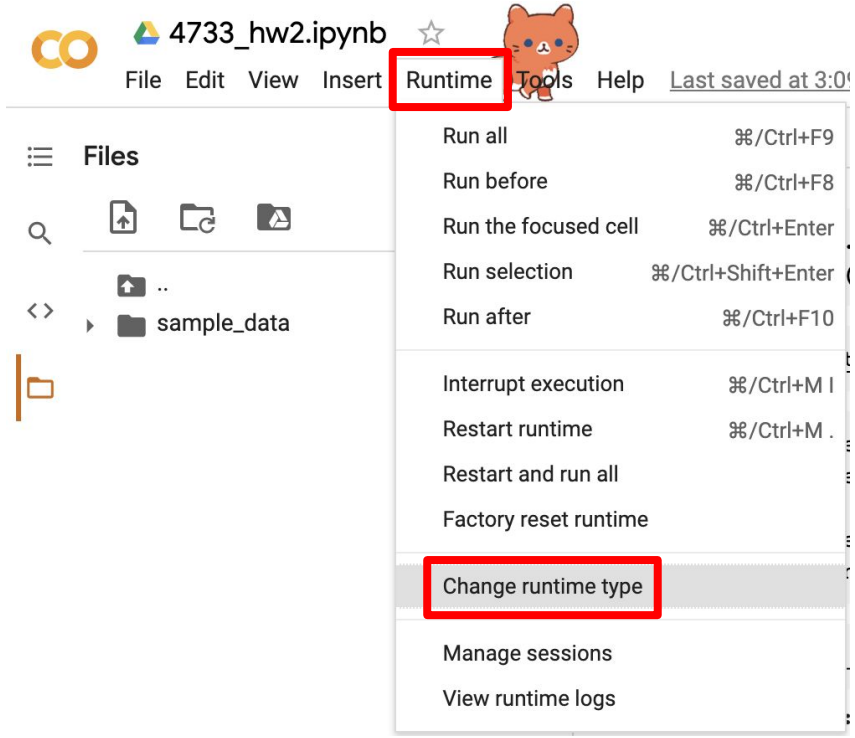
You can use Jupyter Notebook for visualization/debugging
e.g. show_mask(), check_dataset(), check_dataloader() from segmentation_helper.py
BUT, use **Terminal** to run your scripts when you finalize!

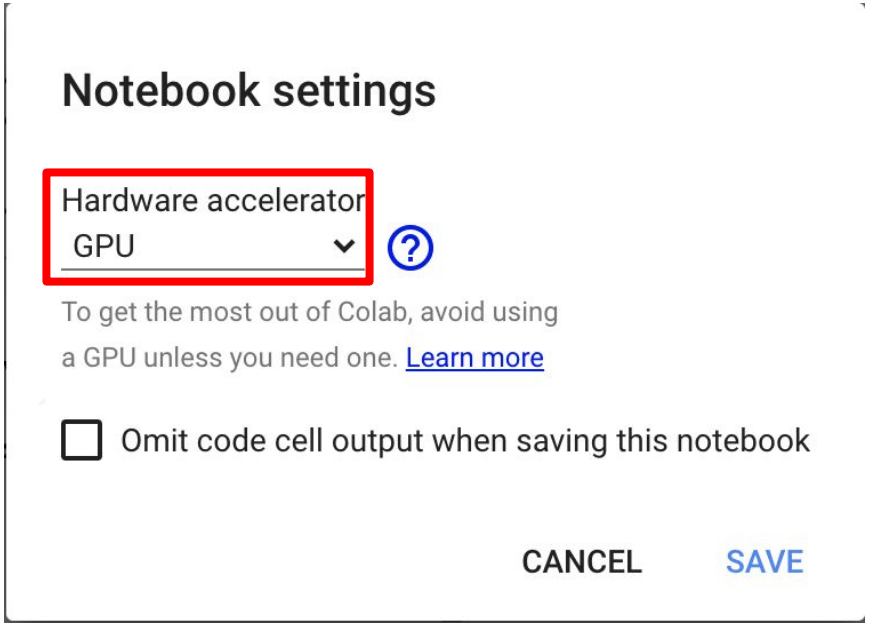



**STOP the VM when you are not using it!!!**

# Alternative: Google Colab

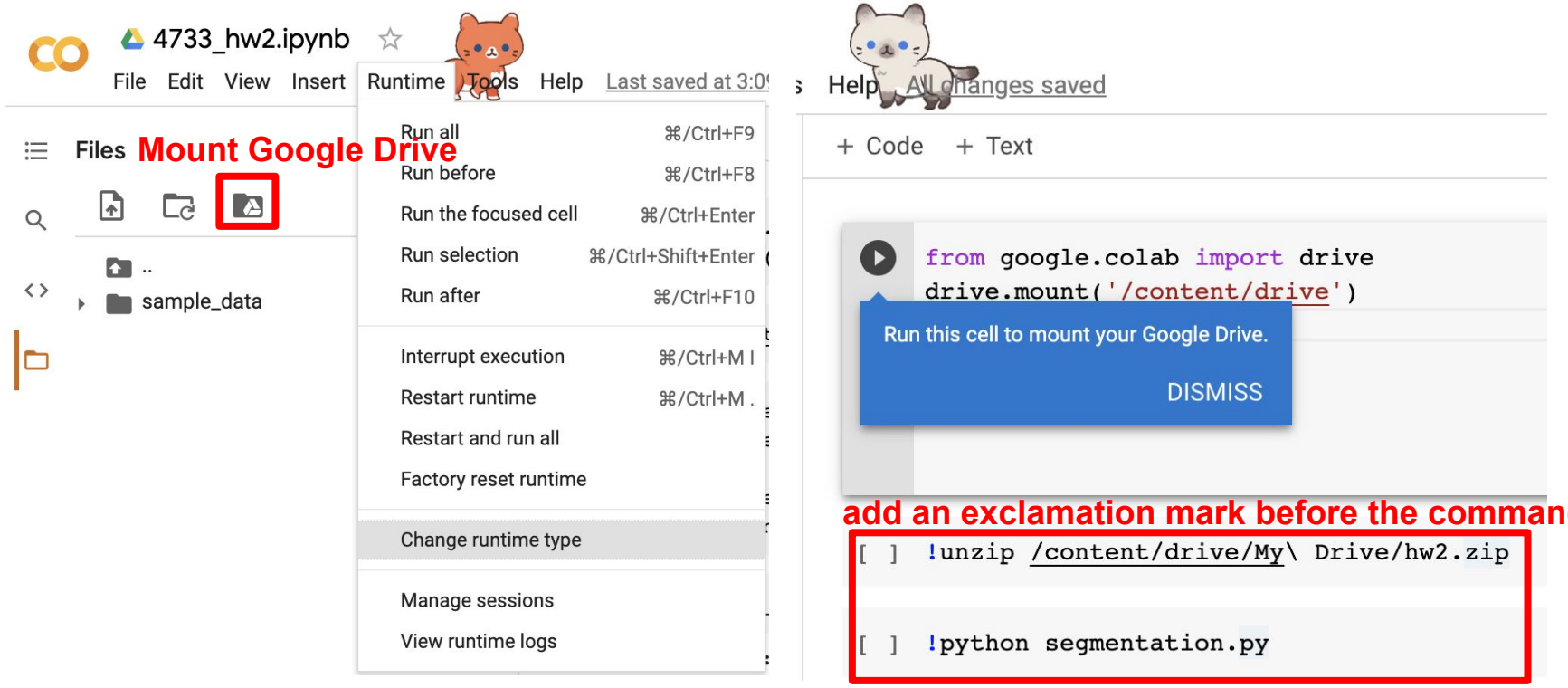
https://colab.research.google.com/



# Alternative: Google Colab

Upload and save to Google Drive. (slow and temporary in Colab)



# Alternative: Google Colab

Better to edit code in the cells in case you forget to save your code files